STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.
0	0	IDENT BEADG
0		END

```
                    IDENT   BEADG
```

```
                    *
                    *
                    *                   OOPNAMES HERE
                    *
                              LIST      X
                    *
0                   OPNAMES   XTEXT
          0         C.SELF    EQU       0           CAPABILITY FOR THIS C LIST          OPNAMES   1
          1         C.ALLOC   EQU       1           ALLOCATION BLOKC C LIST INDEX       OPNAMES   1
          2         C.INTFIL  EQU       2                                               OPNAMES   1
          3         C.RFILE   EQU       2+1         READ ON FILE                        OPNAMES   1
          4         C.WFILE   EQU       3+1         WRITE ON FILE                       OPNAMES   1
          5         C.SENDE   EQU       4+1         SEND EVENT                          OPNAMES   1
          6         C.GETE    EQU       5+1         GET EVENT OR HANG                   OPNAMES   1
          7         C.CCLIST  EQU       6+1         CREATE C LIST OPERATION             OPNAMES   1
         10         C.CFILE   EQU       7+1         CREATE FILE                         OPNAMES   1
         11         C.CBLK    EQU       8+1         CREATE FILE BLOCK                   OPNAMES   1
         12         C.CPROC   EQU       9+1         CREATE PROCESS                      OPNAMES   1
         13         C.CEVCH   EQU       10+1        CREATE EVENT CHANNEL                OPNAMES   1
         14         C.CSPROC  EQU       11+1        CREATE SUB PROCESS                  OPNAMES   1
         15         C.CCC     EQU       12+1        CREATE CLASS CODE                   OPNAMES   1
         16         C.SAVE    EQU       13+1        SAVE REGISTERS                      OPNAMES   1
         17         C.RESTOR  EQU       14+1        RESTORE REGISTERS                   OPNAMES   1
         20         C.DSCAP   EQU        16       .. DISPLAY A CAPABILITY              OPNAMES   1
         20         C.DSPCAP  EQU        C.DSCAP  .. OLD NAME FOR C.DSCAP              OPNAMES   1
         21         C.FSON    EQU       16+1                                           OPNAMES   1
         22         C.MOVEC   EQU        18       .. MOVE A CAPABILITY WITHIN FULL CLIST  OPNAMES  1
         22         C.MVECAP  EQU        C.MOVEC  .. OLD NAME FOR C.MOVEC             OPNAMES   1
         23         C.CAPIN   EQU       18+1                                           OPNAMES   1
         24         C.CAPOU   EQU        20       .. COPY A CAPABILITY OUT OF FULL CLIST  OPNAMES  1
         24         C.CAPOUT  EQU        C.CAPOU  .. OLD NAME FOR C.CAPOU             OPNAMES   1
         25         C.ESMGEN  EQU        21          SET ANY ESM IN PROCESS           OPNAMES   1
         26         C.ESMLOC  EQU        22          SET LOCAL ESM                    OPNAMES   1
         27         C.MKOPR   EQU        23          CREATE OPERATION(SUBP CALL)      OPNAMES   1
         30         C.RETURN  EQU        24          SUBPROCESS RETURN                OPNAMES   1
         31         C.FRETUR  EQU        25          F-RETURN                         OPNAMES   1
         32         C.FIXC    EQU        26          FIX CAPABILITY PS                OPNAMES   1
         33         C.FIXD    EQU        27          FIX DATUM PS                     OPNAMES   1
         34         C.UDAT    EQU        28          CHANGE ANY PS TO USER DATUM      OPNAMES   1
         35         C.UCAP    EQU        29          CHANGE ANY PS TO USER CAPABILITY OPNAMES   1
         36         C.ACAP    EQU        30          CHANGE ANY PS TO ANY CAPABILITY  OPNAMES   1
         37         C.ADDOPT  EQU        31          ADD OPTION BITS TO PS            OPNAMES   1
         40         C.COPYOP  EQU       32           . MAKE A COPY OF AN OPERATION    OPNAMES   1
         41         C.CHKBLK  EQU       33           . CHECK FOR MISSING FILE BLOCKS  OPNAMES   1
         42         C.DELBLK  EQU       34           . DELETE A FILE BLOCK            OPNAMES   1
         43         C.DELFIL  EQU       35           . DELETE A FILE                  OPNAMES   1
         44         C.REDSHP  EQU       36           . GET SHAPE NUMBERS OF A FILE    OPNAMES   1
         45         C.MAPZRO  EQU       37           . ZERO A MAP ENTRY               OPNAMES   1
         46         C.MPCHRO  EQU       38       . CHANGE A ZERO MAP ENTRY TO READ ONLY  OPNAMES  1
         47         C.MPCHRW  EQU       39       . CHANGE A ZERO MAP ENTRY TO RW      OPNAMES   1
         50         C.MOVBLK  EQU       40           . MOVE A FILE BLOCK              OPNAMES   1
         51         C.DISMAP  EQU        41                                          OPNAMES   1
         52         C.JUMP    EQU       42                                           OPNAMES   1
```

```
                53    C.NEWUN   EQU     43          .CHANGE UNIQUE NAME                          OPNAMES   1
                54    C.DISPST  EQU     44          .DISPLAY ENTIRE STACK                        OPNAMES   1
                55    C.DISSEN  EQU     45          .DISPLAY STACK ENTRY                         OPNAMES   1
                56    C.DSFMAP  EQU     46        DISPLAY FULL MAP ENTRY                         OPNAMES   1
                57    C.DELCL   EQU     47        DELETE C-LIST                                  OPNAMES   1
                60    C.PINT    EQU     48        SEND PROCESS INTERRUPT                         OPNAMES   1
                61    C.ADDORD  EQU     49          . ADD AN ORDER TO AN OPERATION               OPNAMES   1
                62    C.CCCLOA  EQU     50          CREATE COMPLETE CAPABILITY                   OPNAMES   1
                63    C.DONATE  EQU     51          TRANSFER BETWEEN ALLOC BKS                   OPNAMES   1
                64    C.CRALBK  EQU      52         .CREATE ALLOC BLOCK                          OPNAMES   1
                65    C.MODPC   EQU     53          .MOFIDY P-COUNTER                            OPNAMES   1
                66    C.DLPROC  EQU     54          .DESTROY A PROCESS                           OPNAMES   1
                67    C.DPROD   EQU      55       .. DISPLAY  A PROCESS                         OPNAMES   1
                67    C.CHNGWD  EQU      C.DPROD  ***NOW DEFUNCT OPERATION. SYMBOL DEFINITIOOPNAMES   1
                      ,                                                                        OPNAMES   1
                      *                          KEPT AROUND TO AVOID ASSEMBLY PROBLEMS       OPNAMES   1
                      *                          SHOULD EVENTUALLY BE DELETED.                OPNAMES   1
                70    C.CLRDAE  EQU     56          . CLEAR THE DIRECT ACCESS ECS ENTRY          OPNAMES   1
                71    C.SETDAE  EQU     57          . SET THE DIRECT ACCESS ECS ENTRY            OPNAMES   1
                72    C.DELSUB  EQU      58         DELETE SUP PROC                              OPNAMES   1
                73    C.SETIIB  EQU     55+4        .SET INTERRUPT INHIBIT BIT                   OPNAMES   1
                74    C.CLRIIB  EQU     56+4        .CLEAR INTERRUPT-INHIBIT BIT                 OPNAMES   1
                75    C.GETEVF  EQU     57+4      .GET EVENT OR FRETURN                          OPNAMES   1
                76    C.DELAB   EQU      62           .DESTROY ALLOCATION BLOCK                  OPNAMES   1
                77    C.MGETH   EQU      63        GET EVENT FROM MULTIPLE CHANNELS OR HOPNAMES   1
                      ,                                                                        OPNAMES   1
               100    C.MGETF   EQU      64        GET EVENT FROM MULTIPLE CHANNELS OR FOPNAMES   1
                      ,                                                                        OPNAMES   1
               101    C.DESECH  EQU     65        DESTROY EVENT CHANNEL                        OPNAMES   1
               102    C.DSPCLX  EQU     66        DISPLAY CLOCKS IN USER CORE                  OPNAMES   1
                 3    C.READ    EQU     C.RFILE                                                OPNAMES   1
                 4    C.WRITE   EQU     C.WFILE                                                OPNAMES   1
                 6    C.HANG    EQU     C.GETE                                                 OPNAMES   1
                41    C.PROBE   EQU     C.CHKBLK                                               OPNAMES   1
               103    C.NWTMP   EQU     67        SET TEMPORARY PART OF CLASS CODE             OPNAMES   1
               104    C.DSPAB   EQU     68        DISPLAY ALLOCATION BLOCK                     OPNAMES   1
               105    C.BDAT    EQU     69        . CHANGE ANY TO BLOCK DATA PARAMETER         OPNAMES   1
               106    C.BLKCAP    EQU     70        . CHANGE ANY TO BLOCK CAPABILITY PARAM     OPNAMES   1
               107    C.DISPOP  EQU     71        . DISPLAY OPERATION                          OPNAMES   1
               110    C.USRER   EQU     72        . USER INITIATED ERROR                       OPNAMES   1
               111    C.RETPAR  EQU     73        . RETURN WITH PARAMETERS                     OPNAMES   1
               112    C.TIMDT   EQU     74        .  RETURN DATE AND TIME                      OPNAMES   1
               113    C.CAGEN   EQU     75        . MAKE CAPABILITY CREATING AUTHORIZATION     OPNAMES   1
               114    C.CGEN    EQU     76        . MAKE CAPABILITY OF AUTHORIZED TYPE         OPNAMES   1
               115    C.DSPSP   EQU     77        . DISPLAY SUBPROCESS DESCRIPTOR              OPNAMES   1
               116    C.TRDB    EQU     78        .  TEST AND RESET DIRTY BIT                  OPNAMES   1
               117    C.INCHR   EQU     79        . INCREMENT AB CHARGE RATE                   OPNAMES   1
               120    C.DSPOB   EQU     80        . DISPLAY OBJECT                             OPNAMES   1
               121    C.DSPALC  EQU     81        . DISPLAY ALLOCATOR CONSTANTS                OPNAMES   1
               122    C.CHMPRW  EQU     82        . CHANGE A READ-WRITE MAP ENTRY              OPNAMES   1
               123    C.CHMPRO  EQU     83        . CHANGE A READ ONLY MAP ENTRY               OPNAMES   1
                47    C.MKMPRW  EQU     C.MPCHRW  . MORE REASONALBE NAME FOR C.MPCHRW           OPNAMES   1
                46    C.MKMPRO  EQU     C.MPCHRO  . MORE REASONALBE NAME FOR C.MPCHRO           OPNAMES   1
```

```
                124     C.DSCLX   EQU       64    . DISPLAY SYSTEM CLOCKS IN USER CORE      OPNAMES   1
                125     C.SPRET   EQU       85    .. SPECIAL RETURN (DECREMENT P-COUNTER)   OPNAMES   1
                126     C.CPZRO   EQU       86    .. ZERO A CAPABILITY                      OPNAMES   1
                127     C.MOVCP   EQU       87    . TRANSFER CP TIME BETWEEN ABS            OPNAMES   1
