```
                              SSSSSSSSSS   000000000000   SSSSSSSSSS   MM        MM   AAAAAAAAAA   KK        KK  EEEEEEEEEEEE
                            SSSSSSSSSSSS  000000000000  SSSSSSSSSSSS  MMM      MMM  AAAAAAAAAAAA  KK       KK   EEEEEEEEEEEE
                           SS        SS  OO        OO  SS        SS  MMMM    MMMM  AA        AA  KK      KK    EE
                          SS            OO        OO  SS            MM MM  MM MM  AA        AA  KK     KK     EE
                         SSS           OO        OO  SSS           MM  MMMM  MM  AA        AA  KK    KK      EE
                         SSSSSSSSS    OO        OO   SSSSSSSSS    MM   MM   MM  AAAAAAAAAAAA  KKKKKKK       EEEEEEEE
                         SSSSSSSSS   OO        OO    SSSSSSSSS   MM        MM  AAAAAAAAAAAA  KKKKKKK       EEEEEEEE
                               SSS  OO        OO           SSS  MM        MM  AA        AA  KK     KK     EE
                               SS  OO        OO            SS  MM        MM  AA        AA  KK      KK    EE
                    SS        SS  OO        OO  SS        SS  MM        MM  AA        AA  KK       KK   EE
                   SSSSSSSSSSSS  000000000000  SSSSSSSSSSSS  MM        MM  AA        AA  KK        KK  EEEEEEEEEEEE
                   SSSSSSSSSS   000000000000   SSSSSSSSSS   MM        MM  AA        AA  KK         KK EEEEEEEEEEEE


                         JJJJJJJJJJ       11         00000000                                       AAAAAAAAAA
                         JJJJJJJJJJ      111        0000000000                                     AAAAAAAAAAAA
                             JJ         1111       00      0000                                    AA        AA
                             JJ           11       00     00 00                                    AA        AA
                             JJ           11       00    00  00                                    AA        AA
                             JJ           11       00   00   00                                    AAAAAAAAAAAA
                             JJ           11       00  00    00                                    AAAAAAAAAAAA
                             JJ           11       00 00     00                                    AA        AA
                       JJ    JJ           11       0000      00                                    AA        AA
                       JJ    JJ           11       000       00                                    AA        AA
                       JJJJJJJJ       1111111111    0000000000                                     AA        AA
                        JJJJJJ        1111111111     00000000                                      AA        AA

****A  START  JOB   10  SOSMAKE   Juergen Winkelmann    ROOM        6.24.33 PM 17 JAN 16  PRINTER1  SYS TK4-  JOB   10  START  A****
****A  START  JOB   10  SOSMAKE   Juergen Winkelmann    ROOM        6.24.33 PM 17 JAN 16  PRINTER1  SYS TK4-  JOB   10  START  A****
****A  START  JOB   10  SOSMAKE   Juergen Winkelmann    ROOM        6.24.33 PM 17 JAN 16  PRINTER1  SYS TK4-  JOB   10  START  A****
****A  START  JOB   10  SOSMAKE   Juergen Winkelmann    ROOM        6.24.33 PM 17 JAN 16  PRINTER1  SYS TK4-  JOB   10  START  A****
```

J E S 2 J O B L O G

```
18.24.32 JOB   10  $HASP373 SOSMAKE  STARTED - INIT  1 - CLASS A - SYS TK4-
18.24.32 JOB   10  IEF403I SOSMAKE - STARTED - TIME=18.24.32
18.24.32 JOB   10  IEFACTRT - Stepname  Procstep  Program   Retcode
18.24.32 JOB   10  SOSMAKE    ASMC      ASM       IFOX00    RC= 0000
18.24.32 JOB   10  SOSMAKE    MARKUP              IEBGENER  RC= 0000
18.24.33 JOB   10  SOSMAKE    COUNT               MAWK      RC= 0000
18.24.33 JOB   10  SOSMAKE    EXTCARDS            IDCAMS    RC= 0000
18.24.33 JOB   10  SOSMAKE    LKED                IEWL      RC= 0000
18.24.33 JOB   10  SOSMAKE    EXTTEXT             IDCAMS    RC= 0000
18.24.33 JOB   10  SOSMAKE    MAKEDECK            IKJEFT01  RC= 0000
18.24.33 JOB   10  SOSMAKE    PCHDECK             IEBGENER  RC= 0000
18.24.33 JOB   10  IEF404I SOSMAKE - ENDED - TIME=18.24.33
18.24.33 JOB   10  $HASP395 SOSMAKE  ENDED


------ JES2 JOB STATISTICS ------

 17 JAN 16 JOB EXECUTION DATE

       107 CARDS READ

     3,512 SYSOUT PRINT RECORDS

        81 SYSOUT PUNCH RECORDS

      0.02 MINUTES EXECUTION TIME
```

```
 1      //SOSMAKE  JOB (COPY),                                          JOB   10
        //             'Juergen Winkelmann',
        //             CLASS=A,REGION=8M,
        //             MSGCLASS=A,
        //             MSGLEVEL=(1,1),
        //             NOTIFY=HERC01,
        //           USER=HERC01,PASSWORD=           GENERATED BY GDL
        ********************************************************************
        ***
        *** Name: SOSMAKE
        ***
        *** Desc: Build Sample Operating System IPLable card deck
        ***
        ********************************************************************
        ***
        *** assemble
        ***
 2      //ASMC     EXEC ASMFC,PARM.ASM=(OBJ,NODECK)
 3      XXASMFC    PROC  MAC='SYS1.MACLIB',MAC1='SYS1.MACLIB',              00000100
        XX         MAC2='SYS1.MACLIB',MAC3='SYS1.MACLIB',SOUT='*'           00000200
 4      XXASM      EXEC  PGM=IFOX00,REGION=128K                             00000300
 5      XXSYSLIB   DD    DSN=&MAC,DISP=SHR                                  00000400
 6      XX         DD    DSN=&MAC1,DISP=SHR                                 00000500
 7      XX         DD    DSN=&MAC2,DISP=SHR                                 00000600
 8      XX         DD    DSN=&MAC3,DISP=SHR                                 00000700
 9      XXSYSUT1   DD    DSN=&&SYSUT1,UNIT=SYSSQ,SPACE=(1700,(600,100)),    00000800
        XX              SEP=(SYSLIB)                                       00000900
10      XXSYSUT2   DD    DSN=&&SYSUT2,UNIT=SYSSQ,SPACE=(1700,(300,50)),     00001000
        XX              SEP=(SYSLIB,SYSUT1)                                00001100
11      XXSYSUT3   DD    DSN=&&SYSUT3,UNIT=SYSSQ,SPACE=(1700,(300,50))      00001200
12      XXSYSPRINT DD    SYSOUT=&SOUT,DCB=BLKSIZE=1089                      00001300
13      XXSYSPUNCH DD    SYSOUT=B                                           00001400
14      //ASM.SYSIN DD DSN=HERC01.MADNICK(SOS15352),DISP=SHR
15      //ASM.SYSGO DD DISP=(,PASS),DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200),
        //         UNIT=SYSDA,SPACE=(TRK,(5,5))
        ***
        *** mark ESD, TXT and END cards for MAWK
        ***
16      //MARKUP   EXEC PGM=IEBGENER
17      //SYSUT1   DD  DISP=(OLD,PASS),DSN=*.ASMC.ASM.SYSGO
18      //SYSUT2   DD  DISP=(,PASS),DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200),
        //         UNIT=SYSDA,SPACE=(TRK,(5,5),RLSE)
19      //SYSPRINT DD  SYSOUT=*
20      //SYSIN    DD  *
        ***
        *** count cards previously marked
        ***
21      //COUNT    EXEC PGM=MAWK,PARM='-f MAWK'
22      //STDIN    DD  DISP=(OLD,DELETE),DSN=*.MARKUP.SYSUT2
23      //STDOUT   DD  DISP=(,PASS),DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200),
        //         UNIT=SYSDA,SPACE=(TRK,(1,1),RLSE)
24      //OBJOUT   DD  DISP=(,PASS),DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200),
        //         UNIT=SYSDA,SPACE=(TRK,(5,5))
25      //MAWK     DD  *
        ***
        *** extract cards previously marked
        ***
26      //EXTCARDS EXEC PGM=IDCAMS
27      //SYSPRINT DD  SYSOUT=*
28      //OO       DD  DISP=(OLD,DELETE),DSN=*.ASMC.ASM.SYSGO
29      //CO       DD  DISP=(MOD,PASS),DSN=*.COUNT.OBJOUT
30      //SYSIN    DD  DISP=(OLD,DELETE),DSN=*.COUNT.STDOUT
31      //LOAD     DD  DISP=(,PASS),SPACE=(TRK,(2,1,1)),UNIT=SYSDA,
        //              DCB=(RECFM=U,BLKSIZE=19069),DSN=&&LOAD
32      //IPLDECK  DD  DISP=(,CATLG),SPACE=(TRK,1),UNIT=SYSDA,
        //              DCB=(RECFM=FB,LRECL=6480,BLKSIZE=6480),
        //              DSN=HERC01.SOS15352.IPLDECK
```

```
         ***
         *** link edit
         ***
   33    //LKED     EXEC PGM=IEWL,PARM=(MAP,XREF,LIST)
   34    //OBJ      DD  DISP=(OLD,DELETE),DSN=*.COUNT.OBJOUT
   35    //SYSLMOD  DD  DSN=&&LOAD,DISP=(OLD,PASS)
   36    //SYSUT1   DD  DSN=&&SYSUT1,UNIT=SYSDA,
         //         SPACE=(1024,(50,20))
   37    //SYSPRINT DD  SYSOUT=*
   38    //SYSLIN   DD *
         ***
         *** extract text
         ***
   39    //EXTTEXT  EXEC PGM=IDCAMS
   40    //SYSPRINT DD  SYSOUT=*
   41    //LOAD     DD  DISP=(OLD,DELETE),DSN=&&LOAD(IPLMOD)
   42    //IPLDECK  DD  DISP=SHR,DSN=*.EXTCARDS.IPLDECK
   43    //SYSIN DD *
         ***
         *** format deck
         ***
   44    //MAKEDECK EXEC PGM=IKJEFT01
   45    //SYSTSPRT DD  SYSOUT=*
   46    //SYSTSIN  DD  *
         ***
         *** punch deck
         ***
   47    //PCHDECK  EXEC PGM=IEBGENER
   48    //SYSIN    DD  DUMMY
   49    //SYSUT1   DD  DISP=(OLD,DELETE),DSN=HERC01.SOS15352.IPLDECK
   50    //SYSUT2   DD  SYSOUT=B
   51    //SYSPRINT DD  SYSOUT=*
```

```
 STMT NO. MESSAGE
-
    5     IEF653I SUBSTITUTION JCL - DSN=SYS1.MACLIB,DISP=SHR
    6     IEF653I SUBSTITUTION JCL - DSN=SYS1.MACLIB,DISP=SHR
    7     IEF653I SUBSTITUTION JCL - DSN=SYS1.MACLIB,DISP=SHR
    8     IEF653I SUBSTITUTION JCL - DSN=SYS1.MACLIB,DISP=SHR
   12     IEF653I SUBSTITUTION JCL - SYSOUT=*,DCB=BLKSIZE=1089
IEF236I ALLOC. FOR SOSMAKE ASM ASMC
IEF237I 148  ALLOCATED TO SYSLIB
IEF237I 148  ALLOCATED TO
IEF237I 148  ALLOCATED TO
IEF237I 148  ALLOCATED TO
IEF237I 190  ALLOCATED TO SYSUT1
IEF237I 140  ALLOCATED TO SYSUT2
IEF237I 180  ALLOCATED TO SYSUT3
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I JES2 ALLOCATED TO SYSPUNCH
IEF237I 290  ALLOCATED TO SYSIN
IEF237I 240  ALLOCATED TO SYS00011
IEF237I 170  ALLOCATED TO SYSGO
IEF142I SOSMAKE ASM ASMC - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS1.MACLIB                                KEPT          *--------0
IEF285I   VOL SER NOS= MVSRES.
IEF285I   SYS1.MACLIB                                KEPT          *--------0
IEF285I   VOL SER NOS= MVSRES.
IEF285I   SYS1.MACLIB                                KEPT          *--------0
IEF285I   VOL SER NOS= MVSRES.
IEF285I   SYS1.MACLIB                                KEPT          *--------0
IEF285I   VOL SER NOS= MVSRES.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.SYSUT1      DELETED       *-------32
IEF285I   VOL SER NOS= WORK03.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.SYSUT2      DELETED       *-------27
IEF285I   VOL SER NOS= WORK00.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.SYSUT3      DELETED       *-------14
IEF285I   VOL SER NOS= WORK02.
IEF285I   JES2.JOB00010.SO0106                       SYSOUT
IEF285I   JES2.JOB00010.SO0107                       SYSOUT
IEF285I   HERC01.MADNICK                             KEPT          *-------12
IEF285I   VOL SER NOS= PUB003.
IEF285I   SYS1.UCAT.TSO                              KEPT          *--------0
IEF285I   VOL SER NOS= PUB000.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.R0000001    PASSED        *--------4
IEF285I   VOL SER NOS= WORK01.
IEF373I STEP /ASM     / START 16017.1824
IEF374I STEP /ASM     / STOP  16017.1824 CPU    0MIN 00.47SEC SRB    0MIN 00.03SEC VIRT  2204K SYS   212K
*************************************************************************************************************
*     1. Jobstep of job: SOSMAKE     Stepname: ASM         Program name: IFOX00     Executed on 17.01.16 from 18.24.32 to 18.24.32 *
*         elapsed time  00:00:00,71                    CPU-Identifier:  TK4-           Page-in:      0                          *
*             CPU time  00:00:00,50              Virtual Storage used:   2204K         Page-out:     0                          *
*           corr. CPU:  00:00:00,50   CPU time has been corrected by  1 / 1,0  multiplier                                      *
*                                                                                                                             *
*     I/O Operation                                                                                                           *
*     Number of records read via DD * or DD DATA:      0                                                                      *
*     148.......0 148.......0 148.......0 148.......0 190......32 140......27 180......14 DMY.......0 DMY.......0 290......12      *
*     240.......0 170.......4                                                                                                 *
*                                                                                                                             *
*                                    Charge for step (w/o SYSOUT):          0,83                                          *
*************************************************************************************************************
IEF236I ALLOC. FOR SOSMAKE MARKUP
IEF237I 170  ALLOCATED TO SYSUT1
IEF237I 140  ALLOCATED TO SYSUT2
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I JES2 ALLOCATED TO SYSIN
IEF142I SOSMAKE MARKUP - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS16017.T182432.RA000.SOSMAKE.R0000001    PASSED        *--------5
IEF285I   VOL SER NOS= WORK01.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.R0000002    PASSED        *--------4
```

```
IEF285I   VOL SER NOS= WORK00.
IEF285I   JES2.JOB00010.SO0108                    SYSOUT
IEF285I   JES2.JOB00010.SI0101                    SYSIN
IEF373I STEP /MARKUP  / START 16017.1824
IEF374I STEP /MARKUP  / STOP  16017.1824 CPU    0MIN 00.05SEC SRB    0MIN 00.00SEC VIRT    48K SYS   220K
*********************************************************************************************************************
*     2. Jobstep of job: SOSMAKE     Stepname: MARKUP      Program name: IEBGENER   Executed on 17.01.16 from 18.24.32 to 18.24.32 *
*         elapsed time  00:00:00,07                   CPU-Identifier:  TK4-          Page-in:      0                      *
*             CPU time  00:00:00,05              Virtual Storage used:     48K       Page-out:     0                      *
*           corr. CPU:  00:00:00,05   CPU time has been corrected by  1 / 1,0  multiplier                                *
*                                                                                                                       *
*     I/O Operation                                                                                                     *
*     Number of records read via DD * or DD DATA:      3                                                                *
*     170.......5 140.......4 DMY.......0 DMY.......0                                                                   *
*                                                                                                                       *
*                                    Charge for step (w/o SYSOUT):          0,08                                      *
*********************************************************************************************************************
IEF236I ALLOC. FOR SOSMAKE COUNT
IEF237I 140  ALLOCATED TO STDIN
IEF237I 190  ALLOCATED TO STDOUT
IEF237I 170  ALLOCATED TO OBJOUT
IEF237I JES2 ALLOCATED TO MAWK
IEF142I SOSMAKE COUNT - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS16017.T182432.RA000.SOSMAKE.R0000002      DELETED       *--------5
IEF285I   VOL SER NOS= WORK00.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.R0000003      PASSED        *--------1
IEF285I   VOL SER NOS= WORK03.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.R0000004      PASSED        *--------0
IEF285I   VOL SER NOS= WORK01.
IEF285I   JES2.JOB00010.SI0102                    SYSIN
IEF373I STEP /COUNT   / START 16017.1824
IEF374I STEP /COUNT   / STOP  16017.1824 CPU    0MIN 00.08SEC SRB    0MIN 00.04SEC VIRT   684K SYS   220K
*********************************************************************************************************************
*     3. Jobstep of job: SOSMAKE     Stepname: COUNT       Program name: MAWK       Executed on 17.01.16 from 18.24.32 to 18.24.33 *
*         elapsed time  00:00:00,17                   CPU-Identifier:  TK4-          Page-in:      0                      *
*             CPU time  00:00:00,12              Virtual Storage used:    684K       Page-out:     0                      *
*           corr. CPU:  00:00:00,12   CPU time has been corrected by  1 / 1,0  multiplier                                *
*                                                                                                                       *
*     I/O Operation                                                                                                     *
*     Number of records read via DD * or DD DATA:     10                                                                *
*     140.......5 190.......1 170.......0 DMY.......0                                                                   *
*                                                                                                                       *
*                                    Charge for step (w/o SYSOUT):          0,20                                      *
*********************************************************************************************************************
IEF236I ALLOC. FOR SOSMAKE EXTCARDS
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I 170  ALLOCATED TO OO
IEF237I 170  ALLOCATED TO CO
IEF237I 190  ALLOCATED TO SYSIN
IEF237I 180  ALLOCATED TO LOAD
IEF237I 280  ALLOCATED TO IPLDECK
IEF237I 240  ALLOCATED TO SYS00012
IEF142I SOSMAKE EXTCARDS - STEP WAS EXECUTED - COND CODE 0000
IEF285I   JES2.JOB00010.SO0109                    SYSOUT
IEF285I   SYS16017.T182432.RA000.SOSMAKE.R0000001      DELETED       *-------10
IEF285I   VOL SER NOS= WORK01.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.R0000004      PASSED        *--------5
IEF285I   VOL SER NOS= WORK01.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.R0000003      DELETED       *--------2
IEF285I   VOL SER NOS= WORK03.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.LOAD           PASSED        *--------0
IEF285I   VOL SER NOS= WORK02.
IEF285I   HERC01.SOS15352.IPLDECK                 CATALOGED     *--------0
IEF285I   VOL SER NOS= PUB002.
IEF285I   SYS1.UCAT.TSO                           KEPT          *--------0
IEF285I   VOL SER NOS= PUB000.
IEF373I STEP /EXTCARDS/ START 16017.1824
IEF374I STEP /EXTCARDS/ STOP  16017.1824 CPU    0MIN 00.09SEC SRB    0MIN 00.01SEC VIRT   236K SYS   212K
*********************************************************************************************************************
*     4. Jobstep of job: SOSMAKE     Stepname: EXTCARDS    Program name: IDCAMS     Executed on 17.01.16 from 18.24.33 to 18.24.33 *
```

```
*          elapsed time  00:00:00,20                    CPU-Identifier:  TK4-          Page-in:      0                          *
*              CPU time  00:00:00,10                Virtual Storage used:    236K       Page-out:      0                          *
*            corr. CPU:  00:00:00,10   CPU time has been corrected by  1 / 1,0  multiplier                                     *
*                                                                                                                               *
*     I/O Operation                                                                                                             *
*     Number of records read via DD * or DD DATA:      0                                                                        *
*     DMY.......0 170......10 170.......5 190.......2 180.......0 280.......0 240.......0                                      *
*                                                                                                                               *
*                                     Charge for step (w/o SYSOUT):          0,16                                           *
*********************************************************************************************************************************
IEF236I ALLOC. FOR SOSMAKE LKED
IEF237I 170  ALLOCATED TO OBJ
IEF237I 180  ALLOCATED TO SYSLMOD
IEF237I 140  ALLOCATED TO SYSUT1
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I JES2 ALLOCATED TO SYSLIN
IEF142I SOSMAKE LKED - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS16017.T182432.RA000.SOSMAKE.R0000004      DELETED       *--------6
IEF285I   VOL SER NOS= WORK01.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.LOAD          PASSED        *--------9
IEF285I   VOL SER NOS= WORK02.
IEF285I   SYS16017.T182432.RA000.SOSMAKE.SYSUT1        DELETED       *--------0
IEF285I   VOL SER NOS= WORK00.
IEF285I   JES2.JOB00010.SO0110                         SYSOUT
IEF285I   JES2.JOB00010.SI0103                         SYSIN
IEF373I STEP /LKED    / START 16017.1824
IEF374I STEP /LKED    / STOP  16017.1824 CPU    0MIN 00.05SEC SRB    0MIN 00.01SEC VIRT   260K SYS   228K
*********************************************************************************************************************************
*     5. Jobstep of job: SOSMAKE     Stepname: LKED        Program name: IEWL       Executed on 17.01.16 from 18.24.33 to 18.24.33 *
*          elapsed time  00:00:00,10                    CPU-Identifier:  TK4-          Page-in:      0                          *
*              CPU time  00:00:00,06                Virtual Storage used:    260K       Page-out:      0                          *
*            corr. CPU:  00:00:00,06   CPU time has been corrected by  1 / 1,0  multiplier                                     *
*                                                                                                                               *
*     I/O Operation                                                                                                             *
*     Number of records read via DD * or DD DATA:      2                                                                        *
*     170.......6 180.......9 140.......0 DMY.......0 DMY.......0                                                               *
*                                                                                                                               *
*                                     Charge for step (w/o SYSOUT):          0,10                                           *
*********************************************************************************************************************************
IEF236I ALLOC. FOR SOSMAKE EXTTEXT
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I 180  ALLOCATED TO LOAD
IEF237I 280  ALLOCATED TO IPLDECK
IEF237I 240  ALLOCATED TO SYS00014
IEF237I JES2 ALLOCATED TO SYSIN
IEF142I SOSMAKE EXTTEXT - STEP WAS EXECUTED - COND CODE 0000
IEF285I   JES2.JOB00010.SO0111                         SYSOUT
IEF285I   SYS16017.T182432.RA000.SOSMAKE.LOAD          DELETED       *-------10
IEF285I   VOL SER NOS= WORK02.