                130     C.MOVMT   EQU       88    . TRANSFER MOT SLOTS BETWEEN ABS          OPNAMES   1
                131     C.INMTR   EQU       89    . INCREMENT AB CHARGE METER               OPNAMES   1
                132     C.DLOPR   EQU       90    . DESTROY AN OPERATION                    OPNAMES   1
```

```
                *
                *
                *
XJ              MACRO   LOC
+               VFD     12/01308,18/LOC,30/1
                SB7     *+1
                JP      UNEXFRTN
                ENDM
                *
                *
XJR             MACRO   LOC,RTNAUTH
+               VFD     12/01308,18/LOC,12/1,18/2
                VFD     60/RTNAUTH
                SB7     *+1
                JP      UNEXFRTN
                ENDM
                *
                *
XJF             MACRO   LOC,FGO
+               VFD     12/01308,18/LOC,30/1
                JP      FGO
                ENDM
                *
                *
CALL            MACRO   LOC
+               SB7     *+1
                JP      LOC
                ENDM
                *
                *
CALLR           MACRO   L,A,B,C,D,E
                SETBS   A,B,C,D,E
                SB7     L
+               SX6     *+1
                JP      CALLR
                ENDM
                *
                *
SETBS           MACRO   A,B,C,D,E
                IFC     NE,$$A$
                SB1     A
                IFC     NE,$$B$
                SB2     B
                IFC     NE,$$C$
                SB3     C
                IFC     NE,$$D$
                SB4     D
                IFC     NE,$$E$
                SB5     E
                ENDIF
                ENDM
                *
                *
```

```
RTNR    MACRO
        JP      RTNR
        ENDM
*
*
MCAP    MACRO   NAME
        BSS     0
M.NAME  EQU     -*
        VFD     1/1,29/C.NAME,30/CX.MAST
        ENDM
*
*
MXCAP   MACRO   NAME
+       VFD     1/1,29/C.NAME,30/CX.MAST
        ENDM
*
*
ITEMS   MACRO   A,B,C,D,E,F,G,H
        VFD     60/A
        IFC     NE,$$B$
        VFD     60/B
        IFC     NE,$$C$
        VFD     60/C
        IFC     NE,$$D$
        VFD     60/D
        IFC     NE,$$E$
        VFD     60/E
        IFC     NE,$$F$
        VFD     60/F
        IFC     NE,$$G$
        VFD     60/G
        IFC     NE,$$H$
        VFD     60/H
        ENDIF
        ENDM
*
*
*
MAP     MACRO   NAME,X,FLAD,CMAD,LASTP1,RO
*       VFD     60/0L*NAME
        VFD     30/X,30/FLAD
        VFD     1/RO,29/CMAD,30/LASTP1
        ENDM
*
*
*               MACRO FOR CLIST INDEX OF OBJECT TO RETURN TO CALLER
*
RTNCAP  MACRO   NAME
        DATA    0
        RMT
        DATA    0L*NAME
        RMT
        ENDM
```

```
                *
                *
                *                       MACRO FOR CLIST INDEX OF OBJECT TO BE OBTAINED
                *                       AT TIME OF THIS SUBPROCESS CONSTRUCTION
                *
PARCAP          MACRO   NAME
                DATA    0L↗NAME
                ENDM
                *
                *
                *
                MACRO   MICROX,L,NAME
L               MICRO   1,,/↗NAME↗/
                ENDM
```

```
*
*
*                       BASIC MACRO
*
XSETXJ    MACRO     A,B,C,D,E
LOCALPXJ  SET       0
          IFC       NE,$$A$
          SX1       A
LOCALPXJ  SET       1
          IFC       NE,$$B$
          SX2       B
LOCALPxJ  SET       2
          IFC       NE,$$C$
          SX3       C
LOCALPxJ  SET       3
          IFC       NE,$$D$
          SX4       D
LOCALPxJ  SET       4
          IFC       NE,$$E$
          SX5       E
LOCALPXJ  SET       5
          ENDM
*
*
*                       FULL 10 PARAM VERSION
*
YSETXJ    MACRO     A,B,C,D,E,F,G,H,I,J
          XSETXJ    A,B,C,D,E
          SB2       5
          CALL      SET
          XSETXJ    F,G,H,I,J
          ENDIF
          SB2       LOCALPXJ
          CALL      SET
          ENDM
*
*
*                       STANDARD XJ CALL
*
DOXJ      MACRO     A,B,C,D,E,F,G,H,I,J
          SB1       XJLOC
          YSETxJ    A,B,C,D,E,F,G,H,I,J
          XJ        XJLOC
          ENDM
*
*
*                       MULTI LINE VERSIONS
*
*                       INITIAL SET UP LINE
*
SETXJ     MACRO     A,B,C,D,E,F,G,H,I,J
          SB1       XJLOC
          YSETxJ    A,B,C,D,E,F,G,H,I,J
```

```
                ENDM
*
*                       FINAL CALL  ( USE YSETXJ IN BETWEEN)
*
XDOXJ   MACRO   A,B,C,D,E,F,G,H,I,J
        YSETXJ  A,B,C,D,E,F,G,H,I,J
        XJ      XJLOC
        ENDM
*
*
*
SAVE7   MACRO   L
        SX6     B7
        SA6     L
        ENDM
*
*
GET7    MACRO   L
        SA1     L
        SB7     X1
        ENDM
```

```
                                *
                                *
                                *                MICROS FOR SUBPROCESS DESCRIPTOR
                                *
                                *
0                               CLASS     MICROX     CC.BEADG
0                               FATHER    MICROX     CC.FRETRW
0                               ICALL     MICROX     CO.BEADGI
0                               CLIST     MICROX     CL.BEADG
0                               SCRFILE   MICROX     EF.BEADGSF
0                               CODEFILE  MICROX     EF.BEADGCD
                                *
                                *
                                *
                                *                SUBPROCESS DESCRIPTOR
                                *
                                *
0                                         ORG       0
                                *
0  0000000000000000001                    DATA      1
1  0000000000000000000                    DATA      0
2  0303570205010407000O                   DATA      0L*CLASS*
3  0303570622052422270O                   DATA      0L*FATHER*
4  0317570205010407110O                   DATA      0L*ICALL*
5  0314570205010407000O                   DATA      0L*CLIST*
6  0506570205010407230O                   DATA      0L*SCRFILE*
7  0000000000000000005                    DATA      5
10 0000000000000000024                    DATA      20
11 0000000000000000764                    ITEMS     FL
12 0000000000000000262                    ITEMS     ENTRY
13 0000000000000000013                    ITEMS     CLSTSZ
14 0000000000000000266                    ITEMS     SCRSZ
                                *
15 0506570205010407230O                   MAP       *SCRFILE*,0,0,0,SCRSZ,0
20 0506570205010407030O                   MAP       *CODEFILE*,1,SCRSZ,SCRSZ,FL,1
                                *
23 7777777777777777777                    DATA      -0
                                *
L   0                                     LOC       0
                                *
L   0  1157011414170300000O    CX.ALLOC   PARCAP    I.ALLOC
L   1  0506570205010407030O    CX.CODEF   PARCAP    *CODEFILE*
L   2  1157150123240522000O    CX.MAST    PARCAP    I.MASTER
L   3  0317570315150404000O    CX.DEBUG   PARCAP    CO.CMMDD
L   4  0303570205010407000O    CX.BDGCD   PARCAP    *CLASS*
L   5  0317571411160501000O    CX.TLINE   PARCAP    CO.LINEA
L   6  0317570205010423020O    CX.BEADS   PARCAP    CO.BEADSB
L   7                          SYSCLSBS   BSS       0
L   7  0303571411160500000O               PARCAP    CC.LINE
L  10  0303570315150400000O               PARCAP    CC.CMMD
L  11                                     BSS       0
                          2    SYSTMCNT   EQU       *-SYSCLSBS
                               *
```

LOW CORE

```
L     11  0205010400000000000    CX.BEAD   PARCAP    BEAD
L     12  0000000000000000000    CX.TEMP   DATA      0
                                 *
L     13                         RTNBASE   BSS       0
                                 *
                                 *
L     13                         CLSTSZ    BSS       0
                                 *
L     13  7777777777777777777                DATA      -0
                                 *
      40                                    LOC       *0
                                 *
                                 *
      40                         BASE1     BSS       0
```

```
                                *
                                *
                                *
                                *                       PARAMETER LOCATION DEFINITIONS
                                *
                          6     CALLTYPE  EQU     6           ( HIDDEN PARAM )
                          3     CALLRA    EQU     3
                          4     CALLCLRA  EQU     4
                          6     ECLASS    EQU     6
                          7     ENUM      EQU     7
                          2     INTDTM    EQU     2
                                *
                                *
 10                             *         ORG     10B
                                *
                                *
                                *                       THIS SET OF DATA AREA MUST BE ALL BSS
                                *
                                *                       NO ACTAUAL DATA OR ZEROS AT ASSEMBLY TIME
                                *
                                *
                                *
                                *                       SOME XJ S DONE HERE
                                *
 10                             XJLOC     BSS     15
                                *
                                *
                                *
                                *                       ASSORTED REGISTER STORAGE LOCATIONS
                                *
 27                             NREGS     BSS     20B
 47                             EREGS     BSS     20B
 67                             IREGS     BSS     20B
                                *
                                *
                                *
                                *                       DATA ASSOCIATED WITH LINE COLLECTOR
                                *
                          17    TTYBFSZ   EQU     15
                                *
 107                            TTYBUF    BSS     TTYBFSZ
                                *
```

```
                                    *
                                    *
                                    *                   NO RESTRICTION ON DATA AREA FROM HERE ON
                                    *
126                                 BASE2     BSS       0
                                    *
                                              IFGT      BASE1,BASE2
                                              ENDIF
                                    *
                                    *
                                    *                   MORE DATA ASSOCIATED WITH LINE COLLCTOR
                                    *
                                    *
                                    *
126  0000000000000000005           Q.TLINE   ITEMS     CK.TLINE
127                                 Q.TTYPE   BSSZ      1
130  0000000017000000107                       VFD       30/TTYBFSZ,30/TTYBUF