IEF285I   HERC01.SOS15352.IPLDECK                      KEPT          *--------1
IEF285I   VOL SER NOS= PUB002.
IEF285I   SYS1.UCAT.TSO                                KEPT          *--------0
IEF285I   VOL SER NOS= PUB000.
IEF285I   JES2.JOB00010.SI0104                         SYSIN
IEF373I STEP /EXTTEXT / START 16017.1824
IEF374I STEP /EXTTEXT / STOP  16017.1824 CPU    0MIN 00.07SEC SRB    0MIN 00.01SEC VIRT   316K SYS   228K
*********************************************************************************************************************************
*     6. Jobstep of job: SOSMAKE     Stepname: EXTTEXT     Program name: IDCAMS     Executed on 17.01.16 from 18.24.33 to 18.24.33 *
*          elapsed time  00:00:00,13                    CPU-Identifier:  TK4-          Page-in:      0                          *
*              CPU time  00:00:00,08                Virtual Storage used:    316K       Page-out:      0                          *
*            corr. CPU:  00:00:00,08   CPU time has been corrected by  1 / 1,0  multiplier                                     *
*                                                                                                                               *
*     I/O Operation                                                                                                             *
*     Number of records read via DD * or DD DATA:      1                                                                        *
*     DMY.......0 180......10 280.......1 240.......0 DMY.......0                                                               *
*                                                                                                                               *
*                                     Charge for step (w/o SYSOUT):          0,13                                           *
*********************************************************************************************************************************
IEF236I ALLOC. FOR SOSMAKE MAKEDECK
IEF237I JES2 ALLOCATED TO SYSTSPRT
```

```
IEF237I JES2 ALLOCATED TO SYSTSIN
IEF237I 240  ALLOCATED TO SYS00002
IEF237I 280  ALLOCATED TO SYS00001
IEF285I   HERC01.SOS15352.IPLDECK                      KEPT         *--------2
IEF285I   VOL SER NOS= PUB002.
IEF142I SOSMAKE MAKEDECK - STEP WAS EXECUTED - COND CODE 0000
IEF285I   JES2.JOB00010.SO0112                         SYSOUT
IEF285I   JES2.JOB00010.SI0105                         SYSIN
IEF285I   SYS1.UCAT.TSO                                KEPT         *--------0
IEF285I   VOL SER NOS= PUB000.
IEF373I STEP /MAKEDECK/ START 16017.1824
IEF374I STEP /MAKEDECK/ STOP  16017.1824 CPU    0MIN 00.09SEC SRB    0MIN 00.01SEC VIRT    48K SYS   264K
********************************************************************************************************************
*     7. Jobstep of job: SOSMAKE     Stepname: MAKEDECK    Program name: IKJEFT01   Executed on 17.01.16 from 18.24.33 to 18.24.33 *
*         elapsed time  00:00:00,12                    CPU-Identifier:  TK4-           Page-in:      0                    *
*             CPU time  00:00:00,10               Virtual Storage used:     48K         Page-out:      0                    *
*           corr. CPU:  00:00:00,10   CPU time has been corrected by  1 / 1,0  multiplier                                 *
*                                                                                                                          *
*     I/O Operation                                                                                                        *
*     Number of records read via DD * or DD DATA:      1                                                                   *
*     DMY.......0 DMY.......0 240.......0                                                                                  *
*                                                                                                                          *
*                                    Charge for step (w/o SYSOUT):          0,16                                       *
********************************************************************************************************************
IEF236I ALLOC. FOR SOSMAKE PCHDECK
IEF237I DMY  ALLOCATED TO SYSIN
IEF237I 280  ALLOCATED TO SYSUT1
IEF237I 240  ALLOCATED TO SYS00016
IEF237I JES2 ALLOCATED TO SYSUT2
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF142I SOSMAKE PCHDECK - STEP WAS EXECUTED - COND CODE 0000
IEF285I   HERC01.SOS15352.IPLDECK                      UNCATALOGED  *--------2
IEF285I   VOL SER NOS= PUB002.
IEF285I   HERC01.SOS15352.IPLDECK                      DELETED      *--------2
IEF285I   VOL SER NOS= PUB002.
IEF285I   SYS1.UCAT.TSO                                KEPT         *--------0
IEF285I   VOL SER NOS= PUB000.
IEF285I   JES2.JOB00010.SO0113                         SYSOUT
IEF285I   JES2.JOB00010.SO0114                         SYSOUT
IEF373I STEP /PCHDECK / START 16017.1824
IEF374I STEP /PCHDECK / STOP  16017.1824 CPU    0MIN 00.04SEC SRB    0MIN 00.00SEC VIRT    60K SYS   224K
********************************************************************************************************************
*     8. Jobstep of job: SOSMAKE     Stepname: PCHDECK     Program name: IEBGENER   Executed on 17.01.16 from 18.24.33 to 18.24.33 *
*         elapsed time  00:00:00,10                    CPU-Identifier:  TK4-           Page-in:      0                    *
*             CPU time  00:00:00,04               Virtual Storage used:     60K         Page-out:      0                    *
*           corr. CPU:  00:00:00,04   CPU time has been corrected by  1 / 1,0  multiplier                                 *
*                                                                                                                          *
*     I/O Operation                                                                                                        *
*     Number of records read via DD * or DD DATA:      0                                                                   *
*     DMY.......0 280.......2 240.......0 DMY.......0 DMY.......0                                                          *
*                                                                                                                          *
*                                    Charge for step (w/o SYSOUT):          0,06                                       *
********************************************************************************************************************
IEF375I  JOB /SOSMAKE / START 16017.1824
IEF376I  JOB /SOSMAKE / STOP  16017.1824 CPU    0MIN 00.94SEC SRB    0MIN 00.11SEC
```

```
SYMBOL   TYPE  ID   ADDR  LENGTH LDID                                    ASM 0201 18.24 01/17/16

PROGRAM   SD  0001 000000 001860
CARDLDR   SD  0002 001860 0000A0
IPLCARD   SD  0003 001900 000050
```

```
LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                    2 ************************************************************************ 00020000
                                    3 *                                                                      * 00030000
                                    4 *  ********************************************************************  * 00040000
                                    5 *  *                                                                *  * 00050000
                                    6 *  *                      Sample Operating System                   *  * 00060002
                                    7 *  *                           Version 2.00                         *  * 00067002
                                    8 *  *                       Developed at MIT 1973                    *  * 00074002
                                    9 *  *                                                                *  * 00090000
                                   10 *  ********************************************************************  * 00100000
                                   11 *                                                                      * 00100602
                                   12 *  Update 2015/10/31 Juergen Winkelmann, e-mail winkelmann@id.ethz.ch  * 00101202
                                   13 *                                                                      * 00101802
                                   14 *   - change storage protection alignments to 4K  \                    * 00102402
                                   15 *   - replace SSK/ISK instructions with SSKE/ISKE  > 4K support        * 00103002
                                   16 *   - minor changes in storage protection logic   /                    * 00103602
                                   17 *   - change number of parallel processing streams to 4                * 00104202
                                   18 *   - change core size to 16M                                          * 00104802
                                   19 *   - replace table of valid $JOB card core requests with general      * 00105402
                                   20 *     logic rounding up any none full page request entered to next     * 00106002
                                   21 *     full page                                                        * 00106602
                                   22 *   - add IPL card and two card loader for one stop creation of an     * 00107202
                                   23 *     IPLable card deck                                                * 00107802
                                   24 *   - ignore external interrupts during initialization to avoid        * 00108402
                                   25 *     IPLRTN getting interrupted by the interval timer                 * 00109002
                                   26 *                                                                      * 00109103
                                   27 *  Update 2015/11/05 Juergen Winkelmann, e-mail winkelmann@id.ethz.ch  * 00109203
                                   28 *                                                                      * 00109303
                                   29 *   - allow reloading card readers without needing to re-IPL the       * 00109403
                                   30 *     system. This functionality relies on Hercules' card reader       * 00109503
                                   31 *     behavior with the EOF initialization in place. It will not       * 00109603
                                   32 *     work in INTR mode.                                               * 00109703
                                   33 *                                                                      * 00109714
                                   34 *  Update 2015/11/13 Juergen Winkelmann, e-mail winkelmann@id.ethz.ch  * 00109724
                                   35 *                                                                      * 00109734
                                   36 *   - add UCB to support a console at 009 using the EXCP device        * 00109744
                                   37 *     handler.                                                         * 00109754
                                   38 *                                                                      * 00109765
                                   39 *  Update 2015/11/19 Juergen Winkelmann, e-mail winkelmann@id.ethz.ch  * 00109775
                                   40 *                                                                      * 00109785
                                   41 *   - add UCB to support second console at 01F using the EXCP device   * 00109795
                                   42 *     handler.                                                         * 00109805
                                   43 *                                                                      * 00109816
                                   44 *  Update 2015/11/28 Juergen Winkelmann, e-mail winkelmann@id.ethz.ch  * 00109826
                                   45 *                                                                      * 00109836
                                   46 *   -  modify EXCP driver to wait for an unsolicited interrupt         * 00109846
                                   47 *      (i.e. attention) instead of performing the I/O operation        * 00109856
                                   48 *      when the high order bit of the CCW address is set to one.       * 00109866
                                   49 *      This allows user programs to implement a behavior similar       * 00109876
                                   50 *      to the WAIT parameter of the TGET and TPG macros.               * 00109886
                                   51 *                                                                      * 00109897
                                   52 *  Update 2015/12/18 Juergen Winkelmann, e-mail winkelmann@id.ethz.ch  * 00109907
                                   53 *                                                                      * 00109917
                                   54 *   - New device address layout:                                       * 00109922
                                   55 *                                                                      * 00109927
                                   56 *     o add UCBs to support devices at 010, 011, 0C0, 0C1, 0C2 and     * 00109932
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16
                                    57 *       0C3 using the EXCP device handler. These are meant to be used * 00109937
                                    58 *       3270 terminals.                                               * 00109942
                                    59 *                                                                     * 00109947
                                    60 *     o reassign reader and printer addresses:                        * 00109952
                                    61 *                                                                     * 00109957
                                    62 *                              | reader | printer                    * 00109962
                                    63 *                   ----------+--------+---------                   * 00109967
                                    64 *                    stream 1 |  00C   |   00E                      * 00109972
                                    65 *                    stream 2 |  10C   |   10E                      * 00109977
                                    66 *                    stream 3 |  20C   |   20E                      * 00109982
                                    67 *                    stream 4 |  30C   |   30E                      * 00109987
                                    68 *                                                                     * 00109992
                                    69 *                                                                     * 00110000
                                    70 ************************************************************************ 00120000



                                    72          PRINT ON,NODATA,GEN                                          00140000
000000                              73 PROGRAM  CSECT ,                sample operating system starts at zero  00150002
001860                              74 CARDLDR  CSECT ,                two card loader follows at the end      00150102
                                    75 ***                                                                   00150202
                                    76 *** IPL card                                                          00150302
                                    77 ***                                                                   00150402
001900                              78 IPLCARD  CSECT ,                IPLable deck must begin with this card  00150502
001900 0000000000                   79 PSWD     DC    F'0',X'00'       initial program status word, disabled   00150602
001905 001860                       80          DC    AL3(LOADER)      start execution at load address         00150702
001908 02001860                     81 CCW1     DC    X'02',AL3(LOADER) read 1st card to load address          00150802
00190C 40000050                     82          DC    XL4'40000050'    chain, read length = 80                 00150902
001910 020018B0                     83 CCW2     DC    X'02',AL3(LOADER+80) read 2nd card to load addr + 80     00151002
001914 00000050                     84          DC    XL4'00000050'    read length = 80                        00151102
001918 E2819497938540D6             85          DC    C'Sample Operating System    Version 2.00' eye catcher   00151207
00193F 4082A48993A340F1             86          DC    C' built 12/18/2015' build date                         00151267
                                    87 ***                                                                   00151402
                                    88 *** loader                                                            00151502
                                    89 ***                                                                   00151602
                                    90 *                                                                     00151702
                                    91 * Initialize                                                          00151802
                                    92 *                                                                     00151902
001860                              93 CARDLDR  CSECT ,                two card loader must follow IPL card    00152002
001860 05C0                         94          BALR  R12,0            establish ..                            00152102
001862 4120 0002      00002         95          LA    R2,2                        .. base ..                  00152202
001866 1BC2                         96          SR    R12,R2                            .. register           00152302
                                    97          USING CARDLDR,R12      tell assembler                          00152402
001868 41B0 0000      00000         98          LA    R11,0            addressability of ..                    00152502
                                    99          USING PROGRAM,R11        .. sample operating system            00152602
00186C 4120 0000      00000        100          LA    R2,0             I/O ..                                  00152702
001870 4130 C06A      018CA        101          LA    R3,IOINTRPT                .. new PSWD                   00152802
001874 9023 B078      00078        102          STM   R2,R3,IONEW      store I/O new PSWD                      00152902
001878 8000 C07E      018DE        103          SSM   ENBLECH0         enable interrupts from channel 0        00153002
00187C 4150 C0A0      01900        104          LA    R5,CCWCHAIN      address of card reader CCW chain        00153102
001880 5050 B048      00048        105          ST    R5,CAW           store address in CAW                    00153202
001884 5830 C094      018F4        106          L     R3,NUMCARDS      number of cards to read                 00153302
001888 5840 C090      018F0        107          L     R4,LOADADDR      target address of loaded code           00153402
                                   108 *                                                                     00153502
                                   109 * create CCW chain                                                    00153602
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   110 *                                                                    00153702
00188C 1824                        111 NEXTCARD LR    R2,R4            load next card here                  00153802
00188E BF28 C080      018E0        112          ICM   R2,B'1000',READ  insert write command                00153902
001892 5020 5000      00000        113          ST    R2,0(,R5)        store CCW                            00154002
001896 4120 0050      00050        114          LA    R2,80            length of card                       00154102
00189A 5020 5004      00004        115          ST    R2,4(,R5)        store length in CCW, zero all flags  00154202
00189E 9640 5004      00004        116          OI    4(R5),X'40'      indicate command chaining            00154302
0018A2 4140 4050      00050        117          LA    R4,80(,R4)       increment target address             00154402
0018A6 4150 5008      00008        118          LA    R5,8(,R5)        point to next CCW                    00154502
0018AA 4630 C02C      0188C        119          BCT   R3,NEXTCARD      read next card                       00154602
0018AE 5B50 C098      018F8        120          S     R5,EIGHT         point to previous CCW                00154702
0018B2 94BF 5004      00004        121          NI    4(R5),X'BF'      clear command chaining flag          00154802
                                   122 *                                                                    00154902
                                   123 * read cards and wait for completion                                 00155002
                                   124 *                                                                    00155102
0018B6 9C00 000C      0000C        125          SIO   12(0)            read cards                           00155202
0018BA 4120 C066      018C6        126          LA    R2,*+12          continue here after I/O completion   00155302
0018BE 5020 C08C      018EC        127          ST    R2,CONTINUE      store continue address in PSWD skeleton 00155402
0018C2 8200 C088      018E8        128          LPSW  WAITPSWD         wait for I/O completion              00155502
                                   129 *                                                                    00155602
                                   130 * "IPL" the Sample Operating System                                  00155702
                                   131 *                                                                    00155802
0018C6 8200 0000      00000        132          LPSW  0                transfer control                     00155902
                                   133 *                                                                    00156002
                                   134 * I/O interrupt handler                                             00156102
                                   135 *                                                                    00156202
                         018CA     136 IOINTRPT EQU   *                                                    00156302
0018CA 9104 B044      00044        137          TM    CSW+4,X'04'      device end received?                 00156402
0018CE 47E0 C07A      018DA        138          BNO   IOINTRTN         -> no,  keep waiting                 00156502
0018D2 94FD B039      00039        139          NI    IOOLD+1,X'FD'    -> yes, terminate wait state and ..  00156602
0018D6 947F B038      00038        140          NI    IOOLD,X'7F'         .. and disable channel 0 interrupts 00156702
0018DA 8200 B038      00038        141 IOINTRTN LPSW  IOOLD            return to mainline                   00156802
                                   142          DROP  R11,R12          no longer needed                     00156902
                                   143 *                                                                    00157002
                                   144 * Data area                                                         00157102
                                   145 *                                                                    00157202
0018DE F8F0                        146 ENBLECH0 DC    C'80'            mask to enable channel 0 interrupts  00157302
0018E0 02                          147 READ     DC    X'02'            read a card                          00157402
0018E8                             148          DS    0D               align                                00157502
0018E8 80020000                    149 WAITPSWD DC    X'80020000'      wait with channel 0 interrupts enabled 00157602
0018EC                             150 CONTINUE DS    F                continue here after wait             00157702
0018F0 00000000                    151 LOADADDR DC    F'0'             code is to be loaded here            00157802
0018F4 0000004E                    152 NUMCARDS DC    F'78'            number of cards to read              00157907
0018F8 00000008                    153 EIGHT    DC    F'8'             CCW length                           00158002
001900                             154 CCWCHAIN DS    0D               start of card reader CCW chain       00158102
                                   155 ***                                                                  00158202
                                   156 *** Sample Operating System code begins here                         00158302
                                   157 ***                                                                  00158402
000000                             158 PROGRAM  CSECT ,                   sample OS must follow loader cards 00158502

                         1000000   160 CORESIZE EQU   16777216             bytes of core in object machine    00170002

                           00000   162          USING *,0 COMMUNICATIONS AREA                               00190000

000000 0000000000001126            164 IPLPSW   DC    B'00000000',B'00000000',X'0000',X'00',AL3(IPLRTN)      00210000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                    ASM 0201 18.24 01/17/16

000008                             165 IPLCCW1  DS    D .                IPL CCW #1                          00220000
000010                             166 IPLCCW2  DS    D .                IPL CCW #2                          00230000
000018                             167 EXTOLD   DS    D .                EXTERNAL OLD PSW                    00240000
000020                             168 SVCOLD   DS    D .                SVC OLD PSW                         00250000
000028                             169 PGMOLD   DS    D .                PROGRAM INTERRUPT OLD PSW           00260000
000030                             170 MCHKOLD  DS    D .                MACHINE CHECK OLD PSW               00270000
000038                             171 IOOLD    DS    D .                I/O INTERRUPT OLD PSW               00280000
000040                             172 CSW      DS    D .                CHANNEL STATUS WORD                 00290000
000048                             173 CAW      DS    F .                CHANNEL ADDRESS WORD                00300000
00004C                             174 UNUSED0  DS    F .                                                    00310000
000050 FFFFFFFF                    175 TIMER    DC    F'-1' .            TIMER                               00320000
000054 00000000                    176 UNUSED1  DC    F'0' .                                                 00330000
000058 000000000000027A            177 EXTNEW   DC    B'00000000',B'00000000',X'0000',X'00',AL3(EXTHANDL)     00340000
000060 00000000000002B2            178 SVCNEW   DC    B'00000000',B'00000000',X'0000',X'00',AL3(SVCHANDL)     00350000
000068 00000000000002B0            179 PGMNEW   DC    B'00000000',B'00000000',X'0000',X'00',AL3(PGMHANDL)     00360000
000070 0002000000000000            180 MCHKNEW  DC    B'00000000',B'00000010',X'0000',X'00',AL3(0)            00370000
000078 00000000000018CA            181 IONEW    DC    B'00000000',B'00000000',X'0000',X'00',AL3(IOINTRPT) <-+ 00380002
                                   182 ***                                                              |  00382002
                                   183 ***  IOINTRPT will be replaced with IOHANDL after IPL by IPLRTN -----+ 00384002
                                   184 ***                                                                 00386002
000080                      00180  185          ORG   *+X'100' SPACE OVER STAND ALONE DUMP AREA           00390000
000180 00001828                    186 FSBPTR   DC    A(VERYEND) .       FSB POINTER                         00400000
000184 0000000100000000            187 FSBSEM   DC    F'1,0' .           FSB SEMAPHORE                       00410000
00018C 0000000000000000            188 MEMORY   DC    F'0,0' .           MEMORY SEMAPHORE                    00420000
000194 0000000100000000            189 CAWSEM   DC    F'1,0' .           CAW SEMAPHORE                       00430000

00019C                             191 TRAPSAVE DS    16F .              STORAGE FOR EXTERNAL INTERRUPTS     00450000
0001DC                             192 IOHSAVE  DS    16F .              STORAGE FOR I/O INTERRUPTS          00460000

00021C                             194 SYSSEMSA DS    CL84 .             SYSTEM SEMAPHORE SAVE AREA          00480000

000270                             196 RUNNING  DS    A .                RUNNING                             00500000
000274                             197 NEXTTRY  DS    A .                NEXTTRY                             00510000
000278                             198 NEXTTRYM DS    C,0H .             NEXTTRY MODIFIED                    00520000
```

```
  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                    ASM 0201 18.24 01/17/16

                                    200 ********************************************************************** 00540000
                                    201 *                                                                    * 00550000
                                    202 *              EXTERNAL, PROGRAM, AND SVC INTERRUPT HANDLERS         * 00560000
                                    203 *                                                                    * 00570000
                                    204 ********************************************************************** 00580000

                             0027A  206 EXTHANDL EQU   * .                 EXTERNAL INTERRUPT HANDLER          00600000
00027A 900F 019C      0019C         207          STM   0,15,TRAPSAVE .     SAVE REGISTERS                      00610000
00027E 0510                         208          BALR  1,0 .               ESTABLISH ADDRESSING                00620000
                             00280  209          USING *,1                                                     00630000
000280 9580 001B      0001B         210          CLI   EXTOLD+3,X'80' .    SEE IF TIMER TRAP                   00640000
000284 4770 1028      002A8         211          BNE   EXTHRET .           IF NOT, IGNORE                      00650000
000288 58F0 0270      00270         212          L     15,RUNNING .        SET UP REGISTERS FOR TRAFFIC        00660000
                             00000  213          USING PCB,15 .             CONTROLLER (XPER)                  00670000
00028C 95FF F019      00019         214          CLI   PCBBLOKT,X'FF' .    IF BLOCKED, NO PROCESS IS           00680000
000290 4780 1028      002A8         215          BE    EXTHRET .            RUNNABLE, SO RETURN                00690000
000294 41E0 F04C      0004C         216          LA    14,PCBISA .         GET SAVE AREA                       00700000
                             00000  217          USING SA,14                                                   00710000
000298 D207 E000 0018 00000 00018   218          MVC   SAPSW,EXTOLD .      AND STORE OLD STUFF INTO IT         00720000
00029E D23F E008 019C 00008 0019C   219          MVC   SAREGS,TRAPSAVE                                         00730000
0002A4 47F0 12EA      0056A         220          B     XPER .              THEN GO TO TRAFFIC SCHEDULER        00740000
                                    221          DROP  14,15                                                   00750000
0002A8 980F 019C      0019C         222 EXTHRET  LM    0,15,TRAPSAVE .     TO IGNORE AN INTERRUPT, RELOAD      00760000
0002AC 8200 0018      00018         223          LPSW  EXTOLD .            AND TRANSFER BACK                   00770000

                             002B0  225 PGMHANDL EQU   * .                 PROGRAM INTERRUPT HANDLER           00790000
0002B0 0A6F                         226          SVC   C'?' .              IN ANY CASE, AN ERROR               00800000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   228 ********************************************************************** 00820000
                                   229 *                                                                    * 00830000
                                   230 *                          SVC INTERRUPT HANDLER                     * 00840000
                                   231 *                                                                    * 00850000
                                   232 *        FOR ALL ROUTINES ENTERED BY SVC INTERRUPT, THE              * 00860000
                                   233 *        FOLLOWING REGISTERS CONTAIN THIS INFORMATION:               * 00870000
                                   234 *                                                                    * 00880000
                                   235 *        REGISTER  1 - BASE REGISTER FOR ROUTINE                     * 00890000
                                   236 *        REGISTER  2 - POINTER TO ARGUMENT LIST (IF ANY)             * 00900000
                                   237 *        REGISTER 14 - POINTER TO SAVEAREA USED FOR THIS SVC         * 00910000
                                   238 *        REGISTER 15 - POINTER TO PCB PRESENTLY RUNNING              * 00920000
                                   239 *                                                                    * 00930000
                                   240 ********************************************************************** 00940000

                          002B2    242 SVCHANDL EQU   * .                SVC HANDLER                         00960000
0002B2 900F 019C  0019C            243          STM   0,15,TRAPSAVE .    SAVE REGISTERS                      00970000
0002B6 0590                        244          BALR  9,0 .               ESTABLISH ADDRESSING                00980000
                          002B8    245          USING *,9                                                     00990000
0002B8 98AE 905C  00314            246          LM    10,14,SVCCONST .    INITIALIZE REGISTERS                01000000
0002BC 43A0 0023  00023            247          IC    10,SVCOLD+3 .       GET SVC CODE                        01010000
0002C0 43AA 9070  00328            248          IC    10,SVCHTABL(10) .   TRANSLATE INTO TABLE OFFSET         01020000
0002C4 41AA 9170  00428            249          LA    10,SVCRTN(10) .     REG 10 -> THE CORRECT PSW           01030000
0002C8 9500 A002  00002            250          CLI   2(10),X'00' .       IS THIS CALL PROTECTED?             01040000
0002CC 4780 904A  00302            251          BE    SVCHPROT .          THEN SEE IF WE CAN CALL IT          01050000
0002D0 58F0 0270  00270            252 SVCOK    L     15,RUNNING .        GET PCB POINTER                     01060000
                          00000    253          USING PCB,15                                                  01070000
0002D4 9500 A003  00003            254          CLI   3(10),X'00' .       IS IT A SYSTEM SAVEAREA?            01080000
0002D8 4780 9026  002DE            255          BE    SYSSEM .            DON'T USE REG 14 AS PCB POINTER     01090000
0002DC 18EF                        256          LR    14,15 .             ELSE, SET UP PCB POINTER            01100000
0002DE 43BA 0003  00003            257 SYSSEM   IC    11,3(10) .          GET POINTER TO SAVE AREA OFFSET     01110000
0002E2 5AEB 9210  004C8            258          A     14,SVCSAVE(11) .    REG 14 -> SAVE AREA                 01120000
0002E6 954B 0023  00023            259          CLI   SVCOLD+3,C'.' .     ARE WE CALLING XPER?                01130000
0002EA 4780 9042  002FA            260          BE    SVCXPER .           IF SO, DON'T SAVE RETURN STATUS     01140000
                          00000    261          USING SA,14                                                   01150000
0002EE D207 E000 0020 00000 00020  262          MVC   SAPSW,SVCOLD .      SAVE PSW                            01160000
0002F4 D23F E008 019C 00008 0019C  263          MVC   SAREGS,TRAPSAVE .   SAVE REGISTERS                      01170000
0002FA 581A 0004  00004            264 SVCXPER  L     1,4(10) .           MAKE ADDRESSING EASY WITHIN         01180000
0002FE 8200 A000  00000            265          LPSW  0(10) .              ROUTINE, AND GO THERE              01190000
000302 58C0 0020  00020            266 SVCHPROT L     12,SVCOLD .         GET PROTECTION KEY                  01200000
000306 14CD                        267          NR    12,13 .             IS IT A USER?                       01210000
000308 4780 9018  002D0            268          BZ    SVCOK .             IF NO, THAT'S FINE                  01220000
00030C 41A0 91F8  004B0            269          LA    10,SVCRTN+136 .     ELSE SET UP CALL TO XQUE            01230000
000310 47F0 9018  002D0            270          B     SVCOK .                                                 01240000
                                   271          DROP  9                                                       01250000
000314 0000000000000000           272 SVCCONST DC    3F'0',X'00F00000',F'0'                                  01260000

000328 8484848484848484           274 SVCHTABL DC    256X'84' .          TABLE OF PSW OFFSETS                01280000
000428                    003FF    275          ORG   SVCHTABL+C'P'                                          01290000
0003FF 00                          276          DC    AL1(0)                                                01300000
000400                    0040D    277          ORG   SVCHTABL+C'V'                                          01310000
00040D 08                          278          DC    AL1(8)                                                01320000
00040E                    00382    279          ORG   SVCHTABL+C'!'                                          01330000
000382 10                          280          DC    AL1(16)                                               01340000
000383                    00393    281          ORG   SVCHTABL+C','                                          01350000
000393 18                          282          DC    AL1(24)                                               01360000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

000394                     003EA   283          ORG   SVCHTABL+C'B'                                    01370000
0003EA 20                          284          DC    AL1(32)                                          01380000
0003EB                     003E9   285          ORG   SVCHTABL+C'A'                                    01390000
0003E9 28                          286          DC    AL1(40)                                          01400000
0003EA                     003EE   287          ORG   SVCHTABL+C'F'                                    01410000
0003EE 30                          288          DC    AL1(48)                                          01420000
0003EF                     003F1   289          ORG   SVCHTABL+C'I'                                    01430000
0003F1 38                          290          DC    AL1(56)                                          01440000
0003F2                     003F9   291          ORG   SVCHTABL+C'J'                                    01450000
0003F9 40                          292          DC    AL1(64)                                          01460000
0003FA                     00373   293          ORG   SVCHTABL+C'.'                                    01470000
000373 48                          294          DC    AL1(72)                                          01480000
000374                     00401   295          ORG   SVCHTABL+C'R'                                    01490000
000401 50                          296          DC    AL1(80)                                          01500000
000402                     0040A   297          ORG   SVCHTABL+C'S'                                    01510000
00040A 58                          298          DC    AL1(88)                                          01520000
00040B                     003EB   299          ORG   SVCHTABL+C'C'                                    01530000
0003EB 60                          300          DC    AL1(96)                                          01540000
0003EC                     003FD   301          ORG   SVCHTABL+C'N'                                    01550000
0003FD 68                          302          DC    AL1(104)                                         01560000
0003FE                     00410   303          ORG   SVCHTABL+C'Y'                                    01570000
000410 70                          304          DC    AL1(112)                                         01580000
000411                     00411   305          ORG   SVCHTABL+C'Z'                                    01590000
000411 78                          306          DC    AL1(120)                                         01600000
000412                     003EC   307          ORG   SVCHTABL+C'D'                                    01610000
0003EC 80                          308          DC    AL1(128)                                         01620000
0003ED                     00397   309          ORG   SVCHTABL+C'?'                                    01630000
000397 88                          310          DC    AL1(136)                                         01640000
000398                     003F0   311          ORG   SVCHTABL+C'H'                                    01650000
0003F0 90                          312          DC    AL1(144)                                         01660000
0003F1                     003ED   313          ORG   SVCHTABL+C'E'                                    01670000
0003ED 98                          314          DC    AL1(152)                                         01680000
0003EE                     00428   315          ORG   SVCHTABL+256                                     01690000

000428                             317 SVCRTN   DS    0D .               THE PSWS                      01710000
                                   318 *                IN THE FOLLOWING PSWS, THE THIRD BYTE INDICATES    * 01720000
                                   319 *                WHETHER THE SVC IS RESTRICTED:                     * 01730000
                                   320 *                          X'00' -> OPERATING SYSTEM ONLY           * 01740000
                                   321 *                          X'FF' -> AVAILABLE TO USER ALSO          * 01750000
                                   322 *                                                                   * 01760000
                                   323 *                 THE FOURTH BYTE INDICATES WHICH SAVE AREA TO USE; * 01770000
                                   324 *                 SVCSAVE BELOW SHOWS THE CODE VALUES.              * 01780000
000428 00000000000004EE            325          DC    B'00000000',B'00000000',X'0000',X'00',AL3(XP)    01790000
000430 0000000000000534            326          DC    B'00000000',B'00000000',X'0000',X'00',AL3(XV)    01800000
000438 00000004000005C0            327          DC    B'00000000',B'00000000',X'0004',X'00',AL3(XEXC)  01810000
000440 00000004000005D2            328          DC    B'00000000',B'00000000',X'0004',X'00',AL3(XCOM)  01820000
000448 0000000400000744            329          DC    B'00000000',B'00000000',X'0004',X'00',AL3(XB)    01830000
000450 FF00000C00000600            330          DC    B'11111111',B'00000000',X'000C',X'00',AL3(XA)    01840000
000458 FF00000C000006B6            331          DC    B'11111111',B'00000000',X'000C',X'00',AL3(XF)    01850000
000460 000000040000087A            332          DC    B'00000000',B'00000000',X'0004',X'00',AL3(XI)    01860000
000468 00000004000008A6            333          DC    B'00000000',B'00000000',X'0004',X'00',AL3(XJ)    01870000
000470 000000040000056A            334          DC    B'00000000',B'00000000',X'0004',X'00',AL3(XPER)  01880000
000478 FF00FF08000008EC            335          DC    B'11111111',B'00000000',X'FF08',X'00',AL3(XR)    01890000
000480 FF00FF0800000978            336          DC    B'11111111',B'00000000',X'FF08',X'00',AL3(XS)    01900000
000488 FF00FF0800000780            337          DC    B'11111111',B'00000000',X'FF08',X'00',AL3(XC)    01910000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                    ASM 0201 18.24 01/17/16

000490 0000FF04000008CA             338          DC    B'00000000',B'00000000',X'FF04',X'00',AL3(XN)            01920000
000498 0000FF0800000A0A             339          DC    B'00000000',B'00000000',X'FF08',X'00',AL3(XY)            01930000
0004A0 FF00FF0800000A42             340          DC    B'11111111',B'00000000',X'FF08',X'00',AL3(XZ)            01940000
0004A8 FF00FF08000007C6             341          DC    B'11111111',B'00000000',X'FF08',X'00',AL3(XD)            01950000
0004B0 0000FF0400000A8E             342          DC    B'00000000',B'00000000',X'FF04',X'00',AL3(XQUE)          01960000
0004B8 FF00FF0800000842             343          DC    B'11111111',B'00000000',X'FF08',X'00',AL3(XH)            01970000
0004C0 FF00000C00000608             344          DC    B'11111111',B'00000000',X'000C',X'00',AL3(XAUTO)         01980000

0004C8                              346 SVCSAVE  DS    0F .                THE SAVE AREA OFFSETS                02000000
0004C8 0000021C                     347          DC    A(SYSSEMSA) .       CODE 00 -> SYSSEMSA                  02010000
0004CC 0000004C                     348          DC    A(PCBISA-PCB) .     CODE 04 -> INTERRUPT SAVE AREA       02020000
0004D0 000000A0                     349          DC    A(PCBFSA-PCB) .     CODE 08 -> FAULT SAVE AREA           02030000
0004D4 000000F4                     350          DC    A(PCBMSA-PCB) .     CODE 0C -> MEMORY SAVE AREA          02040000


                                    352 ************************************************************************ 02060000
                                    353 *                                                                      * 02070000
                                    354 * RETURN SEQUENCE FOR REQUEST DRIVEN ROUTINES AND TRAFFIC CONTROLLER  * 02080000
                                    355 *                                                                      * 02090000
                                    356 ************************************************************************ 02100000

0004D8                              358          DS    0D                                                       02120000
0004D8 00000000000004E0             359 RETURN   DC    B'00000000',B'00000000',X'0000',X'00',AL3(RETURNR)       02130000

                          004E0     361 RETURNR  EQU   * .                RETURN ROUTINE FOR SVC'S AND XPER    02150000
0004E0 D207 0020 E000 00020 00000   362          MVC   SVCOLD,SAPSW .      SAVE PSW IN A SAFE PLACE             02160000
0004E6 980F E008      00008         363          LM    0,15,SAREGS .       RELOAD REGISTERS                     02170000
0004EA 8200 0020      00020         364          LPSW  SVCOLD .            AND RETURN                           02180000
```

```
LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                  366 ********************************************************************** 02200000
                                  367 *                                                                    * 02210000
                                  368 *                          REQUEST DRIVEN ROUTINES                   * 02220000
                                  369 *                                                                    * 02230000
                                  370 ********************************************************************** 02240000



                                  372 ********************************************************************** 02260000
                                  373 *                                                                    * 02270000
                                  374 *                                XP ROUTINE                          * 02280000
                                  375 *                                                                    * 02290000
                                  376 *        FUNCTION: TO IMPLEMENT "P" PRIMITIVE FOR SEMAPHORES         * 02300000
                                  377 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS SM        * 02310000
                                  378 *                    SM        DS 0D   SEMAPHORE DEFINITION          * 02320000
                                  379 *                    SMVAL     DS F    VALUE                         * 02330000
                                  380 *                    SMPTR     DS A    POINTER TO FIRST WAITER       * 02340000
                                  381 *   ROUTINES USED: XPER                                              * 02350000
                                  382 *       PROCEDURE: SUBTRACT ONE FROM SMVAL; IF NON-NEGATIVE, RETURN. * 02360000
                                  383 *                  IF NEGATIVE, PLACE RUNNING PROCESS AT END OF LIST * 02370000
                                  384 *                  OF PRECESSES WAITING ON SM. BLOCK CALLING PROCESS; * 02380000
                                  385 *                  ENTER TRAFFIC CONTROLLER.                       * 02390000
                                  386 *    ERROR CHECKS: NONE                                            * 02400000
                                  387 *      INTERRUPTS: OFF                                             * 02410000
                                  388 *     USER ACCESS: NO                                              * 02420000
                                  389 *                                                                    * 02430000
                                  390 ********************************************************************** 02440000

                          004EE   392 XP       EQU   * .               THE XP ROUTINE                    02460000
                          004EE   393          USING *,1                                                 02470000
                          00000   394          USING SM,2 .            ARGUMENT IS A SEMAPHORE           02480000
0004EE 5830 2000      00000       395          L     3,SMVAL  .        GET THE VALUE                     02490000
0004F2 0630                       396          BCTR  3,0 .             SUBTRACT ONE                      02500000
0004F4 5030 2000      00000       397          ST    3,SMVAL .         AND STORE IT BACK                 02510000
0004F8 1233                       398          LTR   3,3 .             SET CONDITION CODE                02520000
0004FA 4740 1014      00502       399          BM    XPWAIT .          IF IT'S NEGATIVE, MUST WAIT       02530000
0004FE 8200 04D8      004D8       400          LPSW  RETURN .          ELSE RETURN NOW                   02540000
000502 4140 2004      00004       401 XPWAIT   LA    4,SMPTR .         START GOING DOWN                  02550000
000506 5850 2004      00004       402          L     5,SMPTR .          CHAIN OF POINTERS                02560000
                                  403          DROP  15                                                  02570000
                          00000   404          USING PCB,5                                               02580000
00050A 1255                       405 XPLOOP   LTR   5,5 .              IF REACHED END                    02590000
00050C 4780 102E      0051C       406          BZ    XPTHEN .          ADD OUR PCB ON. ELSE,             02600000
000510 4140 5030      00030       407          LA    4,PCBNSW .        INCREMENT POINTERS                02610000
000514 5850 5030      00030       408          L     5,PCBNSW                                            02620000
000518 47F0 101C      0050A       409          B     XPLOOP .          AND TRY AGAIN                     02630000
                                  410          DROP  5                                                   02640000
                          00000   411          USING PCB,15                                              02650000
00051C D203 4000 0270 00000 00270 412 XPTHEN   MVC   0(4,4),RUNNING .  WE'RE AT THE END                  02660000
000522 5050 F030      00030       413          ST    5,PCBNSW .        STORE NULL POINTER                02670000
000526 92FF F019      00019       414          MVI   PCBBLOKT,X'FF' .  AND WE'RE BLOCKED                 02680000
00052A D253 F04C 021C 0004C 0021C 415          MVC   PCBISA,SYSSEMSA . SWITCH SAVE AREAS                 02690000
000530 47F0 107C      0056A       416          B     XPER .            SO RUN SOMEONE ELSE               02700000
                                  417          DROP  2                                                   02710000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   419 ********************************************************************** 02730000
                                   420 *                                                                    * 02740000
                                   421 *                                XV ROUTINE                          * 02750000
                                   422 *                                                                    * 02760000
                                   423 *        FUNCTION: TO IMPLEMENT "V" PRIMITIVE FOR SEMAPHORES         * 02770000
                                   424 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS SM        * 02780000
                                   425 *                    SM        DS 0D   SEMAPHORE DEFINITION          * 02790000
                                   426 *                    SMVAL     DS F    VALUE                         * 02800000
                                   427 *                    SMPTR     DS A    POINTER TO FIRST WAITER       * 02810000
                                   428 *   ROUTINES USED: NONE                                              * 02820000
                                   429 *       PROCEDURE: ADD ONE TO SMVAL; IF > ZERO, RETURN. IF ZERO OR   * 02830000
                                   430 *                  LESS, REMOVE FIRST PROCESS FROM WAITER CHAIN;     * 02840000
                                   431 *                  UNBLOCK IT; IF NEXTTRYM NOT SET, SET IT AND SET   * 02850000
                                   432 *                  NEXTTRY TO THAT PROCESS; RETURN; IF NEXTTRYM SET, * 02860000
                                   433 *                  RETURN.                                           * 02870000
                                   434 *    ERROR CHECKS: NONE                                              * 02880000
                                   435 *      INTERRUPTS: OFF                                               * 02890000
                                   436 *     USER ACCESS: NO                                                * 02900000
                                   437 *                                                                    * 02910000
                                   438 ********************************************************************** 02920000
                          00534    440 XV       EQU   * .              THE XV ROUTINE                       02940000
                          00534    441          USING *,1                                                   02950000
                          00000    442          USING SM,2 .           ARGUMENT IS A SEMAPHORE              02960000
000534 5830 2000        00000     443          L     3,SMVAL .        GET THE VALUE                        02970000
000538 5A30 192C        00E60     444          A     3,=F'1' .        ADD ONE                              02980000
00053C 5030 2000        00000     445          ST    3,SMVAL .        AND STORE IT BACK                    02990000
000540 47D0 1014        00548     446          BNP   XVWAKEUP .       IF <=0, SOMEONE'S WAITING            03000000
000544 8200 04D8        004D8     447          LPSW  RETURN .         ELSE RETURN                          03010000
000548 5840 2004        00004     448 XVWAKEUP L     4,SMPTR .        GET THE FIRST OF THE GUYS            03020000
                                  449          DROP  15                                                    03030000
                                  450          USING PCB,4                                                 03040000
00054C D203 2004 4030   00004 00030 451        MVC   SMPTR,PCBNSW .   REMEMBER THE REST                    03050000
000552 9200 4019        00019     452          MVI   PCBBLOKT,X'00' . WE'RE NO LONGER BLOCKING HIM         03060000
000556 95FF 0278        00278     453          CLI   NEXTTRYM,X'FF' . IS NEXT TRY MODIFIED?                03070000
00055A 4780 1032        00566     454          BE    XVRET .          IF SO, WELL OK                       03080000
00055E 5040 0274        00274     455          ST    4,NEXTTRY        ELSE MODIFY NEXTTRY                  03090000
000562 92FF 0278        00278     456          MVI   NEXTTRYM,X'FF' . AND SAY SO                           03100000
000566 8200 04D8        004D8     457 XVRET    LPSW  RETURN .         GET BACK                             03110000
                                  458          DROP  2,4                                                   03120000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   460 ********************************************************************** 03140000
                                   461 *                                                                    * 03150000
                                   462 *                          XPER ROUTINE (TRAFFIC CONTROLLER)         * 03160000
                                   463 *                                                                    * 03170000
                                   464 *        FUNCTION: TO IMPLEMENT MULTIPROGRAMMING                     * 03180000
                                   465 *       DATABASES: NONE                                              * 03190000