                                    *
                                    *
131                                 FAKESD    BSSZ      2
                                    *
                                    *
                                    *                   DATA ASSOCIATED WITH BEAD SERVICES
                                    *
133  0000000000000000006           Q.BEADS   ITEMS     CK.BEADS
134                                            BSSZ      5
                                    *
                                    *
141                                 Q.BEADRA  BSSZ      2
                                    *
                                    *
143                                 LOCALDE   BSSZ      4
                                    *
                                    *
                                    *
                                    *                   MISC DATA
                                    *
147                                 GHSTERR   BSSZ      1           FLAG THAT ERROR OCCURED IN GHOST
                                    *
150                                 STK1PC    BSSZ      1           STACK DISPLAYS DONE HERE
151                                 STK1CLS   BSSZ      1
152                                           BSSZ      1
                                    *
                                    *
153                                 GHSTCLS   BSSZ      1           CLASS CODE OF GHOST
                                    *
154                                 SYSTMCLS  BSSZ      SYSTMCNT    HOLDS SYSTEM CLASS CODE NUMBERS
                                    *
156  0000000000000000000           ALLOWINT  DATA      0           SET 1 AFTER PROCESS INITIALIZATION
                                    *
                                    *
                                    *                   ERROR EXIT HANDLING
                                    *
```

```
157  4000000110000000002    ERETURN   MXCAP     USRER
160                         ECLSXT    BSSZ      1
161                         ENUMXT    BSSZ      1
```

```
                                    *
                                    *
                                    *
                                    *                       INITIAL CALL INFO
                                    *
  162  0000000000000000003         DBGXJ       ITEMS       CX.DEBUG
  163                              DBGTYPE     BSSZ        1
  164  0000000010000000166                     VFD         30/DBGCNT,30/DBGBLK
  165  0000000000000000012                     ITEMS       CX.TEMP
                                    *
  166                              DBGBLK      BSS         0
                                    *
  166                              USERRA      BSSZ        1
  167                              USERCLRA    BSSZ        1
  170                              USERMPRA    BSSZ        1
                                    *
  171                              ERRCLS      BSSZ        1
  172                              ERRNUM      BSSZ        1
                                    *
  173  0000000000000000764         GHSTFL      VFD         60/FL
  174  0000000000000000013         GHSTCL      VFD         60/CLSTSZ
  175                                          BSSZ        1
                                    *
                                    *
  176                                          BSS         0
                                10  DBGCNT      EQU         *-DBGBLK
                                    *
                                    *
                               166  DBGVAL1     EQU         DBGBLK
                               167  DBGVAL2     EQU         DBGBLK+1
                                    *
                                    *
                                    *                       RETURN ATHORIZATION
                                    *
  176  0000000003000000200         DBGRA       VFD         30/DBGRACNT,30/DBGRABLK
  177  0000000001000000012                     VFD         30/1,30/CX.TEMP
                                    *
  200                              DBGRABLK    BSS         0
                                    *
  200                              DBGACT      BSSZ        1
  201                              DBGACT1     BSSZ        1
  202                              DBGACT2     BSSZ        1
                                    *
  203                                          BSS         0
                                 3  DBGRACNT    EQU         *-DBGRABLK
                                    *
                                    *
                                    *
  203                              DBGRUN      BSSZ        1           FLAG THAT DEBUGGER RUNNING
  204                              DBGSFLAG    BSSZ        1           FLAG FOR SPECIAL RETURN
  205                              GHSTPC      BSSZ        1     GHOST P COUNTER ON GHOST ERROR OR FRETURN
```

```
                                    *
                                    *
                                    *
                                    *                       END OF SCRATCH AREA
                                    *
  206                               SCRSZ     BSS         0
                                    *
                                    *
                                    *
                                    *
                                    *                       MISC REFERANCES TO MASTER CLIST
                                    *
  206                                         MCAP        READ
  207                                         MCAP        MVECAP
  210                                         MCAP        DSCAP
                                    *
                                    *
                                    *
                                    *                       MISC DATA
                                    *
                                    *
  211  7777777777777777777          MINUS0    DATA        -0
```

```
                                *
                                *
                                *
                                *                       FIXED XJS ETC
                                *
                                *
  212  4000000073000000002     SETII       MXCAP       SETIIB
                                *
                                *
  213  4000000074000000002     CLRII       MXCAP       CLRIIB
                                *
                                *
  214  4000000016000000002     NSAVE       MXCAP       SAVE
  215  0000000000000000027                 ITEMS       NREGS
                                *
                                *
  216  4000000017000000002     NRESTORE    MXCAP       RESTOR
  217  0000000000000000027                 ITEMS       NREGS
                                *
                                *
  220  4000000016000000002     ESAVE       MXCAP       SAVE
  221  0000000000000000047                 ITEMS       EREGS
                                *
                                *
  222  4000000017000000002     ERESTORE    MXCAP       RESTOR
  223  0000000000000000047                 ITEMS       EREGS
                                *
                                *
  224  4000000016000000002     ISAVE       MXCAP       SAVE
  225  0000000000000000067                 ITEMS       IREGS
                                *
                                *
  226  4000000017000000002     IRESTORE    MXCAP       RESTOR
  227  0000000000000000067                 ITEMS       IREGS
                                *
                                *
  230  4000000030000000002     RETURN      MXCAP       RETURN
                                *
                                *
  231  4000000030000000002     READSELF    MXCAP       READ
  232  0000000000000000001                 ITEMS       CX.CODEF,0,0,SCRSZ
                                *
                                *
  236  4000000020000000002     DSPGHST     MXCAP       DSCAP
  237  0000000000000000004                 ITEMS       CX.BDGCD
                                *
                                *
  240  4000000125000000002     SRETURN     MXCAP       SPRET
                                *
                                *
  241  4000000055000000002     RDSTK1      MXCAP       DISSEN
  242  0000000000000000150                 ITEMS       STKIPC
  243  0000000000000000001                 DATA        1
```

```
  244  4000000026000000002    SETEMSK   MXCAP     ESMLOC
  245  0000000000000000246              ITEMS     *+1
  246  7777777777777777777              DATA      -0
                              *
                              *
  247  4000000110000000002    MINORPNC  MXCAP     USRER
  250  0000000000000000014              DATA      14B,0
                              *
                              *
  252  4000000110000000002    MAJORPNC  MXCAP     USRER
  253  0000000000000000014              DATA      14B,1
                              *
                              *
                              *                   RETURN AUTHORIZATIONS
                              *
  255  0000000017000000107    Q.TRTN    VFD       30/TTYBFSZ,30/TTYBUF
  256  0000000000000000000              VFD       30/0,30/0
```

```
                                *
                                *                ENRY POINT AREA
                                *
257                                      BSSZ    1           PROCESS INITIAL CALL
260   0200000640                         JP      INTERUPT    INTERRUPT ENTRY POINT
261   013000021200000000333      *       VFD     12/01308,18/SETII,30/ERRORC-*-1   ERROR ENTRY POINT
                                *
262   013000021200000000001      ENTRY   XJ      SETII       NORMAL INTRY POINT
264   013000021400000000001              XJ      NSAVE
266   013000024400000000001              XJ      SETEMSK
270   5140000006                         SA4     CALLTYPE    PICK UP HIDDEN PARAMETER
                 63240                   SB2     X4
271   0720000357                         LT      B2,B0,ENTRYZ          BAD HIDDEN PARAM
                   6132777773            SB3     B2-NENTVEC
272   0703000357                         GT      B3,B0,ENTRYZ          BAD HIDDEN PARAM
                   0220000273            JP      ENTVEC+B2
                                *
273   0200000337                 ENTVEC  JP      INIT                  INITIALIZER XALL
274   0200000362                         JP      ENTRYS                ALLOW INTERRUPTS
275   0200000277                         JP      ENTRYU                USER CALL
276   0200000704                         JP      ENTRYI                SPECIAL INTERRUPT CALL
                                *
277                                      BSS     0
                         4       NENTVEC EQU     *-ENTVEC
```

```
                                *