                                   466 *   ROUTINES USED: NONE                                              * 03200000
                                   467 *       PROCEDURE: STARTING WITH NEXTTRY, SEARCH FOR PROCESS ON ALL  * 03210000
                                   468 *                  PCB CHAIN NOT BLOCKED OR STOPPED; IF FOUND, USE AS * 03220000
                                   469 *                  NEW RUNNING, FOR 50 MS OF TIME AND RETURN. ELSE,  * 03230000
                                   470 *                  ENTER WAIT STATE WITH INTERRUPTS ON, AND TRY TO   * 03240000
                                   471 *                  SCHEDULE AGAIN AFTER INTERRUPT; RETURN.           * 03250000
                                   472 *    ERROR CHECKS: NONE                                              * 03260000
                                   473 *      INTERRUPTS: OFF                                               * 03270000
                                   474 *     USER ACCESS: NO                                                * 03280000
                                   475 *                                                                    * 03290000
                                   476 ********************************************************************** 03300000
                          0056A    478 XPER     EQU   * .                ROUTINE XPER: TRAFFIC SCHEDULER      03320000
00056A 8000 0078       00078      479          SSM   IONEW .            MASK OFF INTERRUPTS                  03330000
00056E 0510                       480          BALR  1,0                                                     03340000
                          00570    481          USING *,1                                                     03350000
000570 58A0 0274       00274      482          L     10,NEXTTRY .       START LOOKING AT NEXTTRY             03360000
000574 18BA                       483          LR    11,10 .            REMEMBER WHICH THAT WAS              03370000
                          00000    484          USING PCB,10                                                  03380000
000576 95FF A019       00019      485 GWLOOP   CLI   PCBBLOKT,X'FF' .    IF IT'S BLOCKED                      03390000
00057A 4780 1016       00586      486          BE    GWINC .            IGNORE                               03400000
00057E 95FF A018       00018      487          CLI   PCBSTOPT,X'FF' .   ELSE, IF IT'S NOT STOPPED            03410000
000582 4770 1030       005A0      488          BNE   GWRUN .            WE CAN RUN IT                        03420000
000586 58A0 A010       00010      489 GWINC    L     10,PCBNPALL .      ELSE, GO TO THE NEXT                 03430000
00058A 19AB                       490          CR    10,11 .            IF WE'VE SEEN ALL, QUIT              03440000
00058C 4770 1006       00576      491          BNE   GWLOOP .           ELSE TRY AGAIN                       03450000
000590 8200 1028       00598      492          LPSW  IDLE .             SIT AND WAIT                         03460000
000598                            493          DS    0D                                                      03470000
000598 FE0200000000056A           494 IDLE     DC    B'11111110',B'00000010',X'0000',X'00',AL3(XPER)       03480000

0005A0 D203 0274 A010  00274 00010 496 GWRUN    MVC   NEXTTRY,PCBNPALL .  GET A NEW NEXTTRY                  03500000
0005A6 9200 0278       00278      497          MVI   NEXTTRYM,X'00' .   NOT MODIFIED                       03510000
0005AA 50A0 0270       00270      498          ST    10,RUNNING .       GET A NEW RUNNING                    03520000
0005AE 41E0 A04C       0004C      499          LA    14,PCBISA                                               03530000
0005B2 D203 0050 104C  00050 005BC 500          MVC   TIMER,QUANTUM .    INTERRUPT AFTER 50 MS                03540000
0005B8 8200 04D8       004D8      501          LPSW  RETURN .           AND GO TO RETURNR                    03550000
0005BC 00000F00                   502 QUANTUM  DC    X'00000F00' .      QUANTUM OF TIME                      03560000
                                  503          DROP  10                                                      03570000
                          00000    504          USING PCB,15                                                  03580000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   506 ********************************************************************** 03600000
                                   507 *                                                                    * 03610000
                                   508 *                           XEXC ROUTINE                             * 03620000
                                   509 *                                                                    * 03630000
                                   510 *        FUNCTION: TO ENTER SMC SECTION                              * 03640000
                                   511 *       DATABASES: NONE                                              * 03650000
                                   512 *   ROUTINES USED: NONE                                              * 03660000
                                   513 *       PROCEDURE: INCREMENT SMC BYTE IN PCB BY ONE; RETURN.         * 03670000
                                   514 *    ERROR CHECKS: NONE                                              * 03680000
                                   515 *      INTERRUPTS: OFF                                               * 03690000
                                   516 *     USER ACCESS: NO                                                * 03700000
                                   517 *                                                                    * 03710000
                                   518 ********************************************************************** 03720000

                          005C0    520 XEXC     EQU   * .               ROUTINE XEXC: ENTER SMC SECTION      03740000
                          005C0    521          USING *,1                                                    03750000
0005C0 1B88                        522          SR    8,8                                                    03760000
0005C2 4380 F01A      0001A        523          IC    8,PCBINSMC                                             03770000
0005C6 4188 0001      00001        524          LA    8,1(8) .          ADD ONE TO SMC BYTE                  03780000
0005CA 4280 F01A      0001A        525          STC   8,PCBINSMC                                             03790000
0005CE 8200 04D8      004D8        526          LPSW  RETURN .          AND LEAVE                            03800000

                                   528 ********************************************************************** 03820000
                                   529 *                                                                    * 03830000
                                   530 *                           XCOM ROUTINE                             * 03840000
                                   531 *                                                                    * 03850000
                                   532 *        FUNCTION: TO LEAVE SMC SECTION                              * 03860000
                                   533 *       DATABASES: NONE                                              * 03870000
                                   534 *   ROUTINES USED: XP, XV                                            * 03880000
                                   535 *       PROCEDURE: DECREMENT SMC BYTE IN PCB BY ONE; IF NOT ZERO,    * 03890000
                                   536 *                  RETURN. ELSE, CHECK FOR STOP WAITING; IF STOP     * 03900000
                                   537 *                  WAITING, ALLOW STOP AND BLOCK SELF; RETURN. IF NO * 03910000
                                   538 *                  STOP WAITING, RETURN.                             * 03920000
                                   539 *    ERROR CHECKS: NONE                                              * 03930000
                                   540 *      INTERRUPTS: OFF                                               * 03940000
                                   541 *     USER ACCESS: NO                                                * 03950000
                                   542 *                                                                    * 03960000
                                   543 ********************************************************************** 03970000

                          005D2    545 XCOM     EQU   * .               ROUTINE XCOM: LEAVE SMC              03990000
                          005D2    546          USING *,1                                                    04000000
0005D2 1B88                        547          SR    8,8                                                    04010000
0005D4 4380 F01A      0001A        548          IC    8,PCBINSMC                                             04020000
0005D8 0680                        549          BCTR  8,0 .             SUBTRACT ONE FROM IN SMC BYTE        04030000
0005DA 4280 F01A      0001A        550          STC   8,PCBINSMC                                             04040000
0005DE 1288                        551          LTR   8,8 .             IS IT ZERO?                          04050000
0005E0 4770 102A      005FC        552          BNZ   XCOMRET .         NO, THEN GET BACK, OTHERWISE         04060000
0005E4 9500 F01B      0001B        553          CLI   PCBSW,X'00' .     IS STOP WAITING?                     04070000
0005E8 4780 102A      005FC        554          BE    XCOMRET .         IF NOT, RETURN                       04080000
0005EC 9200 F01B      0001B        555          MVI   PCBSW,X'00' .     STOPS NOT WAITING AFTER THIS         04090000
0005F0 4120 F034      00034        556          LA    2,PCBSRS .        WE'LL "V" THE STOPPER,               04100000
0005F4 0AE5                        557          SVC   C'V'                                                   04110000
0005F6 4120 F03C      0003C        558          LA    2,PCBSES .        AND "P" THE STOPPEE.                 04120000
0005FA 0AD7                        559          SVC   C'P'                                                   04130000
0005FC 8200 04D8      004D8        560 XCOMRET  LPSW  RETURN .          AND HERE (IF EVER) WE RETURN         04140000
```

```
LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                  562 ********************************************************************** 04160000
                                  563 *                                                                    * 04170000
                                  564 *                          XA ROUTINE                                * 04180000
                                  565 *                        XAUTO ROUTINE                               * 04190000
                                  566 *                                                                    * 04200000
                                  567 *        FUNCTION: TO ALLOCATE MEMORY                                * 04210000
                                  568 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS XAX:      * 04220000
                                  569 *                    XAX       DS 0D                                   * 04230000
                                  570 *                    XAXSIZE   DS F     SIZE OF BLOCK TO BE ALLOCATED * 04240000
                                  571 *                    XAXADDR   DS A     ADDRESS OF FIRST BYTE OF BLOCK* 04250000
                                  572 *                    XAXALGN   DS F     ALIGNMENT OF BLOCK            * 04260000
                                  573 *   ROUTINES USED: XEXC, XCOM, XP, XV, XB                            * 04270000
                                  574 *       PROCEDURE: LOCK FSB SEMAPHORE; SEARCH FREE STORAGE FOR LARGE * 04280000
                                  575 *                  ENOUGH MEMORY BLOCK; ALIGN BOUNDARY; USE XB TO    * 04290000
                                  576 *                  CHAIN ANY LEFTOVER BLOCKS TO FREE STORAGE LIST;   * 04300000
                                  577 *                  PLACE ADDRESS OF ALLOCATED BLOCK IN XAXADDR; UNLOCK* 04310000
                                  578 *                  FSB SEMAPHORE; RETURN. IF CAN'T SATISFY REQUEST,  * 04320000
                                  579 *                  UNLOCK FSB SEMAPHORE, APPLY XP ROUTINE TO MEMORY  * 04330000
                                  580 *                  SEMAPHORE, BLOCKING PROCESS RUNNING UNTIL MEMORY  * 04340000
                                  581 *                  FREED; THEN UNBLOCK; TRY TO SATISFY REQUEST AGAIN. * 04350000
                                  582 *    ERROR CHECKS: NONE                                              * 04360000
                                  583 *      INTERRUPTS: ON                                                * 04370000
                                  584 *     USER ACCESS: NO                                                * 04380000
                                  585 *                                                                    * 04390000
                                  586 ********************************************************************** 04400000
                         00600    588 XA       EQU   * .               THE XA ROUTINE, TO ALLOCATE          04420000
                         00600    589          USING *,1                                                    04430000
000600 4100 0001       00001      590          LA    0,1 .             SET REGISTER ZERO TO ONE TO          04440000
000604 47F0 100E       0060E      591          B     XACOM .            INDICATE C'A' CALL                  04450000
                         00608    592 XAUTO    EQU   * .               AUTO STORAGE ENTRY POINT             04460000
                         00608    593          USING *,1                                                    04470000
000608 1B00                       594          SR    0,0 .             REG0=0 INDICATES C'E' CALL           04480000
00060A 5810 185C       00E64      595          L     1,=A(XA) .        RESET BASE REGISTER PROPERLY         04490000
                         00600    596          USING XA,1                                                   04500000
00060E 0A5A                       597 XACOM    SVC   C'!' .            ENTER SMC                            04510000
000610 1872                       598          LR    7,2                                                    04520000
                         00000    599          USING XAX,7 .           ARGUMENT LIST                        04530000
000612 5860 7000       00000      600          L     6,XAXSIZE .       GET THE SIZE REQUESTED               04540000
000616 4120 0184       00184      601 XATOP    LA    2,FSBSEM .        LOCK THE FSB SEMAPHORE               04550000
00061A 0AD7                       602          SVC   C'P' .                                                 04560000
00061C 4150 0180       00180      603          LA    5,FSBPTR .        START LOOKING DOWN                   04570000
000620 5840 0180       00180      604          L     4,FSBPTR .         THE FREE STORAGE LIST               04580000
000624 5880 7008       00008      605          L     8,XAXALGN .       WE WOULD HAVE TO START AT WITH       04590000
000628 0680                       606          BCTR  8,0 .              THIS CONSTANT TO FIND ALIGNMENT     04600000
                         00000    607          USING FSB,4                                                  04610000
00062A 1244                       608 XALOOP   LTR   4,4 .             IF AT THE END                        04620000
00062C 4780 1056       00656      609          BZ    XAWAIT .           WAIT UNTIL A "FREE" OP               04630000
000630 18D4                       610          LR    13,4 .            FIND THE LOCATION                    04640000
000632 06D0                       611          BCTR  13,0 .             IN THIS BLOCK WITH THIS             04650000
000634 16D8                       612          OR    13,8 .            ALIGNMENT                            04660000
000636 41DD 0001       00001      613          LA    13,1(13) .        THAT'S IT                            04670000
00063A 189D                       614          LR    9,13 .            AND NOW GET IN REG 9                 04680000
00063C 1B94                       615          SR    9,4 .              WHAT IS WASTED AT THE FRONT         04690000
00063E 5830 4004       00004      616          L     3,FSBSIZE .       GET SIZE MINUS WASTE AT              04700000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

000642 1B39                       617          SR    3,9 .                FRONT, LEAVING EFFECTIVE SIZE       04710000
000644 1963                       618          CR    6,3 .              IS IT ENOUGH?                         04720000
000646 47D0 1062      00662       619          BNP   XAFOUND .          EUREKA!                               04730000
00064A 4150 4000      00000       620          LA    5,FSBNEXT .        OH WELL, GET THE NEXT FREE            04740000
00064E 5840 4000      00000       621          L     4,FSBNEXT .         STORAGE BLOCK ON THE CHAIN           04750000
000652 47F0 102A      0062A       622          B     XALOOP .           BETTER LUCK NEXT TIME                 04760000
000656 0AE5                       623 XAWAIT   SVC   C'V' .             NEED TO WAIT                          04770000
000658 4120 018C      0018C       624          LA    2,MEMORY .         SO WE LET OTHER PEOPLE GET IN         04780000
00065C 0AD7                       625          SVC   C'P' .             SO THEY'LL WAKE US UP                 04790000
00065E 47F0 1016      00616       626          B     XATOP .            AND THEN WE'LL TRY AGAIN              04800000
000662 50D0 7004      00004       627 XAFOUND  ST    13,XAXADDR .       WE'VE NOW GOT THE ADDRESS             04810000
000666 D203 5000 4000 00000 00000 628          MVC   0(4,5),FSBNEXT .   UNLINK THE BLOCK OUT                  04820000
00066C 58C0 4004      00004       629          L     12,FSBSIZE .       GET THE WHOLE BLOCK SIZE              04830000
000670 4120 E048      00048       630          LA    2,SATEMP .         START MAKING UP ARG LISTS             04840000
                            00000 631          USING XBX,2 .            FOR THE XB ROUTINE                    04850000
000674 18AD                       632          LR    10,13 .            THE STARTING LOCATION                 04860000
000676 1BA4                       633          SR    10,4 .             MINUS THE START OF THE BLOCK          04870000
000678 4780 1086      00686       634          BZ    XANF .             IF NONE WASTED AT THE FRONT, SKIP     04880000
00067C 5040 2004      00004       635          ST    4,XBXADDR .        ELSE FREE, STARTING THERE             04890000
000680 50A0 2000      00000       636          ST    10,XBXSIZE .        UP TO THE BEGINNING OF THE           04900000
000684 0AC2                       637          SVC   C'B' .              ALLOCATION; INSERT IT IN THE CHAIN   04910000
000686 18BD                       638 XANF     LR    11,13 .            THE STARTING ADDR PLUS THE SIZE       04920000
000688 1AB6                       639          AR    11,6 .              GIVES THE FIRST UNUSED ADDR          04930000
00068A 1BCA                       640          SR    12,10 .            MINUS THE WASTE AT FRONT,             04940000
00068C 1BC6                       641          SR    12,6 .             MINUS THE PART ALLOCATED. IF          04950000
00068E 4780 109C      0069C       642          BZ    XARETURN .         NONE LEFT OVER, GOOD                  04960000
000692 50B0 2004      00004       643          ST    11,XBXADDR .       ELSE STORE ADDRESS AND                04970000
000696 50C0 2000      00000       644          ST    12,XBXSIZE .       SIZE, AND LINK ONTO                   04980000
00069A 0AC2                       645          SVC   C'B' .             FREE STORAGE LIST                     04990000
                                  646          DROP  2                                                      05000000
00069C 4120 0184      00184       647 XARETURN LA    2,FSBSEM .         WE ARE DONE, SO NOW SOMEONE           05010000
0006A0 0AE5                       648          SVC   C'V' .              ELSE CAN COME IN                     05020000
0006A2 1200                       649          LTR   0,0 .              IS THIS FOR AUTOMATIC STORAGE?        05030000
0006A4 4770 10B0      006B0       650          BNZ   XABACK .           IF NOT, RETURN NOW                    05040000
0006A8 5060 F044      00044       651          ST    6,PCBASIZE .       OTHERWISE STORE SIZE AND              05050000
0006AC 50D0 F048      00048       652          ST    13,PCBAADDR .       ADDRESS OF AUTOMATIC STORAGE         05060000
0006B0 0A6B                       653 XABACK   SVC   C',' .             LEAVE SMC SECTION                     05070000
0006B2 8200 04D8      004D8       654          LPSW  RETURN .           GET BACK JOJO                         05080000
                                  655          DROP  4,7                                                    05090000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   657 ************************************************************************ 05110000
                                   658 *                                                                      * 05120000
                                   659 *                            XF ROUTINE                                * 05130000
                                   660 *                                                                      * 05140000
                                   661 *        FUNCTION: TO FREE MEMORY                                      * 05150000
                                   662 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS XFX:        * 05160000
                                   663 *                    XFX       DS 0D                                   * 05170000
                                   664 *                    XFXSIZE   DS F     SIZE OF BLOCK TO BE FREED     * 05180000
                                   665 *                    XFXADDR   DS A     ADDRESS OF FIRST BYTE OF BLOCK* 05190000
                                   666 *   ROUTINES USED: XEXC, XP, XV, XB, XCOM                              * 05200000
                                   667 *       PROCEDURE: LOCK FSB SEMAPHORE; SEARCH FREE STORAGE LIST TO     * 05210000
                                   668 *                  FIND IF ANY FREE BLOCK CONTIGUOUSLY FOLLOWS OR      * 05220000
                                   669 *                  PRECEDES BLOCK TO BE FREED; IF THERE IS ANY,        * 05230000
                                   670 *                  COMPACT THEM INTO A SINGLE BLOCK OF COMBINED SIZE;  * 05240000
                                   671 *                  USE XB TO CHAIN COMPACTED BLOCK ONTO FREE STORAGE   * 05250000
                                   672 *                  LIST; WAKEUP ALL PROCESSES WAITING ON MEMORY        * 05260000
                                   673 *                  SEMAPHORE; UNLOCK FSB SEMAPHORE; RETURN             * 05270000
                                   674 *    ERROR CHECKS: NONE                                                * 05280000
                                   675 *      INTERRUPTS: ON                                                  * 05290000
                                   676 *     USER ACCESS: NO                                                  * 05300000
                                   677 *                                                                      * 05310000
                                   678 ************************************************************************ 05320000
                                   680 XF       EQU   * .                THE XF ROUTINE, TO FREE STORAGE      05340000
                                   681          USING *,1                                                     05350000
0006B6 0A5A                        682          SVC   C'!' .             ENTER SMC SECTION                    05360000
0006B8 1872                        683          LR    7,2                                                    05370000
                         00000     684          USING XFX,7 .            THE ARGUMENT LIST                    05380000
0006BA 5830 7000      00000        685          L     3,XFXSIZE .        GET THE SIZE                         05390000
0006BE 5840 7004      00004        686          L     4,XFXADDR .        AND THE ADDRESS                      05400000
0006C2 1853                        687          LR    5,3 .              GET THE ADDRESS OF THE END OF THE    05410000
0006C4 1A54                        688          AR    5,4 .               BLOCK TO BE FREED                   05420000
0006C6 4120 0184      00184        689          LA    2,FSBSEM .         LOCK FSBSEM                          05430000
0006CA 0AD7                        690          SVC   C'P'                                                    05440000
0006CC 4180 0180      00180        691          LA    8,FSBPTR .         START LOOKING DOWN THE FREE          05450000
0006D0 5860 0180      00180        692          L     6,FSBPTR .          STORAGE LIST, FOR COMPACTION        05460000
                         00000     693          USING FSB,6                                                   05470000
0006D4 1266                        694 XFLOOP   LTR   6,6 .              ARE WE THROUGH?                      05480000
0006D6 4780 105E      00714        695          BZ    XFLINK .           IF SO, JUST ADD IT ON                05490000
0006DA 5890 6000      00000        696          L     9,FSBNEXT .        IF NOT. GET THE NEXT PTR             05500000
0006DE 1965                        697          CR    6,5 .              IS THIS BLOCK RIGHT AFTER OURS?      05510000
0006E0 4770 103A      006F0        698          BNE   XFTHEN .           IF NOT, OK. BUT IF IT IS,            05520000
0006E4 5098 0000      00000        699          ST    9,0(8) .           WE CAN COMPACT, SO UNCHAIN IT        05530000
0006E8 5A30 6004      00004        700          A     3,FSBSIZE .        AND REMEMBER THE NEW SIZE            05540000
0006EC 47F0 1050      00706        701          B     XFBACKUP .         AND ON TO THE NEXT                   05550000
0006F0 18A6                        702 XFTHEN   LR    10,6 .             MAYBE IT'S RIGHT BEFORE OURS         05560000
0006F2 5AA0 6004      00004        703          A     10,FSBSIZE .       GET ENDING ADDRESS OF FREE BLOCK     05570000
0006F6 19A4                        704          CR    10,4 .             IS IT RIGHT BEFORE OURS?             05580000
0006F8 4770 1052      00708        705          BNE   XFINC .            OH FUDGE! NO!                        05590000
0006FC 5098 0000      00000        706          ST    9,0(8) .           IF SO, UNLINK IT                     05600000
000700 1846                        707          LR    4,6 .              GET THE NEW BEGINNING LOCATION       05610000
000702 5A30 6004      00004        708          A     3,FSBSIZE .        AND NEW SIZE OF FREE BLOCK           05620000
000706 1868                        709 XFBACKUP LR    6,8 .              BACK UP ONE FSB                      05630000
000708 4180 6000      00000        710 XFINC    LA    8,FSBNEXT .        ON TO THE NEXT FSB                   05640000
00070C 5860 6000      00000        711          L     6,FSBNEXT                                               05650000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

000710 47F0 101E      006D4          712          B     XFLOOP .           TRY, TRY AGAIN                        05660000
000714 4120 E048      00048          713 XFLINK   LA    2,SATEMP .         START TO CALL XB                      05670000
                                00000  714          USING XBX,2                                                  05680000
000718 5030 2000      00000          715          ST    3,XBXSIZE .        STORE SIZE                            05690000
00071C 5040 2004      00004          716          ST    4,XBXADDR .        AND ADDRESS                           05700000
000720 0AC2                          717          SVC   C'B' .             LINK IT ONTO THE FSB CHAIN            05710000
                                00000  718          USING SM,2                                                   05720000
000722 4120 018C      0018C          719          LA    2,MEMORY .         GET VALUE OF MEMORY SEMAPHORE         05730000
000726 41B0 0001      00001          720          LA    11,1(0,0) .        SUBTRACT FROM ONE, IT'S A HANDLE      05740000
00072A 5BB0 2000      00000          721          S     11,SMVAL .         ON THE # OF PEOPLE WAITING            05750000
                                     722          DROP  2                                                      05760000
00072E 46B0 1088      0073E          723 XFVLOOP  BCT   11,XFVDO .         LOOP IF ANYONE ELSE IS WAITING        05770000