                                *                USER CALL
                                *
                                *                CALL TYPE IN B6
                                *
  277  5140000003              ENTRYU    SA4      CALLRA     PICK UP CALLERS RA
                5150000004              SA5      CALLCLRA   AND CLIST RA
  300  63240                             SB2      X4
            63350                         SB3      X5
                  73640                   SX6      X4
                        73750             SX7      X5
  301  5160000166                        SA6      USERRA
                5160000167                SA6      USERCLRA
                                *
  302  0760000325                        LT       B6,B0,ENTRYUX0      BAD CALL
                6146777762                SB4      B6-NENTRYUV
  303  0704000326                        GT       B4,B0,ENTRYUX1      BAD CALL
                0260000304                JP       ENTRYUV+B6
                                *
  304  0200000452              ENTRYUV   JP       BEADSVC    0        READ DIRECTORY ENTRY
  305  0200000452                        JP       BEADSVC    1        WRITE DIRECTORY ENTRY
  306  0200000452                        JP       BEADSVC    2        KILL DIRECTORY ENTRY
  307  0200000452                        JP       BEADSVC    3        CALL SUB PROC
  310  0200000566                        JP       USERDBG    4        DEBUG CALL ( OLD ..STOP )
  311  0200000366                        JP       TTYOUT     5        TTY LINE OUT
  312  0200000374                        JP       TTYIN      6        TTY LINE IN
  313  0200000404                        JP       TTYCHAR    7        TTY CHAR OUT
  314  0200000472                        JP       BEADSVC3   10       LOCK
  315  0200000472                        JP       BEADSVC3   11       UN LOCK
  316  0200000452                        JP       BEADSVC    12       FIND AND IGNORE BUSY BIT
  317  0200000412                        JP       TTYEDIT    13       TTY LINE EDIT
  320  0200000466                        JP       BEADSVC1   14       COPY OLD BEAD CLIST
                                *
  321                                     BSS      0
                        15      NENTRYUV  EQU      *-ENTRYUV
                                *
                                *
                                *                STANDARD EXIT FOR USER CALLS
                                *
  321  0130000216000000000001   USEREXIT  XJ       NRESTORE
  323  0130000230000000000001             XJ       RETURN
                                *
                                *
                                *                BAD USER CALL
                                *
  325  7170000000              ENTRYUX0  SX7      0          PARAM TOO SMALL
                0200000327                JP       ENTRYUX
                                *
  326  7170000001              ENTRYUX1  SX7      1          PARAM TOO BIG
                                *
  327  7160000002              ENTRYUX   SX6      2
                                *
                                *
```

```
                                *                       ERROR EXIT CODE
                                *                                 CLASS IN X6
                                *                                 NUMBER IN X7
                                *
330  5160000160                 ERREXIT    SA6         ECLSXT
                5170000161                 SA7         ENUMXT
331  013000021600000000001                 XJ          NRESTORE
333  013000015700000000001                 XJ          ERETURN
                                *
                                *
                                *                       ERROR EXIT WITH X6, X7 SET
                                *                                 BUT WANTS TO ADD P COUNTER TO NUMBER
                                *
335  5110000205                 ERREXITP   SA1         GHSTPC
                43052                      MX0         60-18
                    15110                  BX1         -X0*X1
336  20122                                 LX1         18
          12717                           BX7         X1+X7
                0200000330                JP          ERREXIT
```

```
                                *
                                *                INITIALIZATION CALL
                                *
337  01300002310000000001      INIT      XJ      READSELF  SET UP SCRATCH AREA
341  01300002360000000001                XJ      DSPGHST
343  5170000153                          SA7     GHSTCLS
                                *
                   6130000007           SB3     SYSCLSBS  PREPARE TO READ SYSTEM CLASS CODES
344  6140000001                          SB4     SYSTMCNT-1
                   6160000154           SB6     SYSTMCLS
                                *
345  6110000010                INIT1     DOXJ    M.DSCAP,B3          READ IN SYSTEM CLASS CODES
352  56760                               SA7     B6
           6133000001                    SB3     B3+1
353  6166000001                          SB6     B6+1
                   6144777776           SB4     B4-1
354  0640000345                          GE      B4,B0,INIT1
                                *
355  01300002300000000001                XJ      RETURN    EXIT
                                *
                                *                BAD HIDDEN PARAMETER
                                *
357  01300002130000000001      ENTRYZ    XJ      CLRII
361  0200000361                *         JP      *
                                *
                                *                ALLOW INTERRUPTS
                                *
362  7160000001                ENTRYS    SX6     1
                   5160000156           SA6     ALLOWINT
363  76600                               SX6     B0
           5160000203                    SA6     DBGRUN    SIGNAL DEBUGGER NOT RUNNING ON PURGE
364  01300002300000000001                XJ      RETURN
```

```
                                *
                                *
                                *                SIMULATED BEAD TTY INTERFACE
                                *
                                *
                                *                OUTPUT A LINE
                                *
366  6170000367                 TTYOUT   CALL    MVTOBF
367  7160000002                          SX6     2          ( OUTPUT A LINE )
               5160000127               SA6     Q.TTYPE
370  0130000126000100000 2              XJR     Q.TLINE,Q.TRTN
373  0200000321                         JP      USEREXIT
                                *
                                *                INPUT A LINE
                                *
374  7160000001                 TTYIN    SX6     1          ( INPUT A LINE )
               5160000127               SA6     Q.TTYPE
375  0130000126000100000 2              XJR     Q.TLINE,Q.TRTN
400  76612                              SX6     B1+B2
          5160000131                    SA6     FAKESD     SET UP FAKE STRING DESCRIPTOR
                    64160               SB1     A6
401  66200                              SB2     B0
402  6170000403                         CALL    MVFMBF
403  0200000321                         JP      USEREXIT
                                *
                                *                OUTPUT A CHARACTER
                                *
404  10611                      TTYCHAR  BX6     X1
          5160000107                    SA6     TTYBUF
405  7160000003                         SX6     3          ( CHARACTER OUT )
               5160000127               SA6     Q.TTYPE
406  0130000126000100000 2              XJR     Q.TLINE,Q.TRTN
411  0200000321                         JP      USEREXIT
                                *
                                *                EDIT A LINE
                                *
412  6170000413                 TTYEDIT  CALL    MVTOBF
413  7160000004                         SX6     4          ( EDIT A LINE )
414  0130000126000100000 2              XJR     Q.TLINE,Q.TRTN
417  6170000420                         CALL    MVFMBF
420  0200000321                         JP      USEREXIT
```

```
                                *
                                *
                                *                MOVES A LINE TO TTYBUFFER
                                *
                                *                B1 ADDRESS OF OLD STYLE STRING DESCRIPTOR
                                *                        (B1) HAS ADDRESS OF SYSTEXT
                                *                        (B1+1) HAS PSEUDO CHARACTER COUNT
                                *
                                *                B2 HAS RA
                                *
421  56112                      MVTOBF   SA1      B1+B2
          63612                         SB6      X1+B2          RELOCATED ADDRESS OF SYSTEXT
               5011000001               SA1      A1+1
422  73610                             SX6      X1             INITIAL PSEUDO CHAR COUNT
                                *
423  0326000424                 +      PL       X6,*+1         IF NEGATIVE, SET TO 0
               76600                    SX6      B0
                                *
424  7216777632                        SX1      X6-MAXOUTCN-1  REDUCE
425  0331000426                 +      NG       X1,*+1           IF
               7160000144               SX6      MAXOUTCN           TOO BIG
                                *
426  5160000107                        SA6      TTYBUF         STORE COUNT IN BUFFER
                                *
               20671                    LX6      60-3           CONSTURCT WORD COUNT
                    63460               SB4      X6               IN B4
427  43103                             MX1      3
          11616                         BX6      X1*X6
               20603                    LX6      3
430  0306000431                 +      ZR       X6,*+1         ADD ON 1 IF A FRACTIONAL
               6144000001               SB4      B4+1             WORD EXISTS
                                *
431  0440000435                        EQ       B4,B0,MVTOBF2  ALL DONE
                                *
               56160                    SA1      B6             PICK UP FIRST WORD
                                *
432  10611                      MVTOBF1  BX6      X1             MOVE A
          5066000001                    SA6      A6+1             WORD
433  6144777776                        SB4      B4-1           STEP COUNT
               0440000435               EQ       B4,B0,MVTOBF2
434  5011000001                        SA1      A1+1           PICK UP NEXT WORD
               0200000432               JP       MVTOBF1
                                *
435  0270000000                 MVTOBF2  JP       B7
                                *