000732 4120 0184      00184          724          LA    2,FSBSEM .         WE'RE THROUGH, SO                     05780000
000736 0AE5                          725          SVC   C'V' .             UNBLOCK FSBSEM                        05790000
000738 0A6B                          726          SVC   C',' .             LEAVE SMC                             05800000
00073A 8200 04D8      004D8          727          LPSW  RETURN .           RETURN                                05810000
00073E 0AE5                          728 XFVDO    SVC   C'V' .             WAKE SOMEONE UP                       05820000
000740 47F0 1078      0072E          729          B     XFVLOOP .          TRY AGAIN FOR ANOTHER                 05830000
                                     730          DROP  6,7                                                    05840000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   732 ********************************************************************** 05860000
                                   733 *                                                                    * 05870000
                                   734 *                            XB ROUTINE                              * 05880000
                                   735 *                                                                    * 05890000
                                   736 *        FUNCTION: TO CHAIN A STORAGE BLOCK ONTO FREE STORAGE LIST   * 05900000
                                   737 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS XBX:      * 05910000
                                   738 *                    XBX       DS 0D                                 * 05920000
                                   739 *                    XBXSIZE   DS F     SIZE OF BLOCK              * 05930000
                                   740 *                    XBXADDR   DS A     ADDRESS OF FIRST BYTE OF BLOCK* 05940000
                                   741 *   ROUTINES USED: NONE                                              * 05950000
                                   742 *       PROCEDURE: SEARCH FREE STORAGE LIST TO FIND WHERE TO INSERT  * 05960000
                                   743 *                  FREE BLOCK IN ORDER OF INCREASING SIZE; FORMAT    * 05970000
                                   744 *                  BLOCK LIKE AN FSB; INSERT; RETURN.                * 05980000
                                   745 *    ERROR CHECKS: NONE                                              * 05990000
                                   746 *      INTERRUPTS: OFF                                               * 06000000
                                   747 *     USER ACCESS: NO                                                * 06010000
                                   748 *        COMMENTS: SINCE XB ROUTINE ONLY CALLED BY XA AND XF, FSB    * 06020000
                                   749 *                  SEMAPHORE IS ALREADY LOCKED.                      * 06030000
                                   750 *                                                                    * 06040000
                                   751 ********************************************************************** 06050000

                          00744    753 XB       EQU   *                                                     06070000
                          00744    754          USING *,1                                                   06080000
                          00000    755          USING XBX,2 .            ARGUMENT LIST                      06090000
000744 5830 2000          00000    756          L     3,XBXSIZE .        GET THE SIZE                       06100000
000748 5840 2004          00004    757          L     4,XBXADDR .        AND THE ADDRESS                    06110000
00074C 4180 0180          00180    758          LA    8,FSBPTR .         START LOOKING DOWN THE CHAIN       06120000
000750 5860 0180          00180    759          L     6,FSBPTR                                              06130000
000754 1266                        760          LTR   6,6 .              IF ZERO POINTER, WE ARE AT         06140000
000756 4780 102C          00770    761          BZ    XBINSERT .         END OF CHAIN ALREADY               06150000
                                   762          USING FSB,6                                               06160000
00075A 5930 6004          00004    763 XBLOOP   C     3,FSBSIZE .        IF THE SIZE OF OURS IS LESS,       06170000
00075E 47D0 102C          00770    764          BNP   XBINSERT .          TIME TO INSERT                     06180000
000762 4180 6000          00000    765          LA    8,FSBNEXT .        ELSE GO ON TO THE NEXT             06190000
000766 5860 6000          00000    766          L     6,FSBNEXT                                             06200000
00076A 1266                        767          LTR   6,6 .              IF NOT ALREADY THROUGH             06210000
00076C 4770 1016          0075A    768          BNZ   XBLOOP .           BRANCH BACK                        06220000
000770 5048 0000          00000    769 XBINSERT ST    4,0(8) .           NOW, LINK OURS ON                  06230000
                                   770          DROP  6                                                   06240000
                          00000    771          USING FSB,4                                               06250000
000774 5060 4000          00000    772          ST    6,FSBNEXT .        MAKE OURS POINT TO THE NEXT        06260000
000778 5030 4004          00004    773          ST    3,FSBSIZE .        WITH THE RIGHT SIZE                06270000
00077C 8200 04D8          004D8    774          LPSW  RETURN .           AND RETURN                         06280000
                                   775          DROP  2,4                                                 06290000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   777 ********************************************************************** 06310000
                                   778 *                                                                    * 06320000
                                   779 *                            XC ROUTINE                              * 06330000
                                   780 *                                                                    * 06340000
                                   781 *        FUNCTION: TO CREATE A PROCESS                               * 06350000
                                   782 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS XCX:      * 06360000
                                   783 *                    XCX       DS 0D                                 * 06370000
                                   784 *                    XCXNAME   DS CL8   NAME OF PROCESS TO BE CREATED * 06380000
                                   785 *   ROUTINES USED: XEXC, XCOM, XN, XA, XI, XQUE                      * 06390000
                                   786 *       PROCEDURE: USE XA TO ALLOCATE NEW PCB; PLACE XCXNAME IN PCB; * 06400000
                                   787 *                  INITIALIZE SEMAPHORES; STOP; BLOCK; OUT OF SMC;   * 06410000
                                   788 *                  CALL XI TO LINK PCB ONTO PCB CHAINS; RETURN.      * 06420000
                                   789 *    ERROR CHECKS: IF NAME ALREADY USED IN THIS GROUP, XQUE ENTERED. * 06430000
                                   790 *      INTERRUPTS: ON                                                * 06440000
                                   791 *     USER ACCESS: YES                                               * 06450000
                                   792 *                                                                    * 06460000
                                   793 ********************************************************************** 06470000
                          00780    795 XC       EQU   * .                THE XC ROUTINE: CREATE A PROCESS     06490000
                          00780    796          USING *,1                                                     06500000
000780 1872                       797          LR    7,2                                                     06510000
                          00000    798          USING XCX,7 .            ARGUMENT LIST                        06520000
000782 4120 E048      00048       799          LA    2,SATEMP .         READY TO MAKE CALLS OUT              06530000
                          00000    800          USING XNX,2 .            A XN-LIKE ARGUMENT LIST              06540000
000786 D207 2000 7000 00000 00000  801          MVC   XNXNAME,XCXNAME .  GET THE NAME                         06550000
00078C 0AD5                       802          SVC   C'N' .             AND CALL TO FIND THE PCB             06560000
00078E D503 2008 16E8 00008 00E68  803          CLC   XNXADDR,=A(0) .    SEE IF THERE                         06570000
000794 4770 1044      007C4       804          BNE   XCERR .            IF ALREADY EXISTS, BAD               06580000
000798 0A5A                       805          SVC   C'!' .             ENTER SMC SECTION                    06590000
                                  806          DROP  2                                                       06600000
                          00000    807          USING XAX,2 .            READY TO CALL XA                     06610000
00079A D203 2000 16EC 00000 00E6C  808          MVC   XAXSIZE,=A(LENPCB) . WE KNOW THE SIZE                   06620000
0007A0 D203 2008 16F0 00008 00E70  809          MVC   XAXALGN,=F'8' .    AND THE ALIGNMENT                    06630000
0007A6 0AC1                       810          SVC   C'A' .             SO CALL                              06640000
0007A8 5820 2004      00004       811          L     2,XAXADDR .        FIND THE ADDRESS                     06650000
                                  812          DROP  2,15                                                    06660000
                          00000    813          USING PCB,2 .            FILL IN THE PCB                      06670000
0007AC D207 2000 7000 00000 00000  814          MVC   PCBNAME,XCXNAME .  GIVE IT A NAME                       06680000
0007B2 92FF 2018      00018       815          MVI   PCBSTOPT,X'FF' .   IT'S STOPPED                          06690000
0007B6 D232 2019 1BE9 00019 01369  816          MVC   PCBBLOKT(PCBISA-PCBBLOKT),TEMPLATE+1 INITIALIZE PCB     06700000
0007BC 0AC9                       817          SVC   C'I' .             THREAD IT ON                         06710000
0007BE 0A6B                       818          SVC   C',' .             LEAVE SMC SECTION                    06720000
0007C0 8200 04D8      004D8       819          LPSW  RETURN .           AND RETURN                           06730000
0007C4 0A6F                       820 XCERR    SVC   C'?' .             IF ALREADY EXISTS,KERROR             06740000
                                  821          DROP  2,7                                                     06750000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   823 ********************************************************************** 06770000
                                   824 *                                                                    * 06780000
                                   825 *                          XD ROUTINE                                * 06790000
                                   826 *                                                                    * 06800000
                                   827 *        FUNCTION: TO DESTROY A PROCESS                              * 06810000
                                   828 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS XDX:      * 06820000
                                   829 *                    XDX       DS 0D                                 * 06830000
                                   830 *                    XDXNAME   DS CL8  NAME OF PROCESS TO BE DESTROYED* 06840000
                                   831 *   ROUTINES USED: XEXC, XJ, XS, XN, XF, XCOM, XQUE                  * 06850000
                                   832 *       PROCEDURE: USE XN TO FIND PCB FOR PROCESS TO BE DESTROYED;   * 06860000
                                   833 *                  USE XJ TO UNLOCK PCB FROM PROCESS CHAINS; IF ANY  * 06870000
                                   834 *                  MESSAGES FOR THIS PROCESS, FREE STORAGE FOR THEM; * 06880000
                                   835 *                  IF THERE IS ANY AUTOMATIC STORAGE, FREE IT;       * 06890000
                                   836 *                  FREE STORAGE FOR PCB; RETURN.                     * 06900000
                                   837 *    ERROR CHECKS: IF NAME DOESN'T EXIST OR PROCESS NOT STOPPED,     * 06910000
                                   838 *                  XQUE ENTERED.                                     * 06920000
                                   839 *      INTERRUPTS: ON                                                * 06930000
                                   840 *     USER ACCESS: YES                                               * 06940000
                                   841 *                                                                    * 06950000
                                   842 ********************************************************************** 06960000
                          007C6    844 XD       EQU   * .               XD ROUTINE: DESTROY A PROCESS       06980000
                          007C6    845          USING *,1                                                   06990000
0007C6 1872                        846          LR    7,2                                                   07000000
                          00000    847          USING XDX,7 .           ARG LIST                            07010000
0007C8 4120 E048      00048        848          LA    2,SATEMP .        READY TO CALL OUT                   07020000
                          00000    849          USING XNX,2 .           WILL CALL XN                        07030000
0007CC D207 2000 7000 00000 00000  850          MVC   XNXNAME,XDXNAME . GET NAME                          07040000
0007D2 0AD5                        851          SVC   C'N' .            AND CALL                            07050000
0007D4 5820 2008      00008        852          L     2,XNXADDR .       GET ADDRESS                         07060000
                                   853          DROP  2                                                     07070000
0007D8 1222                        854          LTR   2,2 .             IF ADDRESS IS NULL,                 07080000
0007DA 4780 107A      00840        855          BZ    XDERR .           IT'S AN ERROR                       07090000
                          00000    856          USING PCB,2                                                 07100000
0007DE 95FF 2018      00018        857          CLI   PCBSTOPT,X'FF' .  IF NOT STOPPED                      07110000
0007E2 4770 107A      00840        858          BNE   XDERR .           IT'S AN ERROR                       07120000
0007E6 0A5A                        859          SVC   C'!' .            ENTER SMC SECTION                   07130000
                                   860          DROP  2                                                     07140000
                          00000    861          USING PCB,15                                                07150000
0007E8 0AD1                        862          SVC   C'J' .            ELSE UNTHREAD THE ENTRY             07160000
0007EA 1882                        863          LR    8,2 .             REMEMBER THE PCB POINTER            07170000
0007EC 4120 E048      00048        864          LA    2,SATEMP .        READY TO CALL OUT AGAIN             07180000
                          00000    865          USING PCB,8                                                 07190000
                                   866          DROP  15                                                    07200000
0007F0 5890 802C      0002C        867          L     9,PCBFM .         GET FIRST MESSAGE                   07210000
0007F4 1299                        868 XDLOOP   LTR   9,9 .             ANY MORE MESSAGES?                  07220000
0007F6 4780 1054      0081A        869          BZ    XDCHECK .         IF NOT, FINISH UP                   07230000
                          00000    870          USING MSG,9                                                 07240000
0007FA 58A0 9004      00004        871          L     10,MSGNEXT .      ELSE REMEMBER NEXT                  07250000
0007FE 58B0 9008      00008        872          L     11,MSGSIZE .      GET THE SIZE                        07260000
000802 41BB 000F      0000F        873          LA    11,15(11) .        AND MAKE IT SOME NUMBER            07270000
000806 54B0 16AE      00E74        874          N     11,=F'-8' .        OF DOUBLEWORDS                     07280000
                          00000    875          USING XFX,2                                                 07290000
00080A 5090 2004      00004        876          ST    9,XFXADDR .       FREE THE LOCATION                   07300000
00080E 50B0 2000      00000        877          ST    11,XFXSIZE .       THE NUMBER OF WORDS                07310000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

000812 0AC6                         878          SVC   C'F' .              DO IT                                 07320000
000814 189A                         879          LR    9,10 .              ON TO THE NEXT                        07330000
000816 47F0 102E      007F4         880          B     XDLOOP .            GET THE NEXT MESSAGE                  07340000
00081A D503 8048 16A2 00048 00E68   881 XDCHECK  CLC   PCBAADDR(4),=A(0) . HAS AUTOMATIC STORAGE BEEN           07350000
000820 4780 1068      0082E         882          BE    XDTHEN .             ALLOCATED? IF NOT, GO FINISH UP  07360000
000824 4120 8044      00044         883          LA    2,PCBASIZE .        SET UP THE ARGUMENT LIST              07370000
000828 0AC6                         884          SVC   C'F' .              FREE IT                               07380000
00082A 4120 E048      00048         885          LA    2,SATEMP .          RESET REGISTER 2                      07390000
00082E 5080 2004      00004         886 XDTHEN   ST    8,XFXADDR .         READY TO FREE THE PCB                 07400000
000832 D203 2000 16A6 00000 00E6C   887          MVC   XFXSIZE,=A(LENPCB) . THE SIZE                           07410000
000838 0AC6                         888          SVC   C'F' .              FREE IT                               07420000
00083A 0A6B                         889          SVC   C',' .              LEAVE SMC                             07430000
00083C 8200 04D8      004D8         890          LPSW  RETURN .            AND RETURN                            07440000
000840 0A6F                         891 XDERR    SVC   C'?' .              IF PROCESS DOES NOT EXIST             07450000
                                    892          DROP  2,7,8,9                                                   07460000
                            00000   893          USING PCB,15                                                    07470000


                                    895 ********************************************************************** 07490000
                                    896 *                                                                    * 07500000
                                    897 *                            XH ROUTINE                              * 07510000
                                    898 *                                                                    * 07520000
                                    899 *        FUNCTION: TO HALT A JOB                                     * 07530000
                                    900 *       DATABASES: NONE                                              * 07540000
                                    901 *   ROUTINES USED: XS, XR                                            * 07550000
                                    902 *       PROCEDURE: SEND MESSAGE TO SUPERVISOR PROCESS FOR THIS JOB   * 07560000
                                    903 *                  INDICATING NORMAL TERMINATION; TRIES TO READ      * 07570000
                                    904 *                  MESSAGES FOREVER LOOPING; BLOCKS ITSELF, THEREBY  * 07580000
                                    905 *                  NEVER RETURNING.                                  * 07590000
                                    906 *    ERROR CHECKS: NONE                                              * 07600000
                                    907 *      INTERRUPTS: ON                                                * 07610000
                                    908 *     USER ACCESS: YES                                               * 07620000
                                    909 *        COMMENTS: USER NORMALLY USES THIS ROUTINE TO END A JOB.     * 07630000
                                    910 *                                                                    * 07640000
                                    911 ********************************************************************** 07650000

                            00842   913 XH       EQU   * .                 THE XH ROUTINE: HALT A JOB            07670000
                            00842   914          USING *,1                                                       07680000
000842 4120 1012      00854         915          LA    2,XHMSG1 .          SEND A MESSAGE TO *IBSUP              07690000
000846 0AE2                         916          SVC   C'S' .              SEND IT                               07700000
000848 4120 102A      0086C         917 XHLOOP   LA    2,XHMSG2 .          READY TO READ A REPLY                 07710000
00084C 0AD9                         918          SVC   C'R' .               WHICH NEVER COMES                    07720000
00084E 47F0 1006      00848         919          B     XHLOOP .            BUT IF IT DOES WERE READY             07730000
000854                              920          DS    0F                                                      07740000
000854 5CC9C2E2E4D74040             921 XHMSG1   DC    CL8'*IBSUP' .       SAY TO *IBSUP                         07750000
00085C 0000000C                     922          DC    F'12' .             TWELVE CHARACTERS                     07760000
000860 D7D9D6C7D9C1D440             923          DC    C'PROGRAM HALT' .   SAYING WERE OK                       07770000
00086C                              924 XHMSG2   DS    CL8 .               WHO SENDS US A MESSAGE                07780000
000874 00000001                     925          DC    F'1' .              ONE CHARACTER                         07790000
000878                              926          DS    CL1,0H .            WHICH GOES HERE                       07800000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   928 ********************************************************************** 07820000
                                   929 *                                                                    * 07830000
                                   930 *                            XI ROUTINE                              * 07840000
                                   931 *                                                                    * 07850000
                                   932 *        FUNCTION: TO CHAIN A PCB ONTO PROCESS CHAINS                * 07860000
                                   933 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS OF A PCB  * 07870000
                                   934 *   ROUTINES USED: NONE                                              * 07880000
                                   935 *       PROCEDURE: POINTER USED TO CHAIN PCB INTO ALL PCB CHAIN AND  * 07890000
                                   936 *                  THIS GROUP CHAIN RIGHT AFTER RUNNING PCB; RETURN. * 07900000
                                   937 *    ERROR CHECKS: NONE                                              * 07910000
                                   938 *      INTERRUPTS: OFF                                               * 07920000
                                   939 *     USER ACCESS: NO                                                * 07930000
                                   940 *                                                                    * 07940000
                                   941 ********************************************************************** 07950000

                          0087A    943 XI       EQU   * .                THE XI ROUTINE: THREAD IN A PCB      07970000
                          0087A    944          USING *,1                                                     07980000
00087A 58A0 F010      00010       945          L     10,PCBNPALL .      GET THE NEXT 'ALL' PCB               07990000
00087E 5020 F010      00010       946          ST    2,PCBNPALL .       STORE THIS PCB RIGNT AFTER MINE      08000000
                                   947          DROP  15                                                    08010000
                          00000    948          USING PCB,10                                                08020000
000882 5020 A014      00014       949          ST    2,PCBLPALL .       THE NEXT ONE DOWN POINTS BACK        08030000
                                   950          DROP  10                                                    08040000
                          00000    951          USING PCB,2                                                 08050000
000886 50F0 2014      00014       952          ST    15,PCBLPALL .      THIS PCB POINTS BACK                 08060000
00088A 50A0 2010      00010       953          ST    10,PCBNPALL .       AND FORWARD                         08070000
                                   954          DROP  2                                                     08080000
                          00000    955          USING PCB,15                                                08090000
00088E 58A0 F008      00008       956          L     10,PCBNPTG .       GET NEXT "THIS GROUP" PCB            08100000
000892 5020 F008      00008       957          ST    2,PCBNPTG .        RUNNING PCB POINTS TO NEW MEMBER     08110000
                                   958          DROP  15 .                OF PROCESS GROUP                  08120000
                          00000    959          USING PCB,10                                                08130000
000896 5020 A00C      0000C       960          ST    2,PCBLPTG .        NEXT PCB DOWN POINTS BACK            08140000
                                   961          DROP  10                                                    08150000
                          00000    962          USING PCB,2                                                 08160000
00089A 50F0 200C      0000C       963          ST    15,PCBLPTG .       AND WE POINT BACKWARD                08170000
00089E 50A0 2008      00008       964          ST    10,PCBNPTG .       AND FORWARD                          08180000
                                   965          DROP  2                                                     08190000
0008A2 8200 04D8      004D8       966          LPSW  RETURN .           RETURN                               08200000
                          00000    967          USING PCB,15                                                08210000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                        ASM 0201 18.24 01/17/16

                                   969 ********************************************************************** 08230000
                                   970 *                                                                    * 08240000
                                   971 *                            XJ ROUTINE                              * 08250000
                                   972 *                                                                    * 08260000
                                   973 *        FUNCTION: TO UNCHAIN A PCB FROM PROCESS CHAINS              * 08270000
                                   974 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS OF A PCB  * 08280000
                                   975 *   ROUTINES USED: NONE                                              * 08290000
                                   976 *       PROCEDURE: POINTERS TO PCB IN ALL PCB CHAIN AND THIS GROUP   * 08300000
                                   977 *                  CHAIN MODIFIED WITHOUT FREEING STORAGE; RETURN.   * 08310000
                                   978 *    ERROR CHECKS: NONE                                              * 08320000
                                   979 *      INTERRUPTS: OFF                                               * 08330000
                                   980 *     USER ACCESS: NO                                                * 08340000
                                   981 *                                                                    * 08350000
                                   982 ********************************************************************** 08360000