                                *
                                *
                    144         MAXOUTCN EQU      100
```

```
                                *
                                *
                                *                MOVES A LINE FROM TTY BUFFER
                                *
                                *                B1 ADDRESS OF OLD STYLE STRING DESCRIPTOR
                                *                B2 HAS RA
                                *
436  5110000107                 MVFMBF   SA1     TTYBUF     PICK UP COUNT
                73610                    SX6     X1         MOVE COUNT AND REDUCE TO 18 BITS
                     56112               SA1     B1+B2      PICK UP SYSTEXT ADDRESS
437  5061000001                         SA6     A1+1       STORE THE COUNT
                73612                    SB6     X1+B2      RELOCATED SYSTEXT ADDRESS
                                *
440  0326000441                 +        PL      X6,*+1     IF COUNT NEGATIVE, SET 0
                7160000000               SX6     0          ( NEEDS TO BE HALF WORD )
                                *
441  20671                               LX6     60-3       NOW COMPUT WORD COUNT
          63460                          SB4     X6         INTEGER PAR OT WORD COUNT
                43103                    MX1     3
                     11616               BX6     X1*X6
442  20603                               LX6     3
443  0306000444                 +        ZR      X6,*+1
                6144000001               SB4     B4+1       INCREMENT IF FRACTIONAL WD COUNT
                                *
444  0440000451                          EQ      B4,B0,MVFMBF2
                5110000110               SA1     TTYBUF+1   MOVE
445  10611                               BX6     X1           FIRST
          56660                          SA6     B6             WORD
                                *
446  6144777776                 MVFMBF1  SB4     B4-1
                0440000451               EQ      B4,B0,MVFMBF2
447  5011000001                          SA1     A1+1       MOVE
                10611                    BX6     X1           SUBSEQUENT
450  5066000001                          SA6     A6+1           WORDS
                0200000446               JP      MVFMBF1
                                *
451  0270000000                 MVFMBF2  JP      B7
```

```
                                *
                                *
                                *                   THIS CODE SETS UP A CALL TO BEAD SERVICES
                                *
                                *                   BEAD SERVICE PARAMETERS ARE AS FOLLOWS:
                                *
                                *         P1: DATUM:            ( B6 )
                                *         P2: DATUM:            ( X1 )
                                *         P3: DATUM:            ( X2 )
                                *         P4 BLOCK DATUM:       ( 4 WORDS AT (B1) )
                                *         P5: CAPABILITY        (B7)
                                *
                                *
                                *                   NOTE  P4 AND P5 APPROPRIATLY RELOCATED
                                *
                                *
                                *                   SETS UP A RETURN AUTHORIZATION AS FOLLOWS
                                *
                                *                   BLOCK DATA:   4 WDS AT (B1)
                                *                   BLOCK CAP :   1 AT (B7)
                                *
                                *                   NOTE!   THESE ARE APPROPRIATLY RELOCATED
                                *
                                *
452  76660                      BEADSVC   SX6       B6          SET UP CALLING IP LIST
          5160000134                      SA6       Q.BEADS+1
                   10611                  BX6       X1
453  5066000001                          SA6       A6+1
                   10622                  BX6       X2
454  5066000001                          SA6       A6+1
                   7170000004             SX7       4
455  20736                               LX7       30
          76612                          SX6       B1+B2
                   12667                  BX6       X6+X7
456  5066000001                          SA6       A6+1
                   76773                  SX7       B7+B3
457  5076000001                          SA7       A6+1
                                *
                   5160000141             SA6       Q.BEADRA    SET UP RETURN AUTHORIZATION
460  7160000001                          SX6       1
                   20636                  LX6       30
                        12776             BX7       X7+X6
461  5076000001                          SA7       A6+1
                                *
462  0130000133000061000002              XJR       Q.BEADS+Q.BEADRA     CALL BEAD SERVICES
465  0200000321                          JP        USEREXIT
```

```
                                *
                                *                BEAD SERVICE CALL, B1 UNIMPORTANT
                                *
  466  6110000143              BEADSVC1  SB1      LOCALDE
                     66200                SB2      B0
  467  0200000452                        JP       BEADSVC
                                *
                                *                BEAD SERVICE CALL, B7 UNIMPORTANT
                                *
  470  6170000012              BEADSVC2  SB7      CX.TEMP
                     66300                SB3      B0
  471  0200000452                        JP       BEADSVC
                                *
                                *                BEAD SERVICE CALL, B1 AND B7 UNIMPORTANT
                                *
  472  6170000012              BEADSVC3  SB7      CX.TEMP
                     66300                SB3      B0
  473  0200000466                        JP       BEADSVC1
```

```
*
*
*                       CALLS ON THE DEBUGGER HAVE THE FOLLOWING FORM
*
*           P1  D:      TYPE OF CALL
*
*                       POSITIVE FOR INITIAL CALL
*                                 0  USER CALL   ( OLD ..STOP )
*                                 1  USER ERROR
*                                 2  INTERRUPT
*                                 3  USED BY FAKE GHOST FOR DISK SYSTEM
*                                 4  USED BY FAKE GHOST FOR DISK SYSTEM
*
*                       NEGATIVE FOR RESPONSE TO DEBUGGER REQUEST
*
*                                -1  OK RESPONSE
*                                -2  PARAM OUT OF LEGAL RANGE
*                                -3  BAD ACTION REQUEST
*                                -4  GOT ERROR ON REQUEST
*                                -5  GOT UNEXPECTED FRETURN ON REQUEST
*
*           P2  BD:     DATA ASSOCIATED WITH THE CALL
*
*                       ON INITIAL CALL
*                                WD1  CM RA USER
*                                WD2  CLST RA USER
*                                WD3  MAP RA USER
*                                WD4  ERROR CLASS OR INTERRUPT DATUM
*                                WD5  ERROR NUMBER
*                                WD6  FL OF BEAD GHOST
*                                WD7  CLIST SIZE OF BEAD GHOST
*                                WD8  MAP SIZE OF BEAD GHOST
*
*                   ON OK RESPONSE
*                                WD1  DATA WD, IF ANY
*
*           P3  C:      OBJECT ASSOCIATED WITH THE CALL
*                                ( ONLY ON RESPONSE TO ACTION REQUEST )
*
*
*                       RESPONSES FROM THE DEBUGGER HAVE A BLOCK DATUM AND
*                       A SINGLE CAPABILITY
*
*                       FOR THE BLOCK DATUM
*
*                       WD1  ACTION REQUEST
*                       WD2  MODIFIER ( I. E. AN ADDRESS )
*
*
*
```

```
                                *
                                *
                                *                BEGIN DEBUGGING
                                *
                                *                X6 CARRIES TYPE OF INITIAL CALL
                                *
474  5160000163                 DEBUG    SA6     DBGTYPE
                    7160000001          SX6     1
475  5160000203                         SA6     DBGRUN
                                *
476  0130000162000001000002     DEBUG1   XJR     DBGXJ,DBGRA          CALL THE DEBUGGER
501  5110000200                         SA1     DBGACT               NOW SEE WHAT THE DEBUGGER WANTS
                         63110          SB1     X1
502  0710000565                         LT      B1,B0,DBGBAD
                    6121777770          SB2     B1-NDBGVEC
503  0702000565                         GT      B2,B0,DBGBAD
                    0210000504          JP      DBGVEC+B1
                                *
504  0200000520                 DBGVEC   JP      DBGDONE   0
505  0200000527                         JP      DBGRDC    1
506  0200000531                         JP      DBGWRC    2
507  0200000534                         JP      DBGRDX    3
510  0200000537                         JP      DBGWRX    4
511  0200000542                         JP      DBGGTCP   5
512  0200000552                         JP      DBGPTCP   6
                                *
513                                     BSS     0
                         7      NDBGVEC  EQU     *-DBGVEC
                                *
                                *
                                *                BEGIN DEBUGGING HERE
                                *
513  5160000163                 DEBUGS   SA6     DBGTYPE
                    5110000003          SA1     CALLRA
514  5120000004                         SA2     CALLCLRA
                         10611          BX6     X1
515  5160000166                         SA6     USERRA
                         10622          BX6     X2
516  5160000167                         SA6     USERCLRA
                    7160000001          SX6     1
517  5160000203                         SA6     DBGRUN
                    0200000476          JP      DEBUG1
```

```
                                *
                                *                   RETURN TO USER
                                *
                                *          DBGACT1 = 0    ORDINARY RETURN
                                *                  = 1    CHECK SPECIAL FLAG, DBGSFLAG
                                *                             IF SET, RETURN AND REDO
                                *                             OTHERWISE ORDINARY RETURN
                                *
  520  76600                    DBGDONE    SX6       B0
             5160000203                    SA6       DBGRUN
  521  5110000201                         SA1       DBGACT1
                  0301000321               ZR        X1,USEREXIT
                                *