                          008A6    984 XJ       EQU   * .                   THE XJ ROUTINE: UNTHREAD A PCB       08380000
                          008A6    985          USING *,1                                                        08390000
                                   986          DROP  15                                                         08400000
                          00000    987          USING PCB,2                                                      08410000
0008A6 58B0 2014    00014          988          L     11,PCBLPALL .        GET PRECEDING PCB                    08420000
0008AA 58A0 2010    00010          989          L     10,PCBNPALL .         AND FOLLOWING ONE IN "ALL"          08430000
                                   990          DROP  2 .                   CHAIN                               08440000
                          00000    991          USING PCB,11                                                     08450000
0008AE 50A0 B010    00010          992          ST    10,PCBNPALL .        LAST POINTS TO NEXT                  08460000
                                   993          DROP  11                                                         08470000
                          00000    994          USING PCB,10                                                     08480000
0008B2 50B0 A014    00014          995          ST    11,PCBLPALL .        NEXT POINTS TO LAST                  08490000
                                   996          DROP  10                                                         08500000
                          00000    997          USING PCB,2                                                      08510000
0008B6 58B0 200C    0000C          998          L     11,PCBLPTG .         REDO FOR THIS GROUP PCB CHAIN        08520000
0008BA 58A0 2008    00008          999          L     10,PCBNPTG                                                 08530000
                                  1000          DROP  2                                                          08540000
                          00000   1001          USING PCB,11                                                     08550000
0008BE 50A0 B008    00008         1002          ST    10,PCBNPTG .         LAST POINTS TO NEXT                  08560000
                                  1003          DROP  11                                                         08570000
                          00000   1004          USING PCB,10                                                     08580000
0008C2 50B0 A00C    0000C         1005          ST    11,PCBLPTG .         NEXT POINTS TO LAST                  08590000
                                  1006          DROP  10                                                         08600000
0008C6 8200 04D8    004D8         1007          LPSW  RETURN .             AND RETURN                           08610000
                          00000   1008          USING PCB,15                                                     08620000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

                                  1010 ********************************************************************** 08640000
                                  1011 *                                                                    * 08650000
                                  1012 *                          XN ROUTINE                                * 08660000
                                  1013 *                                                                    * 08670000
                                  1014 *        FUNCTION: TO FIND THE PCB FOR A PROCESS GIVEN ITS NAME ONLY  * 08680000
                                  1015 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS XNX        * 08690000
                                  1016 *                    XNX       DS 0D                                  * 08700000
                                  1017 *                    XNXNAME   DS CL8   NAME OF PROCESS               * 08710000
                                  1018 *                    XNXADDR   DS A     ADDRESS OF PCB                * 08720000
                                  1019 *   ROUTINES USED: NONE                                              * 08730000
                                  1020 *       PROCEDURE: SEARCH THIS GROUP PCB CHAIN FOR NAME; IF FOUND,   * 08740000
                                  1021 *                  STORE POINTER IN XNXADDR. IF NOT FOUND, STORE     * 08750000
                                  1022 *                  ZERO IN XNXADDR; RETURN.                          * 08760000
                                  1023 *    ERROR CHECKS: NONE                                              * 08770000
                                  1024 *      INTERRUPTS: OFF                                               * 08780000
                                  1025 *     USER ACCESS: YES                                               * 08790000
                                  1026 *                                                                    * 08800000
                                  1027 ********************************************************************** 08810000

                         008CA    1029 XN       EQU   * .                THE XN ROUTINE: FIND A NAMED PCB     08830000
                         008CA    1030          USING *,1                                                     08840000
                         00000    1031          USING XNX,2 .            THE ARG LIST                         08850000
0008CA 18AF                       1032          LR    10,15 .            FIRST PCB TO LOOK AT IS OURS         08860000
                                  1033          DROP  15                                                    08870000
                         00000    1034          USING PCB,10                                                08880000
0008CC 58A0 A008      00008       1035 XNXLOOP  L     10,PCBNPTG .       LOOK AT NEXT PCB                     08890000
0008D0 D507 A000 2000 00000 00000 1036          CLC   PCBNAME,XNXNAME .  HAS IT THE RIGHT NAME?               08900000
0008D6 4780 101A      008E4       1037          BE    XNXFOUND .         IF YES, OH JOY.                      08910000
0008DA 19AF                       1038          CR    10,15 .            IF NOT, ARE WE THROUGH?              08920000
0008DC 4770 1002      008CC       1039          BNE   XNXLOOP .          IF NOT, TRY THE NEXT PCB             08930000
0008E0 41A0 0000      00000       1040          LA    10,0 .             ELSE, IT'S NOT HERE                  08940000
0008E4 50A0 2008      00008       1041 XNXFOUND ST    10,XNXADDR .       FOUND IT. SAY WHERE.                 08950000
0008E8 8200 04D8      004D8       1042          LPSW  RETURN .           AND RETURN                           08960000
                                  1043          DROP  2,10                                                  08970000
                               00000  1044          USING PCB,15                                           08980000
```

```
LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                 1046 ********************************************************************** 09000000
                                 1047 *                                                                    * 09010000
                                 1048 *                          XR ROUTINE                                * 09020000
                                 1049 *                                                                    * 09030000
                                 1050 *        FUNCTION: TO READ A MESSAGE                                 * 09040000
                                 1051 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS XRX       * 09050000
                                 1052 *                    XRX       DS 0D                                  * 09060000
                                 1053 *                    XRXNAME   DS CL8   NAME OF SENDER PROCESS        * 09070000
                                 1054 *                    XRXSIZE   DS F     SIZE OF MESSAGE TEXT          * 09080000
                                 1055 *                    XRXTEXT   DS C     TEXT OF MESSAGE               * 09090000
                                 1056 *   ROUTINES USED: XP, XEXC, XN, XCOM, XF                            * 09100000
                                 1057 *       PROCEDURE: USE XP ON MESSAGE SEMAPHORE RECEIVER TO SEE IF ANY * 09110000
                                 1058 *                  MESSAGES WAITING; IF NONE, PROCESS BLOCKED UNTIL  * 09120000
                                 1059 *                  THERE IS ONE; LOCK MESSAGE CHAIN; REMOVE A MESSAGE * 09130000
                                 1060 *                  FROM CHAIN AND UNLOCK IT; MOVE TEXT OF MESSAGE,   * 09140000
                                 1061 *                  PADDING WITH BLANKS OR TRUNCATING AS NECESSARY;   * 09150000
                                 1062 *                  INDICATE CORRECT MESSAGE LENGTH AND NAME OF       * 09160000
                                 1063 *                  MESSAGE SENDER; FREE STORAGE USED TO HOLD MESSAGE, * 09170000
                                 1064 *                  AND RETURN.                                       * 09180000
                                 1065 *    ERROR CHECKS: NONE                                              * 09190000
                                 1066 *      INTERRUPTS: ON                                                * 09200000
                                 1067 *     USER ACCESS: YES                                               * 09210000
                                 1068 *                                                                    * 09220000
                                 1069 ********************************************************************** 09230000

                          008EC  1071 XR       EQU   * .               THE XR ROUTINE: READ A MESSAGE       09250000
                          008EC  1072          USING *,1                                                    09260000
0008EC 1872                      1073          LR    7,2                                                    09270000
                                 1074          USING XRX,7 .           ARG LIST                             09280000
0008EE 4120 F024       00024     1075          LA    2,PCBMSR .        SEE IF MESSAGES WAITING              09290000
0008F2 0AD7                      1076          SVC   C'P'                                                   09300000
0008F4 0A5A                      1077          SVC   C'!' .            ENTER SMC SECTION                    09310000
0008F6 4120 F01C       0001C     1078          LA    2,PCBMSC .        THEN LOCK THE MESSAGE CHAIN          09320000
0008FA 0AD7                      1079          SVC   C'P'                                                   09330000
0008FC 5850 F02C       0002C     1080          L     5,PCBFM .         GET THE FIRST MESSAGE                09340000
                                 1081          USING MSG,5                                                  09350000
000900 D203 F02C 5004  0002C 00004 1082         MVC   PCBFM,MSGNEXT .   REMEMBER THE NEXT                    09360000
000906 0AE5                      1083          SVC   C'V' .            UNLOCK THE MESSAGE CHAIN             09370000
000908 5860 7008       00008     1084          L     6,XRXSIZE .       GET THE BUFFER CAPACITY              09380000
00090C 5B60 158C       00E78     1085          S     6,=F'2' .         MINUS 1, MINUS 1                     09390000
000910 9240 700C       0000C     1086          MVI   XRXTEXT,C' ' .    MOVE IN A BLANK                      09400000
000914 4740 1030       0091C     1087          BM    XRNOB                                                  09410000
000918 4460 1080       0096C     1088          EX    6,XRFILL .        THEN FILL THE REST WITH BLANKS       09420000
00091C 4166 0001       00001     1089 XRNOB    LA    6,1(6) .          THEN GET PROPER BUFFER COUNT         09430000
000920 5960 5008       00008     1090          C     6,MSGSIZE .       COMPARE WITH MESSAGE LENGTH          09440000
000924 4740 1042       0092E     1091          BL    XRTHEN .          IF LESS, HANDLE ACCORDINGLY          09450000
000928 5860 5008       00008     1092          L     6,MSGSIZE .       ELSE COUNT FOR MVC IS MESSAGE        09460000
00092C 0660                      1093          BCTR  6,0 .              SIZE MINUS ONE                    09470000
00092E 1266                      1094 XRTHEN   LTR   6,6 .              ANY CHARACTERS TO MOVE?           09480000
000930 4740 104C       00938     1095          BM    XRAFT .           IF NOT, DON'T                        09490000
000934 4460 1086       00972     1096          EX    6,XRMOVE .        ELSE MOVE THEM                       09500000
000938 4166 0001       00001     1097 XRAFT    LA    6,1(6) .          THEN GET LENGTH                      09510000
00093C 5060 7008       00008     1098          ST    6,XRXSIZE .       STORE IT                             09520000
000940 58A0 5000       00000     1099          L     10,MSGSENDR .     GET SENDER'S PCB                     09530000
                                 1100          DROP  15                                                     09540000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

                           00000  1101           USING PCB,10                                                    09550000
000944 D207 7000 A000 00000 00000  1102           MVC   XRXNAME,PCBNAME .   AND STORE SENDER'S NAME             09560000
00094A 5860 5008      00008        1103           L     6,MSGSIZE .         GET SIZE OF MESSAGE TEXT            09570000
00094E 4166 000C      0000C        1104           LA    6,LENMSG(6) .        ADD SIZE OF MESSAGE BLOCK          09580000
000952 4166 0007      00007        1105           LA    6,7(6) .            AND TRUNCATE                        09590000
000956 5460 1588      00E74        1106           N     6,=F'-8' .          UP                                  09600000
00095A 1825                        1107           LR    2,5 .               SET UP POINTER TO XFX               09610000
                           00000  1108           USING XFX,2                                                     09620000
00095C 5050 2004      00004        1109           ST    5,XFXADDR .         STORE ADDRESS                       09630000
000960 5060 2000      00000        1110           ST    6,XFXSIZE .         STORE SIZE                          09640000
000964 0AC6                        1111           SVC   C'F' .              AND FREE THE MESSAGE BLOCK          09650000
000966 0A6B                        1112           SVC   C',' .              LEAVE SMC                           09660000
000968 8200 04D8      004D8        1113           LPSW  RETURN .            AND RETURN                          09670000
00096C D200 700D 700C 0000D 0000C  1114 XRFILL    MVC   XRXTEXT+1,XRXTEXT . FILL WITH BLANKS                    09680000
000972 D200 700C 500C 0000C 0000C  1115 XRMOVE    MVC   XRXTEXT,MSGTEXT .  MOVE TEXT                           09690000
                                   1116           DROP  2,5,7,10                                                  09700000
                           00000   1117           USING PCB,15                                                    09710000



                                   1119 ********************************************************************** 09730000
                                   1120 *                                                                    * 09740000
                                   1121 *                          XS ROUTINE                                * 09750000
                                   1122 *                                                                    * 09760000
                                   1123 *       FUNCTION: TO SEND A MESSAGE                                  * 09770000
                                   1124 *      DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS XSX        * 09780000
                                   1125 *                   XSX      DS 0D                                   * 09790000
                                   1126 *                   XSXNAME  DS CL8   NAME OF TARGET PROCESS         * 09800000
                                   1127 *                   XSXSIZE  DS F     SIZE OF TEXT                   * 09810000
                                   1128 *                   XSXTEXT  DS C     TEXT OF MESSAGE                * 09820000
                                   1129 *   ROUTINES USED: XP, XV, XEXC, XCOM, XA, XQUE                      * 09830000
                                   1130 *       PROCEDURE: USE XN TO GET POINTER TO PCB OF TARGET PROCESS;   * 09840000
                                   1131 *                  USE LENGTH OF MESSAGE AND XA TO ALLOCATE BLOCK FOR * 09850000
                                   1132 *                  MESSAGE; LOCK MESSAGE CHAIN OF TARGET PROCESS;    * 09860000
                                   1133 *                  PUT MESSAGE BLOCK AT END OF CHAIN; STORE SENDER   * 09870000
                                   1134 *                  NAME, SIZE, AND TEXT OF MESSAGE; UNLOCK CHAIN;    * 09880000
                                   1135 *                  INDICATE MESSAGE CHAIN IS ONE LONGER; RETURN.     * 09890000
                                   1136 *    ERROR CHECKS: IF NO PROCESS BY GIVEN NAME, ENTER XQUE.          * 09900000
                                   1137 *      INTERRUPTS: ON                                                * 09910000
                                   1138 *     USER ACCESS: YES                                               * 09920000
                                   1139 *                                                                    * 09930000
                                   1140 ********************************************************************** 09940000

                           00978   1142 XS       EQU   * .                THE XS ROUTINE: SEND MESSAGES       09960000
                           00978   1143          USING *,1                                                    09970000
000978 1872                        1144          LR    7,2                                                    09980000
                           00000   1145          USING XSX,7 .            ARG LIST                            09990000
00097A 4120 E048      00048        1146          LA    2,SATEMP .         READY TO CALL OUT                   10000000
                           00000   1147          USING XNX,2 .            ABOUT TO CALL XN                    10010000
00097E D207 2000 7000 00000 00000  1148          MVC   XNXNAME,XSXNAME .  GIVE NAME OF TARGET PROCESS         10020000
000984 0AD5                        1149          SVC   C'N' .             SEE WHERE IT IS                     10030000
000986 5840 2008      00008        1150          L     4,XNXADDR .        GET THE POINTER                     10040000
00098A 1244                        1151          LTR   4,4 .              IS THERE INDEED ONE?                10050000
00098C 4780 108A      00A02        1152          BZ    XSERR .            IF NOT, ERROR                       10060000
                           00000   1153          USING PCB,4                                                  10070000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                   1154          DROP  2,15                                                    10080000
                           00000   1155          USING XAX,2 .          READY TO CALL XA                        10090000
000990 0A5A                        1156          SVC   C'!' .           ENTERING SMC SECTION                    10100000
000992 5830 7008       00008       1157          L     3,XSXSIZE .      GET THE STATED SIZE                     10110000
000996 4133 000C       0000C       1158          LA    3,LENMSG(3) .    PLUS THE AMOUNT OF OVERHEAD             10120000
00099A 4133 0007       00007       1159          LA    3,7(3) .         AND TRUNCATE                            10130000
00099E 5430 14FC       00E74       1160          N     3,=F'-8' .       UP                                      10140000
0009A2 5030 2000       00000       1161          ST    3,XAXSIZE .      THAT'S THE SIZE OF THE REGION TO        10150000
0009A6 D203 2008 14F8  00008 00E70 1162          MVC   XAXALGN,=F'8' .  ALLOCATE, ON A DOUBLEWORD BOUND         10160000
0009AC 0AC1                        1163          SVC   C'A' .           SO ALLOCATE ALREADY                     10170000
0009AE 5850 2004       00004       1164          L     5,XAXADDR .      GET THE ADDRESS                         10180000
                                   1165          DROP  2                                                       10190000
0009B2 4120 401C       0001C       1166          LA    2,PCBMSC .       GET THE MESSAGE CHAIN SEMAPHORE         10200000
0009B6 0AD7                        1167          SVC   C'P' .            AND LOCK IT                            10210000
0009B8 4180 402C       0002C       1168          LA    8,PCBFM .        THEN START DOWN THE MESSAGE             10220000
0009BC 5890 402C       0002C       1169          L     9,PCBFM .         CHAIN                                  10230000
                           00000   1170          USING MSG,9                                                   10240000
0009C0 1299                        1171 XSLOOP   LTR   9,9 .            ARE WE THROUGH?                         10250000
0009C2 4780 105A       009D2       1172          BZ    XSADD .          IF SO ADD IT ON                         10260000
0009C6 4180 9004       00004       1173          LA    8,MSGNEXT .      IF NOT, ON TO THE NEXT                  10270000
0009CA 5890 9004       00004       1174          L     9,MSGNEXT                                                10280000
0009CE 47F0 1048       009C0       1175          B     XSLOOP .         AND TRY AGAIN                           10290000
0009D2 5058 0000       00000       1176 XSADD    ST    5,0(8) .         CHAIN OURS ON THE END                   10300000
                                   1177          DROP  9                                                       10310000
                           00000   1178          USING MSG,5                                                   10320000
0009D6 D203 5004 14F0  00004 00E68 1179          MVC   MSGNEXT,=A(0) .  SET NEXT POINTER NULL                   10330000
0009DC 50F0 5000       00000       1180          ST    15,MSGSENDR .    STORE THE SENDER                        10340000
0009E0 5860 7008       00008       1181          L     6,XSXSIZE .      GET THE TEXT LENGTH                     10350000
0009E4 5060 5008       00008       1182          ST    6,MSGSIZE .      AND STORE IT                            10360000
0009E8 0660                        1183          BCTR  6,0 .            ONE LESS                                10370000
0009EA 1266                        1184          LTR   6,6 .            TEST LENGTH                             10380000
0009EC 4740 107C       009F4       1185          BM    XSAFT .          IF ZERO, NOTHING TO MOVE                10390000
0009F0 4460 108C       00A04       1186          EX    6,XSMOVE .       ELSE, MOVE IT                           10400000
0009F4 0AE5                        1187 XSAFT    SVC   C'V' .           UNLOCK THE MESSAGE CHAIN                10410000
0009F6 4120 4024       00024       1188          LA    2,PCBMSR .       THEN SAY THERE'S                        10420000
0009FA 0AE5                        1189          SVC   C'V' .            ONE MORE MESSAGE                       10430000
0009FC 0A6B                        1190          SVC   C',' .           LEAVE SMC SECTION                       10440000
0009FE 8200 04D8       004D8       1191          LPSW  RETURN .         AND RETURN                              10450000
000A02 0A6F                        1192 XSERR    SVC   C'?'                                                    10460000
000A04 D200 500C 700C  0000C 0000C 1193 XSMOVE   MVC   MSGTEXT,XSXTEXT . THE MOVE FOR THE TEXT                10470000
                                   1194          DROP  4,5,7                                                   10480000
                           00000   1195          USING PCB,15                                                  10490000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                  1197 ************************************************************************ 10510000
                                  1198 *                                                                      * 10520000
                                  1199 *                            XY ROUTINE                                * 10530000
                                  1200 *                                                                      * 10540000
                                  1201 *        FUNCTION: TO START A PROCESS                                  * 10550000
                                  1202 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS XYX         * 10560000
                                  1203 *                    XYX       DS 0D                                   * 10570000
                                  1204 *                    XYXNAME   DS CL8   NAME OF PROCESS TO BE STARTED  * 10580000
                                  1205 *                    XYXADDR   DS A     STARTING ADDRESS OF PROCESS    * 10590000
                                  1206 *   ROUTINES USED: XN, XEXC, XCOM, XQUE                                * 10600000
                                  1207 *       PROCEDURE: USE XN TO GET POINTER TO THE PCB OF PROCESS TO BE   * 10610000
                                  1208 *                  STARTED; STORE IN PCB INTERRUPT SAVE AREA REGISTERS* 10620000
                                  1209 *                  AND PSW WITH STARTING ADDRESS AS SENT FROM STARTING* 10630000
                                  1210 *                  PROCESS; STOPPED BIT TURNED OFF; RETURN.            * 10640000
                                  1211 *    ERROR CHECKS: IF NO PROCESS BY GIVEN NAME, XQUE ENTERED.          * 10650000
                                  1212 *      INTERRUPTS: OFF                                                 * 10660000
                                  1213 *     USER ACCESS: YES                                                 * 10670000
                                  1214 *                                                                      * 10680000
                                  1215 ************************************************************************ 10690000

                        00A0A     1217 XY       EQU   * .               THE XY ROUTINE: START A PROCESS      10710000
                        00A0A     1218          USING *,1                                                    10720000
000A0A 1872                       1219          LR    7,2                                                    10730000
                        00000     1220          USING XYX,7 .           THE ARG LIST                         10740000
000A0C 4120 E048      00048       1221          LA    2,SATEMP .        READY TO CALL OUT                    10750000
                        00000     1222          USING XNX,2                                                  10760000
000A10 D207 2000 7000 00000 00000 1223          MVC   XNXNAME,XYXNAME . GIVE XN A NAME                       10770000
000A16 0AD5                       1224          SVC   C'N' .            CALL XN                              10780000
000A18 58A0 2008      00008       1225          L     10,XNXADDR .      WHERE IS THE PCB?                    10790000
000A1C 12AA                       1226          LTR   10,10 .            OR IS THERE ONE?                    10800000
000A1E 4780 1036      00A40       1227          BZ    XYERR .           IF NOT, OH HISS BOO                  10810000
                                  1228          DROP  2,14,15                                                10820000
                        00000     1229          USING PCB,10                                                 10830000
000A22 41D0 A04C      0004C       1230          LA    13,PCBISA .       GET INTO THAT PCB'S ISA              10840000
                        00000     1231          USING SA,13                                                  10850000
000A26 D207 D000 E000 00000 00000 1232          MVC   SAPSW,(SAPSW-SA)(14) . GIVE IT THE CALLER'S PSW        10860000
000A2C D202 D005 7009 00005 00009 1233          MVC   SAPSW+5(3),XYXADDR+1 . BUT AT THE REQUESTED ADDRESS    10870000
000A32 D23F D008 E008 00008 00008 1234          MVC   SAREGS,(SAREGS-SA)(14) .GIVE IT HIS REGISTERS          10880000
000A38 9200 A018      00018       1235          MVI   PCBSTOPT,X'00' .  IT'S NO LONGER STOPPED               10890000
000A3C 8200 04D8      004D8       1236          LPSW  RETURN .          AND RETURN                           10900000
000A40 0A6F                       1237 XYERR    SVC   C'?' .            WE DONE BAD                          10910000