  522  5110000204                         SA1       DBGSFLAG
                  0301000321               ZR        X1,USEREXIT
                                *
  523  0130000216000000000001             XJ        NRESTORE
  525  0130000240000000000001             XJ        SRETURN
                                *
                                *                   READ CORE
                                *
  527  5110000201               DBGRDC     SA1       DBGACT1
                    53110                  SA1       X1
                       10611               BX6       X1
  530  5160000166                         SA6       DBGVAL1
                  0200000563               JP        DBGACTF
                                *
                                *                   WRITE CORE
                                *
  531  5110000201               DBGWRC     SA1       DBGACT1
                  7221777013               SX2       X1-FL
  532  0332000564                         NG        X2,DBGMODG
                  5120000202               SA2       DBGACT2
  533  10622                              BX6       X2
             53610                         SA6       X1
                  0200000563               JP        DBGACTF
                                *
                                *                   READ XJ
                                *
  534  5110000201               DBGRDX     SA1       DBGACT1
                    43070                  MX0       60-4
                       15110               BX1       -X0*X1
  535  5211000027                         SA1       NREGS+X1
                    10611                  BX6       X1
  536  5160000166                         SA6       DBGVAL1
                  0200000563               JP        DBGACTF
                                *
                                *                   WRITE XJ
                                *
  537  5110000201               DBGWRX     SA1       DBGACT1
                    43070                  MX0       60-4
                       15110               BX1       -X0*X1
  540  5120000202                         SA2       DBGACT2
```

```
                  10622                     BX6     X2
  541  5261000027                            SA6     NREGS+X1
                  0200000563                JP      DBGACTF
                                    *
                                    *               GETCAP
                                    *
  542  5120000201               DBGGTCP    SA2     DBGACT1
                  6110000010                DOXJ    M.MVECAP,X2,CX,TEMP,-MINUS0
  551  0200000563                           JP      DBGACTF
                                    *
                                    *               PUTCAP
                                    *
  552  5130000201               DBGPTCP    SA3     DBGACT1
                  7223777764                SX2     X3-CLSTSZ
  553  0332000564                           NG      X2,DBGMODG
                  6110000010                DOXJ    M.MVECAP,CX,TEMP,X3,-MINUS0
  562  0200000563                           JP      DBGACTF
```

```
                                *
                                *                       FINISH UP A DEBUG ACT
                                *
  563  7160777776               DBGACTF   SX6         -1
                 0200000474                JP          DEBUG
                                *
                                *                       ATTEMPT TO MODIFY GHOST, OR OTHER PARAM OUT OF RANGE
                                *
  564  7160777775               DBGMODG   SX6         -2
                 0200000474                JP          DEBUG
                                *
                                *                       BAD ACTION TYPE
                                *
  565  7160777774               DBGBAD    SX6         -3
                 0200000474                JP          DEBUG
```

```
                                *
                                *
                                *                       USER DEBUG CALL
                                *
                                *                       GUARANTEE THAT SN ORDINARY RETURN WILL OCCUR
                                *
566   76600                     USERDBG   SX6           B0
            5160000204                    SA6           DBGSFLAG
567   0200000513                          JP            DEBUGS
                                *
                                *                       ERROR DEBUG CALL
                                *
570   0130000222000000001       ERRDBG    XJ            ERESTORE
572   0130000214000000001                 XJ            NSAVE
574   7160000001                          SX6           1
                  5160000204              SA6           DBGSFLAG
575   0200000513                          JP            DEBUGS
                                *
                                *                       INTERRUPT DEBUG CALL
                                *
576   0130000222000000001       INTDBG    XJ            ERESTORE
600   0130000214000000001                 XJ            NSAVE
602   7160000002                          SX6           2
                  5160000204              SA6           DBGSFLAG
603   0200000513                          JP            DEBUGS
                                *
                                *
                                *
                                *                       COMMAND ERROR CLASS NUMBER   ( TEMP )
                                *
                         37     E.CMMD    EQU           31          (EMP)
                                *
                                *                       ERROR WHILE GHOST RUNNING
                                *
                          1     E.GHSTER  EQU           1
                                *
                                *                       F RETURN WHIL GHOST RUNNING
                                *
                          2     E.GHSTFR  EQU           2
                                *
                                *
                                *
                                *                       ERROR WHILE GHOST RUNNING
                                *
604   5110000203                ERRGDBG   SA1           DBGRUN    SEE IF DEBUGGER RUNNING
                  0311000607              NZ            X1,ERRGDBG1          YES
                                *
605   5110000171                          SA1           ERRCLS
                  5120000172              SA2           ERRNUM
606   10611                               BX6           X1
            10722                         BX7           X2
                  0200000330              JP            ERREXIT
                                *
```

ENTRY POINTS TO DEBUGGER CONTROL

```
607  7160777773              ERRGDBG1  SX6     -4
                0200000474             JP      DEBUG
                               *
                               *
                               *                UNEXPECTED FRETURN
                               *
610  76670                   UNEXFRTN  SX6     B7
          5160000205                   SA6     GHSTPC
611  5110000203                        SA1     DBGRUN     SEE OF DEBUGGER RUNNING
                0311000614             NZ      X1,UNEXFRT1          YES
                               *
612  7160000037                        SX6     E.CMMD
                7170000002             SX7     E.GHSTFR
613  0200000335                        JP      ERREXITP
                               *
614  7160777772              UNEXFRT1  SX6     -5
                0200000474             JP      DEBUG
```

```
                                *
                                *
                                *
615  0130000220000000000001    ERRORC    XJ        ESAVE
617  0130000244000000000001              XJ        SETEMSK
                                *
621  5110000006                          SA1       ECLASS    SAVE TYPE OF ERROR
                10611                   BX6       X1
622  5160000171                          SA6       ERRCLS
                5120000007              SA2       ENUM
623  10622                               BX6       X2
          5160000172                    SA6       ERRNUM
                                *
624  6170000625                          CALL      CHKGHST   SEE IF BEAD GHOST BELOW
625  5160000147                          SA6       GHSTERR
                                *
                5110000171              SA1       ERRCLS    PREPARE FOR SCAN OF ERROR TYPES
626  5120000172                          SA2       ERRNUM
                43052                   MX0       60-18
                     15110              BX1       -X0*X1
627  15220                               BX2       -X0*X2
          20122                         LX1       18
                12612                   BX6       X1+X2
630  6110000000                          SB1       ERRVECN
                5110000636              SA1       ERRVEC
                                *
631  0601000636                ERRORC1   LE        B1,B0,ERRORC3       SCAN SPECIAL ERROR LIST
                37116                   IX1       X1-X6
632  0301000634                          ZR        X1,ERRORC2          FOUND IN SPECIAL LIST
                5011000001              SA1       A1+1
633  6111777775                          SB1       B1-2
                0200000631              JP        ERRORC1
                                *
634  5011000001                ERRORC2   SA1       A1+1                JUMP FOR SPECIAL ERROR PROCESSING
                63110                   SB1       X1
635  0210000000                          JP        B1
                                *
                                *
                                EVECITEM  MACRO     CLS,NUM,PNT
                                +         VFD       42/CLS*8,18/NUM*8,60/PNT
                                          ENDM
                                *
636                             ERRVEC    BSS       0          SPECIAL ERROR LIST
                                *
                                *
636                                       BSS       0
                          0     ERRVECN   EQU       *-ERRVEC
                                *
                                *                   NO SPECIAL ERROR
                                *
636  5110000147                ERRORC3   SA1       GHSTERR             CHECK IF GHOST ERROR
                0301000570              ZR        X1,ERRDBG           NO, DO ORDINARY DEBUG
637  0200000604                          JP        ERRDBG              YES, SPECIAL ERROR HANDLING
```

```
                                *
                                *
                                *                       INTERRUPT ENTRY POINT
                                *
  640  0130000224000000000001  INTERUPT  XJ      ISAVE