                                  1238          DROP  7,10,13                                                10920000
                        00000     1239          USING SA,14                                                  10930000
                        00000     1240          USING PCB,15                                                 10940000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

                                  1242 ************************************************************************ 10960000
                                  1243 *                                                                      * 10970000
                                  1244 *                            XZ ROUTINE                                * 10980000
                                  1245 *                                                                      * 10990000
                                  1246 *        FUNCTION: TO STOP A PROCESS                                   * 11000000
                                  1247 *       DATABASES: UPON ENTRY, REGISTER 2 CONTAINS ADDRESS XZX         * 11010000
                                  1248 *                    XZX       DS 0D                                   * 11020000
                                  1249 *                    XZXNAME   DS CL8   NAME OF PROCESS TO BE STOPPED  * 11030000
                                  1250 *   ROUTINES USED: XN, XEXC, XCOM, XQUE, XP                            * 11040000
                                  1251 *       PROCEDURE: CHECK THAT USER PROCESS CAN'T STOP SYSTEM           * 11050000
                                  1252 *                  PROCESS; USE XN TO GET PCB POINTER; IF IN SMC, SET * 11060000
                                  1253 *                  STOP WAITING BIT AND BLOCK SELF UNTIL STOP         * 11070000
                                  1254 *                  PERFORMED; ELSE SET STOPPED BIT, AND RETURN.       * 11080000
                                  1255 *    ERROR CHECKS: IF NO PROCESS BY GIVEN NAME OR USER TRIES TO        * 11090000
                                  1256 *                  STOP A SYSTEM PROCESS, XQUE ENTERED.               * 11100000
                                  1257 *      INTERRUPTS: ON                                                  * 11110000
                                  1258 *     USER ACCESS: YES                                                 * 11120000
                                  1259 *                                                                      * 11130000
                                  1260 ************************************************************************ 11140000

                          00A42   1262 XZ       EQU   * .               THE XZ ROUTINE: STOP A PROCESS       11160000
                          00A42   1263          USING *,1                                                    11170000
000A42 1872                       1264          LR    7,2                                                    11180000
                          00000   1265          USING XZX,7 .           ARG LIST                             11190000
000A44 955C F000      00000       1266          CLI   PCBNAME,C'*' .    IS STOPPER A * PROCESS               11200000
000A48 4780 1012      00A54       1267          BE    XZFINE .          THAT'S OK                            11210000
000A4C 955C 7000      00000       1268          CLI   XZXNAME,C'*' .     IF NOT, IS STOPPEE A * ?            11220000
000A50 4780 104A      00A8C       1269          BE    XZERR .           CAN'T DO THAT                        11230000
000A54 4120 E048      00048       1270 XZFINE   LA    2,SATEMP .        READY TO CALL OUT                    11240000
                                  00000 1271    USING XNX,2 .           WILL CALL XN                         11250000
000A58 D207 2000 7000 00000 00000 1272          MVC   XNXNAME,XZXNAME . GIVE IT THE NAME                   11260000
000A5E 0AD5                       1273          SVC   C'N' .            AND DO THE CALL                      11270000
000A60 58A0 2008      00008       1274          L     10,XNXADDR .      GET THE PCB'S ADDRESS                11280000
000A64 12AA                       1275          LTR   10,10 .           SEE IF NULL                          11290000
000A66 4780 104A      00A8C       1276          BZ    XZERR .           IF SO, ERROR                         11300000
000A6A 0A5A                       1277          SVC   C'!' .            ENTER SMC                            11310000
                                  1278          DROP  2,15                                                 11320000
                                  00000 1279    USING PCB,10                                               11330000
000A6C 9500 A01A      0001A       1280 XZSTOP   CLI   PCBINSMC,X'00' .  SEE IF IN SMC                       11340000
000A70 4770 103C      00A7E       1281          BNE   XZINSMC .         IF SO, BAD                           11350000
000A74 92FF A018      00018       1282          MVI   PCBSTOPT,X'FF' .  ELSE JUST STOP IT                    11360000
000A78 0A6B                       1283          SVC   C',' .            LEAVE SMC                            11370000
000A7A 8200 04D8      004D8       1284          LPSW  RETURN .          AND RETURN                           11380000
000A7E 92FF A01B      0001B       1285 XZINSMC  MVI   PCBSW,X'FF' .     IF IN SMC, SAY STOP WAITING          11390000
000A82 4120 A034      00034       1286          LA    2,PCBSRS .        AND STOP OURSELVES AGAINST           11400000
000A86 0AD7                       1287          SVC   C'P' .             A SEMAPHORE                         11410000
000A88 47F0 102A      00A6C       1288          B     XZSTOP .          THEN WE CAN REALLY STOP IT           11420000
000A8C 0A6F                       1289 XZERR    SVC   C'?' .            AN ERROR                             11430000
                                  1290          DROP  10,7                                                 11440000
                                  00000 1291    USING PCB,15                                               11450000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                  1293 ********************************************************************** 11470000
                                  1294 *                                                                    * 11480000
                                  1295 *                            XQUE ROUTINE                            * 11490000
                                  1296 *                                                                    * 11500000
                                  1297 *        FUNCTION: TO SIGNAL ERROR CONDITION                         * 11510000
                                  1298 *       DATABASES: NONE                                              * 11520000
                                  1299 *   ROUTINES USED: XR, XS                                            * 11530000
                                  1300 *       PROCEDURE: SEND MESSAGE TO SUPERVISOR PROCESS FOR THIS JOB   * 11540000
                                  1301 *                  INDICATING ABNORMAL TERMINATION; TRY TO READ      * 11550000
                                  1302 *                  MESSAGES, FOREVER LOOPING; BLOCK ITSELF, THEREBY  * 11560000
                                  1303 *                  NEVER RETURNING.                                  * 11570000
                                  1304 *    ERROR CHECKS: NONE                                              * 11580000
                                  1305 *      INTERRUPTS: OFF                                               * 11590000
                                  1306 *     USER ACCESS: YES                                               * 11600000
                                  1307 *                                                                    * 11610000
                                  1308 ********************************************************************** 11620000
                           00A8E  1310 XQUE     EQU   * .                THE XQUE ROUTINE: ERROR!            11640000
                           00A8E  1311          USING *,1                                                    11650000
000A8E 4120 1012      00AA0       1312          LA    2,XQUEM1 .         SEND AN ERROR MESSAGE TO *IBSUP     11660000
000A92 0AE2                       1313          SVC   C'S'                                                   11670000
000A94 4120 102A      00AB8       1314 XQUELOOP LA    2,XQUEM2 .         WAIT FOR REPLY                      11680000
000A98 0AD9                       1315          SVC   C'R'                                                   11690000
000A9A 47F0 1006      00A94       1316          B     XQUELOOP .         BUT IGNORE IT                       11700000
000AA0                            1317          DS    0F                                                     11710000
000AA0 5CC9C2E2E4D74040           1318 XQUEM1   DC    CL8'*IBSUP'                                            11720000
000AA8 0000000C                   1319          DC    F'12'                                                  11730000
000AAC D7D9D6C7D9C1D440           1320          DC    CL12'PROGRAM FLOP'                                     11740000
000AB8                            1321 XQUEM2   DS    CL8                                                    11750000
000AC0 00000001                   1322          DC    F'1'                                                   11760000
000AC4                            1323          DS    CL1,0H                                                 11770000
                                  1324          DROP  14,15                                                  11780000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                  1326 ********************************************************************** 11800000
                                  1327 *                                                                    * 11810000
                                  1328 *                          INPUT/OUTPUT ROUTINES                     * 11820000
                                  1329 *                                                                    * 11830000
                                  1330 ********************************************************************** 11840000
                                  1332 ********************************************************************** 11860000
                                  1333 *                                                                    * 11870000
                                  1334 *          SYSTEM SUPPLIED DEVICE HANDLER FOR READERS                * 11880000
                                  1335 *                                                                    * 11890000
                                  1336 ********************************************************************** 11900000
                          00AC6   1338 RDRHANDL EQU   * .                THE READER HANDLER                  11920000
                          00000   1339          USING UCB,3 .            STARTED WITH REG3 -> UCB            11930000
000AC6 0510                       1340          BALR  1,0                                                    11940000
                          00AC8   1341          USING *,1 .              ESTABLISH ADDRESSING                11950000
000AC8 4120 1160          00C28   1342          LA    2,RDRHSEM .        LOCK OURSELVES UNTIL WE SET UP      11960000
000ACC 0AD7                       1343          SVC   C'P' .              AN AUTOMATIC STORAGE AREA          11970000
000ACE 4120 1174          00C3C   1344          LA    2,RDRHAAS .        READY TO ALLOCATE                   11980000
                          00000   1345          USING XAX,2                                                  11990000
000AD2 0AC5                       1346          SVC   C'E' .             ALLOCATE                            12000000
000AD4 58C0 2004          00004   1347          L     12,XAXADDR .       GET A PTR                           12010000
                                  1348          DROP  2                                                      12020000
000AD8 4120 1160          00C28   1349          LA    2,RDRHSEM .        AND UNBLOCK OURSELVES               12030000
000ADC 0AE5                       1350          SVC   C'V'                                                   12040000
000ADE 8840 0010          00010   1351          SRL   4,16 .             SHIFT KEY                           12050000
000AE2 1BAA                       1352          SR    10,10 .            CLEAR REG 10                        12060000
                          00000   1353          USING RDRHAS,12 .        AUTOMATIC AREA                      12070000
000AE4 9200 C07A          0007A   1354          MVI   JOBBIT,X'00' .     INITIALIZE                          12080000
000AE8 4160 C000          00000   1355          LA    6,RDRHCCB .        GET PTR TO CCB                      12090000
000AEC 4120 C008          00008   1356 RDRHLOOP LA    2,RDRHMSG .        TRY TO READ A MESSAGE               12100000
                          00000   1357          USING XRX,2                                                  12110000
000AF0 D203 2008 13A8     00008 00E70   1358          MVC   XRXSIZE,=F'8' .    WE CAN TAKE 8 CHARS          12120000
000AF6 0AD9                       1359          SVC   C'R' .             READ IT                             12130000
000AF8 D503 13B4 200C     00E7C 0000C 1360          CLC   =C'READ',XRXTEXT . IF FIRST WORD IS READ, OK           12140000
000AFE 4770 1024          00AEC   1361          BNE   RDRHLOOP .         ELSE IGNORE                         12150000
000B02 5850 2010          00010   1362          L     5,XRXTEXT+4 .      GET 2ND WORD OF TEXT                12160000
                                  1363          DROP  2                                                      12170000
000B06 4120 3004          00004   1364          LA    2,UCBUS .          LOCK THE UCB AND IT'S UNIT          12180000
000B0A 0AD7                       1365          SVC   C'P'                                                   12190000
000B0C 4120 C008          00008   1366          LA    2,RDRHMSG .        RESET ADDRESSING POINTER            12200000
                          00000   1367          USING XRX,2                                                  12210000
000B10 95FF C07A          0007A   1368          CLI   JOBBIT,X'FF' .     HAVE WE JUST READ $JOB CARD?        12220000
000B14 4770 1066          00B2E   1369          BNE   RDRHMORE .         IF NO, GO CHECK PROTECTION, ELSE    12230000
000B18 955C 2000          00000   1370          CLI   XRXNAME,C'*' .     IS JSP CALLING US?                  12240000
000B1C 4770 10F8          00BC0   1371          BNE   RDRHNO .           IF NOT, TELL HIM NO.                12250000
000B20 D24F 5000 C01C     00000 0001C 1372          MVC   0(80,5),RDRHTEMP . IF IT IS, GIVE JSP THE $JOB CARD    12260000
000B26 9200 C07A          0007A   1373          MVI   JOBBIT,X'00' .     SAY WE DON'T HAVE $JOB WAITING      12270000
000B2A 47F0 1114          00BDC   1374          B     RDRHSOK .           AND SEND MESSAGE BACK             12280000
                                  1375          DROP  2                                                      12290000
000B2E 955C C008          00008   1376 RDRHMORE CLI   RDRHMSG,C'*' .     IS SYSTEM CALLING?                  12300000
000B32 4780 1098          00B60   1377          BE    RDRHPOK .          THEN PROTECTION OK, ELSE            12310000
000B36 18B5                       1378          LR    11,5 .             GET ADDRESS THAT'S TO HOLD CARD,    12320000
000B38 54B0 116C          00C34   1379          N     11,PROTCON1 .      get the page boundary               12330002
                                  1380 *        ISKE  10,11 .            find storage key                    12334002
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

000B3C B22900AB                   1381          DC    X'B22900AB'          Assembler (XF) doesn't support ISKE  12338002
000B40 54A0 1170      00C38       1382          N     10,PROTCON2 .        ignore low order bits                12342002
000B44 19A4                       1383          CR    10,4 .               DOES IT MATCH OURS?                  12350000
000B46 4770 10F8      00BC0       1384          BNE   RDRHNO .            IF NOT, TELL HIM NO                  12360000
000B4A 41B5 004F      0004F       1385          LA    11,79(5) .           CHECK LAST BYTE ADDR OF CARD         12370000
000B4E 54B0 116C      00C34       1386          N     11,PROTCON1 .        get the page boundary                12380002
                                  1387 *        ISKE  10,11 .              find storage key                     12384002
000B52 B22900AB                   1388          DC    X'B22900AB'          Assembler (XF) doesn't support ISKE  12388002
000B56 54A0 1170      00C38       1389          N     10,PROTCON2 .        ignore low order bits                12392002
000B5A 19A4                       1390          CR    10,4 .               DOES IT MATCH OURS?                  12400000
000B5C 4770 10F8      00BC0       1391          BNE   RDRHNO .            IF NOT, TELL HIM NO                  12410000
000B60 5450 1168      00C30       1392 RDRHPOK  N     5,CCBCON1 .          MAKE ADDRESS INTO                    12420000
000B64 5050 C000      00000       1393          ST    5,RDRHCCB .          A CCW (OR CCB)                       12430000
000B68 9602 C000      00000       1394          OI    RDRHCCB,X'02'                                             12440000
000B6C D203 C004 13B8 00004 00E80 1395          MVC   RDRHCCB+4,=F'80' .   WE'LL READ EIGHTY CHARACTERS         12450000
000B72 D203 3014 13A0 00014 00E68 1396          MVC   UCBCSW(4),=A(0) .    CLEAR THE LAST CSW THERE             12460000
000B78 D203 3018 13A0 00018 00E68 1397          MVC   UCBCSW+4(4),=A(0)                                          12470000
000B7E 4120 0194      00194       1398          LA    2,CAWSEM .           LOCK THE CAW                         12480000
000B82 0AD7                       1399          SVC   C'P'                                                     12490000
000B84 5060 0048      00048       1400          ST    6,CAW .              THAT'S THE CAW                       12500000
000B88 5870 3000      00000       1401          L     7,UCBADDR .          GET THE UNIT ADDRESS                 12510000
000B8C 9C00 7000      00000       1402          SIO   0(7) .               START THE I/O                        12520000
000B90 4770 1154      00C1C       1403          BNZ   RDSTATUS .           BRANCH IF SIO UNSUCCESSFUL           12530000
000B94 0AE5                       1404          SVC   C'V' .               THEN UNLOCK THE CAW                  12540000
000B96 4120 300C      0000C       1405 RDRHWAIT LA    2,UCBWS .            NOW WAIT FOR AN INTERRUPT            12550000
000B9A 0AD7                       1406          SVC   C'P'                                                     12560000
000B9C 9185 3018      00018       1407          TM    UCBCSW+4,X'85' .     CHECK THE STATUS                     12570003
000BA0 4780 10CE      00B96       1408          BZ    RDRHWAIT .           IF NOT FINISHED, WAIT                12580000
000BA4 9101 3018      00018       1409          TM    UCBCSW+4,X'01' .     CHECK FOR EXCEPTION                  12590000
000BA8 4710 10F0      00BB8       1410          BO    RDRHEXC .            if yes, ignore this interrupt        12600003
000BAC 9180 3018      00018       1411          TM    UCBCSW+4,X'80' .     if no, check for attention           12602003
000BB0 4710 1098      00B60       1412          BO    RDRHPOK .            if yes, try to restart the I/O       12604003
000BB4 47F0 1102      00BCA       1413          B     RDRHOK .             else, all is groovy                  12606003
000BB8 94FE 3018      00018       1414 RDRHEXC  NI    UCBCSW+4,X'FE' .     clear exception ..                   12608003
000BBC 47F0 10CE      00B96       1415          B     RDRHWAIT .            .. and continue waiting             12610003
000BC0 D201 C078 13D4 00078 00E9C 1416 RDRHNO   MVC   RDRHM+12(2),=C'NO' . message back is no                    12612003
000BC6 47F0 111A      00BE2       1417          B     RDRHSEND .           GET READY TO SEND                    12620000
000BCA 955C C008      00008       1418 RDRHOK   CLI   RDRHMSG,C'*' .       IS THE SYSTEM CALLING?               12630000
000BCE 4780 1114      00BDC       1419          BE    RDRHSOK .            THAT'S FINE. OTHERWISE,              12640000
000BD2 D504 13D8 5000 00EA0 00000 1420          CLC   =C'$JOB,',0(5) .     WAS IT A $JOB CARD?                  12650000
000BD8 4780 1136      00BFE       1421          BE    ENDADATA .           OOPS! WE HIT END OF DATA STREAM       12660000
000BDC D201 C078 13D6 00078 00E9E 1422 RDRHSOK  MVC   RDRHM+12(2),=C'OK' .GROOVINESS MESSAGE                    12670000
000BE2 D203 C074 13B0 00074 00E78 1423 RDRHSEND MVC   RDRHM+8(4),=F'2' .   SAY THERE ARE 2 CHARACTERS           12680000
000BE8 D207 C06C C008 0006C 00008 1424          MVC   RDRHM+0(8),RDRHMSG+0 . SEND BACK TO SAME GUY             12690000
000BEE 4120 3004      00004       1425          LA    2,UCBUS .            NOW UNLOCK UCB AND UNIT              12700000
000BF2 0AE5                       1426          SVC   C'V'                                                     12710000
000BF4 4120 C06C      0006C       1427          LA    2,RDRHM .            SET UP MESSAGE                       12720000
000BF8 0AE2                       1428          SVC   C'S' .                AND SEND IT                         12730000
000BFA 47F0 1024      00AEC       1429          B     RDRHLOOP                                                 12740000
000BFE D201 C078 13D4 00078 00E9C 1430 ENDADATA MVC   RDRHM+12(2),=C'NO' . TELL USER NO MORE CARDS              12750000
000C04 D24F C01C 5000 0001C 00000 1431          MVC   RDRHTEMP(80),0(5) . SAVE THE $JOB CARD                   12760000
000C0A 9240 5000      00000       1432          MVI   0(5),C' ' .          BLANK OUT THE USER'S COPY            12770000
000C0E D24E 5001 5000 00001 00000 1433          MVC   1(79,5),0(5)                                             12780000
000C14 92FF C07A      0007A       1434          MVI   JOBBIT,X'FF' .       INDICATE WE HAVE A NEW $JOB CARD     12790000
000C18 47F0 111A      00BE2       1435          B     RDRHSEND .           AND SEND THE MESSAGE BACK            12800000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

000C1C 0AE5                      1436 RDSTATUS SVC   C'V' .              UNLOCK THE CAW                        12810000
000C1E 4120 300C      0000C      1437          LA    2,UCBWS .           AND WAIT FOR AN INTERRUPT             12820000
000C22 0AD7                      1438          SVC   C'P'                                                      12830000
000C24 47F0 1098      00B60      1439          B     RDRHPOK .           AND TRY TO RESTART THE I/O            12840000
                                 1440          DROP  3,12                                                      12850000

000C28 0000000100000000          1442 RDRHSEM  DC    F'1,0'                                                    12870000
000C30 00FFFFFF                  1443 CCBCON1  DC    X'00FFFFFF' MASK                                          12880000
000C34 00FFF000                  1444 PROTCON1 DC    X'00FFF000'         page alignment                        12890002
000C38 FFFFFFF0                  1445 PROTCON2 DC    X'FFFFFFF0'         ignore low order bits                 12893002
000C3C 00000080                  1446 RDRHAAS  DC    A(LENRDRHA) ALLOCATE ARGLIST FOR STORAGE                  12900000
000C40 00000000                  1447          DC    F'0'                                                      12910000
000C44 00000008                  1448          DC    F'8'                                                      12920000



                                 1450 ************************************************************************ 12940000
                                 1451 *                                                                      * 12950000
                                 1452 *             SYSTEM SUPPLIED DEVICE HANDLER FOR PRINTERS              * 12960000
                                 1453 *                                                                      * 12970000
                                 1454 ************************************************************************ 12980000

                          00C48  1456 PRTHANDL EQU   * .                 THE PRINTER HANDLER                   13000000
                          00000  1457          USING UCB,3 .            ENTERED WITH REG3 -> THE UCB          13010000
000C48 0510                      1458          BALR  1,0                                                       13020000
                          00C4A  1459          USING *,1 .              ESTABLISH ADDRESSING                  13030000
000C4A 4120 1116      00D60      1460          LA    2,PRTHSEM .        LOCK UNTIL ALLOCATE STORAGE           13040000
000C4E 0AD7                      1461          SVC   C'P' .                                                    13050000
000C50 4120 111E      00D68      1462          LA    2,PRTHAAS .        READY TO ALLOCATE                     13060000
                          00000  1463          USING XAX,2                                                     13070000
000C54 0AC5                      1464          SVC   C'E' .             ALLOCATE                              13080000
000C56 58C0 2004      00004      1465          L     12,XAXADDR .       GET THE ADDRESS                       13090000
                                 1466          DROP  2                                                         13100000
000C5A 4120 1116      00D60      1467          LA    2,PRTHSEM .                                             13110000
000C5E 0AE5                      1468          SVC   C'V'               UNLOCK TO ROUTINE                     13120000
000C60 8840 0010      00010      1469          SRL   4,16 .             SHIFT KEY                             13130000
000C64 1BAA                      1470          SR    10,10 .            CLEAR REG 10                          13140000
                          00000  1471          USING PRTHAS,12 .        ADDRESSING IN THE AUTO AREA           13150000
000C66 4160 C000      00000      1472          LA    6,PRTHCCB .        MAKE A CAW                            13160000
000C6A 4120 C008      00008      1473 PRTHLOOP LA    2,PRTHMSG .        READY TO READ A MESSAGE               13170000
                          00000  1474          USING XRX,2                                                     13180000
000C6E D203 2008 1226 00008 00E70 1475          MVC   XRXSIZE,=F'8' .    WE CAN TAKE 8 CHARACTERS              13190000
000C74 0AD9                      1476          SVC   C'R' .             READ IT                               13200000
000C76 5850 2010      00010      1477          L     5,XRXTEXT+4 .      LOAD THE ADDRESS                      13210000
000C7A D503 123A 200C 00E84 0000C 1478          CLC   =C'PRIN',XRXTEXT . IS IT A PRIN REQUEST?                13220000
000C80 4780 1048      00C92      1479          BE    PRTHPRIN                                                  13230000
000C84 D503 123E 200C 00E88 0000C 1480          CLC   =C'STC1',XRXTEXT . OR A SKIP REQUEST?                   13240000
000C8A 4780 1096      00CE0      1481          BE    PRTHSTC1                                                  13250000
000C8E 47F0 1020      00C6A      1482          B     PRTHLOOP .         IF NEITHER, IGNORE                    13260000
                                 1483          DROP  2                                                         13270000
000C92 4120 3004      00004      1484 PRTHPRIN LA    2,UCBUS                                                   13280000
000C96 0AD7                      1485          SVC   C'P' .             LOCK THE UCB AND UNIT                 13290000
000C98 955C C008      00008      1486          CLI   PRTHMSG,C'*' .     IS SYSTEM CALLING?                    13300000
000C9C 4780 1080      00CCA      1487          BE    PRTHPOK .          THEN PROTECTION OK. ELSE              13310000
000CA0 18B5                      1488          LR    11,5 .             GET ADDRESS THAT'S TO HOLD MSG,       13320000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

000CA2 54B0 0C34      00C34        1489          N     11,PROTCON1 .       get the page boundary                13330002
                                   1490 *        ISKE  10,11 .             find storage key                     13334002
000CA6 B22900AB                    1491          DC    X'B22900AB'         Assembler (XF) doesn't support ISKE  13338002
000CAA 54A0 0C38      00C38        1492          N     10,PROTCON2 .       ignore low order bits                13342002
000CAE 19A4                        1493          CR    10,4 .              DOES IT MATCH OURS?                  13350000