  642  5110000156                         SA1     ALLOWINT
                 0301000700               ZR      X1,INTERUP5          PROCESS NOT YET INITIALIZED
                                *
  643  0130000241000000000001             XJ      RDSTK1      CHECK TO SEE IF BEADG BELOW
  645  5110000151                         SA1     STKICLS
                 5120000153               SA2     GHSTCLS
  646  37112                              IX1     X1-X2
           0311000653                     NZ      X1,INTERUP1          NO, BEADG NOT BELOW
                                *
  647  0130000226000000000001             XJ      IRESTORE    SWALLOW INTERRUPT
  651  0130000230000000000001             XJ      RETURN
                                *
  653  0130000226000000000001  INTERUP1   XJ      IRESTORE
  655  0130000220000000000001             XJ      ESAVE
  657  0130000216000000000001             XJ      NRESTORE    PROTECT N PACK FROM
  661  0130000224000000000001             XJ      ISAVE       SPECIAL INTERRUPT JUMP CALL
                                *
  663  5110000002                         SA1     INTDTM
                 0311000670               NZ      X1,INTERUP2          MAJOR PANIC
                                *
  664  0130000222000000000001             XJ      ERESTORE    MINOR PANIC, GENERATE ERROR
  666  0130000247000000000001             XJ      MINORPNC
                                *
  670  5110000151                INTERUP2  SA1     STK1CLS     MAJOR PANIC, SEE IF SYSTEM SUBPROC BELOW
                 6110000001               SB1     SYSTMCNT-1
                                *
  671  0710000576                INTERUP3  LT      B1,B0,INTDBG         NO, GO DEBUG
                 5121000154               SA2     SYSTMCLS+B1
  672  37312                              IX3     X1-X2
           0303000674                     ZR      X3,INTERUP4          SYSTEM SUBPROCESS BELOW
  673  6111777776                         SB1     B1-1
                 0200000671               JP      INTERUP3
                                *
  674  0130000220000000000001  INTERUP4   XJ      ESAVE       SYSTEM SUBPROCESS BELOW
  676  0130000252000000000001             XJ      MAJORPNC
                                *
                                *
  700  0130000226000000000001  INTERUP5   XJ      IRESTORE    PROCESS NOT YET INITIALIZED
  702  0130000230000000000001             XJ      RETURN
```

```
                                *
                                *
                                *                SPECIAL INTERUPT JUMP CALL
                                *                     MAJOR PANIC PROCESSING
                                *
  704  0130000216000000000001  ENTRYI    XJ        NRESTORE
  706  0130000220000000000001             XJ        ESAVE
  710  0130000226000000000001             XJ        IRESTORE
  712  0130000214000000000001             XJ        NSAVE      RESET N PACK
  714  6170000715                         CALL      CHKGHST
  715  0306000570                         ZR        X6,INTERUP2
  716  0130000216000000000001             XJ        NRESTORE
  720  0130000220000000000001             XJ        ESAVE
  722  0200000576                         JP        INTDBG
```

```
                                *
                                *
                                *
                                *                       THIS SUBROUTINE XFERS B2 ITEMS
                                *                                ( OR 5, WHICH EVER IS LESS )
                                *                       FROM X1, X2, . . . X5 TO B1, B1+1, . . B1+4
                                *
                                *                       IF XN IS POSITIVE, CONTENTS OF XN IS XFERED
                                *                       IF XN IS NEGATIVE, CONTENTS OF CELL ADDRESS -XN
                                *
                                *                       X1 WILL BE DESTROYED
                                *
                                *                       B1 IS ADVANCED AND B2 DECREMENTED BY 1 FOR EACH XFER
                                *
723  43074                      SET         MX0         60
           66570                           SB5         B7
                10611                      BX6         X1
724  6170000725                            CALL        SETA
725  10622                                  BX6         X2
726  6170000727                            CALL        SETA
727  10266                                  BX2         X6
           10633                           BX6         X3
730  6170000731                            CALL        SETA
731  10366                                  BX3         X6
           10644                           BX6         X4
732  6170000733                            CALL        SETA
733  10466                                  BX4         X6
           10655                           BX6         X5
734  6170000735                            CALL        SETA
735  10566                                  BX5         X6
                                *
736  66750                      SETB        SB7         B5
           0270000000                      JP          B7
                                *
                                *
737  0602000736                 SETA        GE          B0,B2,SETB
                0326000741                 PL          X6,SETA1
740  13660                                  BX6         X6-X0
           53160                           SA1         X6
                10611                      BX6         X1
741  56610                      SETA1       SA6         B1
           6111000001                      SB1         B1+1
742  6122777776                            SB2         B2-1
                0270000000                 JP          B7
```

```
*
*
*
*                       DO NOT ASSEMBLE INTERNAL CALL STACK STUFF
*
                IFEQ    1,0
                ENDIF
```

```
                                *
                                *
                                *               CHECK TO SEE IF GHOST RUNNING BELOW IN STACK
                                *
                                *               RETURN WITH X6 = 1 IF YES,  0 IF NO
                                *
                                *               REDUCE STACK BY ONE IF YES
                                *
  743  0130000241000000001     CHKGHST   XJ      RDSTK1     GET STACK ENTRY BELOW
  745  5110000151                        SA1     STK1CLS    GET CLASS
                 51200000153             SA2     GHSTCLS    GET GHOST CLASS TO COMPARE
  746  37112                             IX1     X1-X2      COMPARE
            76600                        SX6     B0
                 0301000750              ZR      X1,CHKGHST1
  747  0270000000                        JP      B7
                                *
  750  0130000754000000001     CHKGHST1  XJ      FXGHSTPC   SET P COUNTER OF PREVIOUS ENTRY
  752  0130000230000000001               XJ      RETURN
                                *
  754  4000000065000000002     FXGHSTPC  MXCAP   MODPC
  755  0000000000000000004               ITEMS   CX,BDGCD
  756  0000000000000000001               DATA    1
  757  0000000000000000760               ITEMS   CHKGHST2
                                *
  760  5110000150              CHKGHST2  SA1     STK1PC
                    10611               BX6     X1
  761  5160000205                        SA6     GHSTPC
                      7160000001        SX6     1
  762  0270000000                        JP      B7
```

```
                                    *
                                    *
   763  0000000000000000001                DATA      1
   764  0000000000000000001     FL         DATA      1
                                    *
     0                                     END

                          35562     STORAGE USED              2018 STATEMENTS      266 SYMBOLS
                                    6600 ASSEMBLY            10.821 SECONDS        694 REFERENCES
```

SYMBOLIC REFERENCE TABLE.

ALLOWINT	156	14/49 L	23/30 S	37/06					
BASE1	40	12/14 L							
BASE2	126	14/05 L							
BEADSVC	452	21/20	21/21	21/22	21/23	21/30	27/25 L	28/06	28/12
BEADSVC1	466	21/32	28/04 L	28/18					
BEADSVC2	470	28/10 L							
BEADSVC3	472	21/28	21/29	28/16 L					
CALLCLRA	4	13/08 D	21/07	30/35					
CALLRA	3	13/07 D	21/06	30/34					
CALLTYPE	6	13/06 D	20/11						
CHKGHST	743	36/15	38/11	41/09 L					
CHKGHST1	750	41/14	41/17 L						
CHKGHST2	760	41/23	41/25 L						
CLRII	213	18/10 L	23/23						
CLSTSZ	13	11/31	12/07 L	16/21	32/14				
CX.ALLOC	0	11/41 L							
CX.BDBCD	4	11/45 L	18/45	41/21					
CX.BEAD	11	12/01 L							
CX.BEADS	6	11/47 L	14/25						
CX.CODEF	1	11/42 L	18/41						
CX.DEBUG	3	11/44 L	16/06						
CX.MAST	2	11/43 L	17/15	18/10	18/21	18/33	18/44	19/01	41/20
		15/01	17/16	18/13	18/25	18/37	18/48	19/06	
		17/14	18/07	18/17	18/29	18/40	18/51	19/10	
CX.TEMP	12	12/02 L	16/09	16/36	28/10	28/16	32/09	32/17	
CX.TLINE	5	11/46 L	14/15						
C.ACAP	36	3/41 D							
C.ADDOPT	37	3/42 D							
C.ADDORD	61	4/07 D							
C.ALLOC	1	3/09 D							
C.BDAT	105	4/37 D							
C.BLKCAP	106	4/38 D							
C.CAGEN	113	4/43 D							
C.CAPIN	23	3/29 D							
C.CAPOU	24	3/30 D	3/31						
C.CAPOUT	24	3/31 D							
C.CBLK	11	3/17 D							
C.CCC	15	3/21 D							
C.CCCLOA	62	4/08 D							
C.CCLIST	7	3/15 D							
C.CEVCH	13	3/19 D							
C.CFILE	10	3/16 D							
C.CGEN	114	4/44 D							
C.CHKBLK	41	3/44 D	4/34						
C.CHMPRO	123	4/51 D							
C.CHMPRW	122	4/50 D							
C.CHNGWD	67	4/14 D							
C.CLRDAE	70	4/18 D							
C.CLRIIB	74	4/22 D	18/10						
C.COPYOP	40	3/43 D							
C.CPROC	12	3/18 D							
C.CPZRO	126	5/03 D							
C.CRALBK	64	4/10 D							

SYMBOLIC REFERENCE TABLE.

C.CSPROC	14	3/20	D			
C.DELAB	76	4/24	D			
C.DELBLK	42	3/45	D			
C.DELCL	57	4/05	D			
C.DELFIL	43	3/46	D			
C.DELSUB	72	4/20	D			
C.DESECH	101	4/29	D			
C.DISMAP	51	3/52	D			
C.DISPOP	107	4/39	D			
C.DISPST	54	4/02	D			
C.DISSEN	55	4/03	D	18/51		
C.DLOPR	132	5/07	D			
C.DLPROC	66	4/12	D			
C.DONATE	63	4/09	D			
C.DPROD	67	4/13	D	4/14		
C.DSCAP	20	3/24	D	3/25	17/16	18/44
C.DSCLX	124	5/01	D			
C.DSFMAP	56	4/04	D			
C.DSPAB	104	4/36	D			
C.DSPALC	121	4/49	D			
C.DSPCAP	20	3/25	D			
C.DSPCLX	102	4/30	D			
C.DSPOB	120	4/48	D			
C.DSPSP	115	4/45	D			
C.ESMGEN	25	3/32	D			
C.ESMLOC	26	3/33	D	19/01		
C.FIXC	32	3/37	D			
C.FIXD	33	3/38	D			
C.FRETUR	31	3/36	D			
C.FSON	21	3/26	D			
C.GETE	6	3/14	D	4/33		
C.GETEVF	75	4/23	D			
C.HANG	6	4/33	D			
C.INCHR	117	4/47	D			
C.INMTR	131	5/06	D			
C.INTFIL	2	3/10	D			
C.JUMP	52	3/53	D			
C.MAPZRO	45	3/48	D			
C.MGETF	100	4/27	D			
C.MGETH	77	4/25	D			
C.MKMPRO	46	4/53	D			
C.MKMPRW	47	4/52	D			
C.MKOPR	27	3/34	D			
C.MODPC	65	4/11	D	41/20		
C.MOVBLK	50	3/51	D			
C.MOVCP	127	5/04	D			
C.MOVEC	22	3/27	D	3/28		
C.MOVMT	130	5/05	D			
C.MPCHRO	46	3/49	D	4/53		
C.MPCHRW	47	3/50	D	4/52		
C.MVECAP	22	3/28	D	17/15		
C.NEWUN	53	4/01	D			
C.NWTMP	103	4/35	D			

SYMBOLIC REFERENCE TABLE.

C.PINT	60	4/06	D							
C.PROBE	41	4/34	D							
C.READ	3	4/31	D	17/14	18/40					
C.REDSHP	44	3/47	D							
C.RESTOR	17	3/23	D	18/17	18/25	18/33				
C.RETPAR	111	4/41	D							
C.RETURN	30	3/35	D	18/37						
C.RFILE	3	3/11	D	4/31						
C.SAVE	16	3/22	D	18/13	18/21	18/29				
C.SELF	0	3/08	D							
C.SENDE	5	3/13	D							
C.SETDAE	71	4/19	D							
C.SETIIB	73	4/21	D	18/07						
C.SPRET	125	5/02	D	18/48						
C.TIMDT	112	4/42	D							
C.TRDB	116	4/46	D							
C.UCAP	35	3/40	D							
C.UDAT	34	3/39	D							
C.USRER	110	4/40	D	15/01	19/06	19/10				
C.WFILE	4	3/12	D	4/32						
C.WRITE	4	4/32	D							
DBGACT	200	16/40	L	30/12						
DBGACTF	563	31/26		31/36	31/46	32/03	32/09	32/17	33/04	L
DBGACT1	201	16/41	L	31/11	31/22	31/30	31/40	31/50	32/07	32/13
DBGACT2	202	16/42	L	31/33	31/53					
DBGBAD	565	30/14		30/16	33/14	L				
DBGBLK	166	16/08		16/11	L	16/26	16/29	16/30		
DBGCNT	10	16/08		16/26	D					
DBGDONE	520	30/19		31/09	L					
DBGGTCP	542	30/24		32/07	L					
DBGMODG	564	31/32		32/15	33/09	L				
DBGPTCP	552	30/25		32/13	L					
DBGRA	176	16/35	L	30/12						
DBGRABLK	200	16/35		16/38	L	16/45				
DBGRACNT	3	16/35		16/45	D					
DBGRDC	527	30/20		31/22	L					
DBGRDX	534	30/22		31/40	L					
DBGRUN	203	16/49	L	23/32	S	30/09	S	30/41 S	31/10 S	34/45 35/09
DBGSFLAG	204	16/50	L	31/14		34/08	S	34/16 S	34/24 S	
DBGTYPE	163	16/07	L	30/07	S	30/33	S			
DBGVAL1	166	16/29	D	31/25	S	31/45	S			
DBGVAL2	167	16/30	D							
DBGVEC	504	30/17		30/19	L	30/28				
DBGWRC	531	30/21		31/30	L					
DBGWRX	537	30/23		31/50	L					
DBGXJ	162	16/06	L	30/11						
DEBUG	474	30/07	L	33/05		33/10		33/15	35/02	35/17
DEBUGS	513	30/33	L	34/09		34/17		34/25		
DEBUG1	476	30/11	L	30/42						
DSPGHST	236	18/44	L	23/05						
ECLASS	6	13/09	D	36/07						
ECLSXT	160	15/02	L	22/05	S					
ENTRY	262	11/30		20/08	L					

SYMBOLIC REFERENCE TABLE.

ENTRYI	704	20/21	38/06 L					
ENTRYS	362	20/19	23/29 L					
ENTRYU	277	20/20	21/06 L					
ENTRYUV	304	21/18	21/20 L	21/35				
ENTRYUX	327	21/47	21/51 L					
ENTRYUX0	325	21/15	21/46 L					
ENTRYUX1	326	21/17	21/49 L					
ENTRYZ	357	20/13	20/15	23/23 L				
ENTVEC	273	20/16	20/18 L	20/24				
ENUM	7	13/10 D	36/10					
ENUMXT	161	15/03 L	22/06 S					
EREGS	47	13/32 L	18/22	18/26				
ERESTORE	222	18/25 L	34/13	34/21	37/26			
ERETURN	157	15/01 L	22/08					
ERRCLS	171	16/17 L	34/48	36/09 S	36/17			
ERRDBG	570	34/13 L	36/52					
ERREXIT	330	22/05 L	22/19	34/52				
ERREXITP	335	22/14 L	35/14					
ERRGDBG	604	34/45 L	36/53					
ERRGDBG1	607	34/46	35/01 L					
ERRNUM	172	16/18 L	34/49	36/12 S	36/18			
ERRORC	615	20/06	36/04 L					
ERRORC1	631	36/27 L	36/32					
ERRORC2	634	36/29	36/34 L					
ERRORC3	636	36/27	36/51 L					
ERRVEC	636	36/25	36/43 L	36/47				
ERRVECN	0	36/24	36/47 D					
ESAVE	220	18/21 L	36/04	37/19	37/39	38/07	38/13	
E.CMMD	37	34/31 D	35/12					
E.GHSTER	1	34/35 D						
E.GHSTFR	2	34/39 D	35/13					
FAKESD	131	14/20 L	24/20 S					
FL	764	11/29	11/36	16/20	31/31	42/04 L		
FXGHSTPC	754	41/17	41/20 L					
GHSTCL	174	16/21 L						
GHSTCLS	153	14/45 L	23/06 S	37/11	41/11			
GHSTERR	147	14/38 L	36/15 S	36/51				
GHSTFL	173	16/20 L						
GHSTPC	205	16/51 L	22/14	35/08 S	41/27 S			
INIT	337	20/18	23/04 L					
INITI	345	23/12 L	23/17					
INTDBG	576	34/21 L	37/32	38/14				
INTDTM	2	13/11 D	37/23					
INTERUPT	640	20/05	37/05 L					
INTERUP1	653	37/13	37/18 L					
INTERUP2	670	37/24	37/29 L	38/11				
INTERUP3	671	37/32 L	37/37					
INTERUP4	674	37/35	37/39 L					
INTERUP5	700	37/07	37/43 L					
IREGS	67	13/33 L	18/30	18/34				
IRESTORE	226	18/33 L	37/15	37/18	37/43	38/08		
ISAVE	224	18/29 L	37/05	37/21				
LOCALDE	143	14/32 L	28/04					

SYMBOLIC REFERENCE TABLE.

LOCALPXJ	4	23/13 D	23/13	32/09 D	32/09	32/17 D					
		23/13 D	32/09 D	32/09 D	32/17 D	32/17					
MAJORPNC	252	19/10 L	37/40								
MAXOUTCN	144	25/19	25/21	25/48 D							
MINORPNC	247	19/06 L	37/27								
MINUS0	211	17/22 L	32/09	32/17							
MVFMBF	436	24/24	24/41	25/08 L							
MVFMBF1	446	26/30 L	26/35								
MVFMBF2	451	26/25	26/31	26/37 L							
MVTOBF	421	24/09	24/38	25/11 L							
MVTOBF1	432	25/37 L	25/42								
MVTOBF2	435	25/33	25/40	25/44 L							
M.DSCAP	7777567	17/16 D	23/13								
M.MVECAP	7777570	17/15 D	32/09	32/17							
M.READ	7777571	17/14 D									
NDRGVEC	7	30/15	30/28 D								
NENTRYUV	15	21/16	21/35 D								
NENTVEC	4	20/14	20/24 D								
NREGS	27	13/31 L	18/14	18/18	31/43	32/02 S					
NRESTORE	216	18/17 L	21/40	22/07	31/17	37/20	38/06	38/12			
NSAVE	214	18/13 L	20/09	34/14	34/22	38/09					
Q.BEADRA	141	14/29 L	27/39 S	27/46							
Q.BEADS	133	14/25 L	27/26 S	27/45							
Q.TLINE	126	14/15 L	24/11	24/18	24/32	24/39					
Q.TRTN	255	19/16 L	24/12	24/19	24/33	24/40					
Q.TTYPE	127	14/16 L	24/10 S	24/17 S	24/31 S						
RDSTK1	241	18/51 L	37/09	41/09							
READSELF	231	18/40 L	23/04								
RETURN	230	18/37 L	21/41	23/19	23/33	37/16	37/44	41/18			
RTNBASE	13	12/04 L									
SCRSZ	206	11/32	11/35	11/36	11/36	17/06 L	18/42				
SET	723	23/13	32/09	32/17	39/15 L						
SETA	737	39/19	39/21	39/24	39/27	39/30	39/36 L				
SETAI	741	39/37	39/41 L								
SETB	736	39/32 L	39/36								
SETEMSK	244	19/01 L	20/10	36/05							
SETII	212	18/07 L	20/06	20/08							
SRETURN	240	18/48 L	31/18								
STK1CLS	151	14/41 L	37/10	37/29	41/10						
STK1PC	150	14/40 L	18/52	41/25							
SYSCLSBS	7	11/48 L	11/52	23/08							
SYSTMCLS	154	14/47 L	23/10	37/33							
SYSTMCNT	2	11/52 D	14/47	23/09	37/30						
TTYBFSZ	17	13/39 D	13/41	14/17	19/16						
TTYBUF	107	13/41 L	14/17	19/16	24/29 S	25/23 S	26/08	26/26			
TTYCHAR	404	21/27	24/28 L								
TTYEDIT	412	21/31	24/37 L								
TTYIN	374	21/26	24/16 L								
TTYOUT	366	21/25	24/08 L								

SYMBOLIC REFERENCE TABLE.

UNEXFRTN	610	20/09	23/05	24/19	32/09	36/05	37/20	37/44	38/14
		20/10	23/06	24/33	32/17	36/06	37/21	37/45	41/10
		20/11	23/13	24/40	34/14	37/06	37/22	38/07	41/18
		21/41	23/20	27/46	34/15	37/10	37/27	38/08	41/19
		21/42	23/24	30/12	34/22	37/16	37/28	38/09	
		22/08	23/34	31/18	34/23	37/17	37/40	38/10	
		22/09	24/12	31/19	35/07 L	37/19	37/41	38/13	
UNEXFRT1	614	35/10	35/16 L						
USERCLRA	167	16/14 L	21/13 S	30/39 S					
USERDBG	566	21/24	34/07 L						
USEREXIT	321	21/40 L	24/12	24/24	24/33	24/41	27/46	31/12	31/15
USERMPRA	170	16/15 L							
USERRA	166	16/13 L	21/12 S	30/37 S					
XJLOC	10	13/25 L	23/12	23/13	32/08	32/09	32/16	32/17	