000CB0 4770 10DC      00D26        1494          BNE   PRTHNO .            IF NOT, TELL HIM NO                  13360000
000CB4 41B5 0083      00083        1495          LA    11,131(5) .         CHECK LAST BYTE ADDRESS OF LINE      13370000
000CB8 54B0 0C34      00C34        1496          N     11,PROTCON1 .       get the page boundary                13380002
                                   1497 *        ISKE  10,11 .             find storage key                     13384002
000CBC B22900AB                    1498          DC    X'B22900AB'         Assembler (XF) doesn't support ISKE  13388002
000CC0 54A0 0C38      00C38        1499          N     10,PROTCON2 .       ignore low order bits                13392002
000CC4 19A4                        1500          CR    10,4 .              DOES IT MATCH OURS?                  13400000
000CC6 4770 10DC      00D26        1501          BNE   PRTHNO .            IF NOT, TELL HIM NO                  13410000
000CCA 5450 0C30      00C30        1502 PRTHPOK  N     5,CCBCON1 .         MAKE A WRITE REQUEST                 13420000
000CCE 5050 C000      00000        1503          ST    5,PRTHCCB .         FOR THE CCB                          13430000
000CD2 9609 C000      00000        1504          OI    PRTHCCB,X'09' .     PRINT COMMAND CODE                   13440000
000CD6 D203 C004 1242 00004 00E8C  1505          MVC   PRTHCCB+4,=F'132' . WE'LL PRINT 132 CHARACTERS         13450000
000CDC 47F0 10A2      00CEC        1506          B     PRTHCOMM .          BRANCH TO COMMON SECTION             13460000
000CE0 D207 C000 120E 00000 00E58  1507 PRTHSTC1 MVC   PRTHCCB(8),=X'8900000020000001' SKIP TO TOP OF PAGE      13470000
000CE6 4120 3004      00004        1508          LA    2,UCBUS                                                  13480000
000CEA 0AD7                        1509          SVC   C'P' .              LOCK THE UCB AND UNIT                13490000
000CEC 4120 0194      00194        1510 PRTHCOMM LA    2,CAWSEM .          LOCK THE CAW                         13500000
000CF0 0AD7                        1511          SVC   C'P'                                                     13510000
000CF2 5060 0048      00048        1512          ST    6,CAW .             STORE OUR CAW                        13520000
000CF6 D203 3014 121E 00014 00E68  1513          MVC   UCBCSW(4),=A(0) .   CLEAR THE LAST CSW THERE             13530000
000CFC D203 3018 121E 00018 00E68  1514          MVC   UCBCSW+4(4),=A(0)                                        13540000
000D02 5870 3000      00000        1515          L     7,UCBADDR .         GET THE ADDRESS                      13550000
000D06 9C00 7000      00000        1516          SIO   0(7) .              START THE I/O                        13560000
000D0A 4770 1108      00D52        1517          BNZ   PTSTATUS .          BRANCH IF SIO UNSUCCESSFUL           13570000
000D0E 0AE5                        1518          SVC   C'V' .              AND UNLOCK THE CAW                   13580000
000D10 4120 300C      0000C        1519 PRTHWAIT LA    2,UCBWS .           START TO WAIT                        13590000
000D14 0AD7                        1520          SVC   C'P'                                                     13600000
000D16 9105 3018      00018        1521          TM    UCBCSW+4,X'05' .    IS THE UNIT READY?                   13610000
000D1A 4780 10C6      00D10        1522          BZ    PRTHWAIT .          IF NOT, ITS STILL ON. WAIT           13620000
000D1E 9101 3018      00018        1523          TM    UCBCSW+4,X'01' .    WAS THERE AN EXCEPTION?              13630000
000D22 4780 10E6      00D30        1524          BZ    PRTHOK .            IF NOT, GOOD                         13640000
000D26 D201 C028 1252 00028 00E9C  1525 PRTHNO   MVC   PRTHM+12(2),=C'NO' .THERE WAS, SO SAY SO               13650000
000D2C 47F0 10EC      00D36        1526          B     PRTHSEND                                                 13660000
000D30 D201 C028 1254 00028 00E9E  1527 PRTHOK   MVC   PRTHM+12(2),=C'OK' .NO ERRORS                          13670000
000D36 D203 C024 122E 00024 00E78  1528 PRTHSEND MVC   PRTHM+8(4),=F'2' .  SENDING 2 CHARACTERS               13680000
000D3C D207 C01C C008 0001C 00008  1529          MVC   PRTHM+0(8),PRTHMSG+0 . SEND TO OUR SENDER              13690000
000D42 4120 3004      00004        1530          LA    2,UCBUS                                                  13700000
000D46 0AE5                        1531          SVC   C'V' .              UNLOCK THE UCB                       13710000
000D48 4120 C01C      0001C        1532          LA    2,PRTHM                                                  13720000
000D4C 0AE2                        1533          SVC   C'S' .              SEND IT                              13730000
000D4E 47F0 1020      00C6A        1534          B     PRTHLOOP .          AND READ ANOTHER MESSAGE             13740000
000D52 0AE5                        1535 PTSTATUS SVC   C'V' .              UNLOCK THE CAW                       13750000
000D54 4120 300C      0000C        1536          LA    2,UCBWS .           AND WAIT FOR THE INTERRUPT           13760000
000D58 0AD7                        1537          SVC   C'P'                                                     13770000
000D5A 47F0 10A2      00CEC        1538          B     PRTHCOMM .          AND TRY TO RESTART THE I/O           13780000
                                   1539          DROP  3,12                                                     13790000


000D5E 0000
000D60 0000000100000000            1541 PRTHSEM  DC    F'1,0' LOCK                                            13810000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

000D68 00000030                   1542 PRTHAAS  DC    A(LENPRTHA) XA ARG LIST FOR AUTO STORAGE                13820000
000D6C 00000000                   1543          DC    F'0'                                                    13830000
000D70 00000008                   1544          DC    F'8'                                                    13840000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

                                  1546 ********************************************************************** 13860000
                                  1547 *                                                                    * 13870000
                                  1548 *            SYSTEM ROUTINE FOR USER SUPPLIED DEVICE HANDLER         * 13880000
                                  1549 *                                                                    * 13890000
                                  1550 ********************************************************************** 13900000

                           00D74  1552 EXCPHNDL EQU   * .                 EXCP DEVICE HANDLER                 13920000
                           00000  1553          USING UCB,3 .            WILL HAVE REG3 -> UCB               13930000
000D74 0510                       1554          BALR  1,0                                                    13940000
                           00D76  1555          USING *,1 .              ESTABLISH ADDRESSING                13950000
000D76 4120 10CE           00E44  1556          LA    2,EXCPHSEM .       LOCK OURSELVES UNTIL WE HAVE        13960000
000D7A 0AD7                       1557          SVC   C'P' .             SET UP AUTOMATIC STORAGE            13970000
000D7C 4120 10D6           00E4C  1558          LA    2,EXCPHAAS .       READY TO ALLOCATE                   13980000
                           00000  1559          USING XAX,2                                                  13990000
000D80 0AC5                       1560          SVC   C'E' .             ALLOCATE                            14000000
000D82 58C0 2004           00004  1561          L     12,XAXADDR .       GET POINTER TO AUTO STORAGE         14010000
                                  1562          DROP  2                                                      14020000
000D86 4120 10CE           00E44  1563          LA    2,EXCPHSEM .       AND UNLOCK OURSELVES                14030000
000D8A 0AE5                       1564          SVC   C'V'               UNLOCK TO ROUTINE                   14040000
000D8C 184B                       1565          LR    4,11                                                   14050000
000D8E 8940 0008           00008  1566          SLL   4,8 .              SHIFT KEY FOR CAW                   14060000
                           00000  1567          USING EXCPHAS,12 .       FOR ADDRESSING AUTO AREA            14070000
000D92 4120 C000           00000  1568 EXCPLOOP LA    2,EXCPHMSG .       TRY TO READ A MESSAGE               14080000
                           00000  1569          USING XRX,2                                                  14090000
000D96 D203 2008 111A 00008 00E90 1570          MVC   XRXSIZE,=F'12' .   WE'LL TAKE 12 CHARACTERS            14100000
000D9C 0AD9                       1571          SVC   C'R'                                                   14110000
000D9E D503 111E 200C 00E94 0000C 1572          CLC   =C'EXCP',XRXTEXT . IS IT AN EXCP MESSAGE?              14120000
000DA4 4770 101C           00D92  1573          BNE   EXCPLOOP .         IF NOT, IGNORE IT                   14130000
000DA8 5850 2010           00010  1574          L     5,XRXTEXT+4 .      REG 5 CONTAINS CHAN AND DEV         14140000
000DAC 5860 2014           00014  1575          L     6,XRXTEXT+8 .      REG 6 CONTAINS ADDR OF CCWS         14150000
                                  1576          DROP  2                                                      14160000
000DB0 4170 1136           00EAC  1577          LA    7,UCBTABLE .       GET PTR TO UCB TABLE                14170000
000DB4 5957 0000           00000  1578 EXCPCOMP C     5,0(7) .           COMPARE UNIT ADDRESS                14180000
000DB8 4780 1054           00DCA  1579          BE    EXCPFIND .         THAT'S THE UCB WE WANT              14190000
000DBC 4177 0020           00020  1580          LA    7,UCBLENG(7) .     GET PTR TO NEXT UCB                 14200000
000DC0 5970 1122           00E98  1581          C     7,=A(UCBTBEND) .   ARE WE THROUGH WITH TABLE?          14210000
000DC4 4770 103E           00DB4  1582          BNE   EXCPCOMP .         IF NOT, LOOK SOME MORE              14220000
000DC8 0A6F                       1583          SVC   C'?' .             ELSE ERROR                          14230000
000DCA 1837                       1584 EXCPFIND LR    3,7 .              SET REG 3 TO UCB PTR                14240000
000DCC 4120 3004           00004  1585          LA    2,UCBUS                                                14250000
000DD0 0AD7                       1586          SVC   C'P' .             LOCK THE UCB                        14260000
000DD2 BD68 112F           00EA5  1587          CLM   6,B'1000',=X'80'   are we in wait for attention mode?   14263006
000DD6 4780 1082           00DF8  1588          BE    EXCPWAIT             .. yes -> so, wait                14266006
000DDA 1664                       1589          OR    6,4 .              OR IN THE USER'S KEY                14270000
000DDC D203 3014 10F2 00014 00E68 1590          MVC   UCBCSW(4),=A(0) .  CLEAR THE LAST CSW THERE            14280000
000DE2 D203 3018 10F2 00018 00E68 1591          MVC   UCBCSW+4(4),=A(0)                                      14290000
000DE8 4120 0194           00194  1592          LA    2,CAWSEM                                               14300000
000DEC 0AD7                       1593          SVC   C'P' .             LOCK CAW                            14310000
000DEE 5060 0048           00048  1594          ST    6,CAW .            STORE OUR CAW                       14320000
000DF2 9C00 5000           00000  1595          SIO   0(5) .             START THE I/O                       14330000
000DF6 0AE5                       1596          SVC   C'V' .             UNLOCK THE CAW                      14340000
000DF8 4120 300C           0000C  1597 EXCPWAIT LA    2,UCBWS .          NOW WAIT FOR AN INTERRUPT           14350000
000DFC 0AD7                       1598          SVC   C'P'                                                   14360000
000DFE D207 C024 3014 00024 00014 1599          MVC   EXCPHM+12(8),UCBCSW . GIVE USER HIS CSW                14370000
000E04 D203 C020 111A 00020 00E90 1600          MVC   EXCPHM+8(4),=F'12'                                     14380000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

000E0A D207 C018 C000 00018 00000  1601          MVC   EXCPHM(8),EXCPHMSG                                      14390000
000E10 4120 C018      00018        1602          LA    2,EXCPHM                                                14400000
000E14 0AE2                        1603          SVC   C'S' .              AND SENT THE MESSAGE              14410000
000E16 4120 C000      00000        1604          LA    2,EXCPHMSG .        AND WAIT FOR A REPLY              14420000
                            00000  1605          USING XRX,2                                                   14430000
000E1A D203 2008 10FA 00008 00E70  1606          MVC   XRXSIZE(4),=F'8' .  FROM THE USER                     14440000
000E20 0AD9                        1607          SVC   C'R'                                                    14450000
000E22 D501 1128 200C 00E9E 0000C  1608          CLC   =C'OK',XRXTEXT .    AM I DONE?                        14460000
000E28 4780 10C2      00E38        1609          BE    EXCPDONE                                                14470000
000E2C D504 1130 200C 00EA6 0000C  1610          CLC   =C'AGAIN',XRXTEXT . DOES HE WANT ANOTHER CSW?         14480000
000E32 4780 1082      00DF8        1611          BE    EXCPWAIT                                                14490000
000E36 0A6F                        1612          SVC   C'?' .              WRONG MESSAGE                     14500000
                                   1613          DROP  2                                                       14510000
000E38 4120 3004      00004        1614 EXCPDONE LA    2,UCBUS .           UNLOCK UNIT                       14520000
000E3C 0AE5                        1615          SVC   C'V'                                                    14530000
000E3E 47F0 101C      00D92        1616          B     EXCPLOOP .          AND GET ANOTHER MESSAGE           14540000
                                   1617          DROP  3,12                                                    14550000
000E42 0000
000E44 0000000100000000            1618 EXCPHSEM DC    F'1,0'                                                  14560000
000E4C 00000030                    1619 EXCPHAAS DC    A(LENEXCPA) .       ALLOCATION OF AUTO STORAGE        14570000
000E50 00000000                    1620          DC    F'0'                                                    14580000
000E54 00000008                    1621          DC    F'8'                                                    14590000




000E58                             1623          LTORG                                                         14610000
000E58 8900000020000001            1624                =X'8900000020000001'
000E60 00000001                    1625                =F'1'
000E64 00000600                    1626                =A(XA)
000E68 00000000                    1627                =A(0)
000E6C 00000148                    1628                =A(LENPCB)
000E70 00000008                    1629                =F'8'
000E74 FFFFFFF8                    1630                =F'-8'
000E78 00000002                    1631                =F'2'
000E7C D9C5C1C4                    1632                =C'READ'
000E80 00000050                    1633                =F'80'
000E84 D7D9C9D5                    1634                =C'PRIN'
000E88 E2E3C3F1                    1635                =C'STC1'
000E8C 00000084                    1636                =F'132'
000E90 0000000C                    1637                =F'12'
000E94 C5E7C3D7                    1638                =C'EXCP'
000E98 000010AC                    1639                =A(UCBTBEND)
000E9C D5D6                        1640                =C'NO'
000E9E D6D2                        1641                =C'OK'
000EA0 5BD1D6C26B                  1642                =C'$JOB,'
000EA5 80                          1643                =X'80'
000EA6 C1C7C1C9D5                  1644                =C'AGAIN'
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16
                                  1646 ************************************************************************ 14630000
                                  1647 *                                                                      * 14640000
                                  1648 *             UNIT CONTROL BLOCKS                                      * 14650000
                                  1649 *                                                                      * 14660000
                                  1650 ************************************************************************ 14670000

000EAC                            1652 UCBTABLE DS    0F .                TABLE OF UNIT CONTROL BLOCKS         14690000
                                  1653 *                              UCB FOR READER 1                         14700000
000EAC 0000000C                   1654 UCBRDR1  DC    X'0000000C' .       DEVICE ADDRESS,                      14710007
000EB0 0000000100000000           1655          DC    F'1,0' .            USER SEMAPHORE,                      14720000
000EB8 0000000000000000           1656          DC    F'0,0' .            WAIT SEMAPHORE,                      14730000
000EC0 0000000000000000           1657          DC    F'0,0' .            CHANNEL STATUS WORD                  14740000
000EC8 00                         1658          DC    X'00'                                                    14750000
000ECC                            1659          DS    0F                                                       14760000
                                  1660 *                              UCB FOR PRINTER 1                        14770000
000ECC 0000000E                   1661 UCBPRT1  DC    X'0000000E' .       DEVICE ADDRESS,                      14780007
000ED0 0000000100000000           1662          DC    F'1,0' .            USER SEMAPHORE,                      14790000
000ED8 0000000000000000           1663          DC    F'0,0' .            WAIT SEMAPHORE,                      14800000
000EE0 0000000000000000           1664          DC    F'0,0' .            CHANNEL STATUS WORD                  14810000
000EE8 00                         1665          DC    X'00'                                                    14820000
000EEC                            1666          DS    0F                                                       14830000
                                  1667 *                              UCB FOR READER 2                         14840000
000EEC 0000010C                   1668 UCBRDR2  DC    X'0000010C' .       DEVICE ADDRESS,                      14850007
000EF0 0000000100000000           1669          DC    F'1,0' .            USER SEMAPHORE,                      14860000
000EF8 0000000000000000           1670          DC    F'0,0' .            WAIT SEMAPHORE,                      14870000
000F00 0000000000000000           1671          DC    F'0,0' .            CHANNEL STATUS WORD                  14880000
000F08 00                         1672          DC    X'00'                                                    14890000
000F0C                            1673          DS    0F                                                       14900000
                                  1674 *                              UCB FOR PRINTER 2                        14910000
000F0C 0000010E                   1675 UCBPRT2  DC    X'0000010E' .       DEVICE ADDRESS,                      14920007
000F10 0000000100000000           1676          DC    F'1,0' .            USER SEMAPHORE,                      14930000
000F18 0000000000000000           1677          DC    F'0,0' .            WAIT SEMAPHORE,                      14940000
000F20 0000000000000000           1678          DC    F'0,0' .            CHANNEL STATUS WORD                  14950000
000F28 00                         1679          DC    X'00'                                                    14960000
000F2C                            1680          DS    0F                                                       14970000
                                  1681 *                              UCB for READER 3                         14970302
000F2C 0000020C                   1682 UCBRDR3  DC    X'0000020C' .       device address,                      14970607
000F30 0000000100000000           1683          DC    F'1,0' .            user semaphore,                      14970902
000F38 0000000000000000           1684          DC    F'0,0' .            wait semaphore,                      14971202
000F40 0000000000000000           1685          DC    F'0,0' .            channel status word                  14971502
000F48 00                         1686          DC    X'00'                                                    14971802
000F4C                            1687          DS    0F                                                       14972102
                                  1688 *                              UCB for PRINTER 3                        14972402
000F4C 0000020E                   1689 UCBPRT3  DC    X'0000020E' .       device address,                      14972707
000F50 0000000100000000           1690          DC    F'1,0' .            user semaphore,                      14973002
000F58 0000000000000000           1691          DC    F'0,0' .            wait semaphore,                      14973302
000F60 0000000000000000           1692          DC    F'0,0' .            channel status word                  14973602
000F68 00                         1693          DC    X'00'                                                    14973902
000F6C                            1694          DS    0F                                                       14974202
                                  1695 *                              UCB for READER 4                         14974502
000F6C 0000030C                   1696 UCBRDR4  DC    X'0000030C' .       device address,                      14974807
000F70 0000000100000000           1697          DC    F'1,0' .            user semaphore,                      14975102
000F78 0000000000000000           1698          DC    F'0,0' .            wait semaphore,                      14975402
000F80 0000000000000000           1699          DC    F'0,0' .            channel status word                  14975702
000F88 00                         1700          DC    X'00'                                                    14976002
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                        ASM 0201 18.24 01/17/16

000F8C                            1701            DS     0F                                                     14976302
                                  1702 *                              UCB for PRINTER 4                         14976602
000F8C 0000030E                   1703 UCBPRT4  DC     X'0000030E' .         device address,                    14976902
000F90 0000000100000000           1704            DC     F'1,0' .              user semaphore,                  14977202
000F98 0000000000000000           1705            DC     F'0,0' .              wait semaphore,                  14977502
000FA0 0000000000000000           1706            DC     F'0,0' .              channel status word              14977802
000FA8 00                         1707            DC     X'00'                                                  14978102
000FAC                            1708            DS     0F                                                     14978402
                                  1709 *                              UCB for CONSOLE 1                         14978504
000FAC 00000009                   1710 UCBCONS1 DC     X'00000009' .         device address,                    14978604
000FB0 0000000100000000           1711            DC     F'1,0' .              user semaphore,                  14978704
000FB8 0000000000000000           1712            DC     F'0,0' .              wait semaphore,                  14978804
000FC0 0000000000000000           1713            DC     F'0,0' .              channel status word              14978904
000FC8 00                         1714            DC     X'00'                                                  14979004
000FCC                            1715            DS     0F                                                     14979104
                                  1716 *                              UCB for CONSOLE 2                         14979205
000FCC 0000001F                   1717 UCBCONS2 DC     X'0000001F' .         device address,                    14979305
000FD0 0000000100000000           1718            DC     F'1,0' .              user semaphore,                  14979405
000FD8 0000000000000000           1719            DC     F'0,0' .              wait semaphore,                  14979505
000FE0 0000000000000000           1720            DC     F'0,0' .              channel status word              14979605
000FE8 00                         1721            DC     X'00'                                                  14979705
000FEC                            1722            DS     0F                                                     14979805
                                  1723 *                              UCB for 3270 TERMINAL                     14979809
000FEC 00000010                   1724 UCB32701 DC     X'00000010' .         device address,                    14979813
000FF0 0000000100000000           1725            DC     F'1,0' .              user semaphore,                  14979817
000FF8 0000000000000000           1726            DC     F'0,0' .              wait semaphore,                  14979821
001000 0000000000000000           1727            DC     F'0,0' .              channel status word              14979825
001008 00                         1728            DC     X'00'                                                  14979829
00100C                            1729            DS     0F                                                     14979833
                                  1730 *                              UCB for 3270 TERMINAL                     14979837
00100C 00000011                   1731 UCB32702 DC     X'00000011' .         device address,                    14979841
001010 0000000100000000           1732            DC     F'1,0' .              user semaphore,                  14979845
001018 0000000000000000           1733            DC     F'0,0' .              wait semaphore,                  14979849
001020 0000000000000000           1734            DC     F'0,0' .              channel status word              14979853
001028 00                         1735            DC     X'00'                                                  14979857
00102C                            1736            DS     0F                                                     14979861
                                  1737 *                              UCB for 3270 TERMINAL                     14979865
00102C 000000C0                   1738 UCB32703 DC     X'000000C0' .         device address,                    14979869
001030 0000000100000000           1739            DC     F'1,0' .              user semaphore,                  14979873
001038 0000000000000000           1740            DC     F'0,0' .              wait semaphore,                  14979877
001040 0000000000000000           1741            DC     F'0,0' .              channel status word              14979881
001048 00                         1742            DC     X'00'                                                  14979885
00104C                            1743            DS     0F                                                     14979889
                                  1744 *                              UCB for 3270 TERMINAL                     14979893
00104C 000000C1                   1745 UCB32704 DC     X'000000C1' .         device address,                    14979897
001050 0000000100000000           1746            DC     F'1,0' .              user semaphore,                  14979901
001058 0000000000000000           1747            DC     F'0,0' .              wait semaphore,                  14979905
001060 0000000000000000           1748            DC     F'0,0' .              channel status word              14979909
001068 00                         1749            DC     X'00'                                                  14979913
00106C                            1750            DS     0F                                                     14979917
                                  1751 *                              UCB for 3270 TERMINAL                     14979921
00106C 000000C2                   1752 UCB32705 DC     X'000000C2' .         device address,                    14979925
001070 0000000100000000           1753            DC     F'1,0' .              user semaphore,                  14979929
001078 0000000000000000           1754            DC     F'0,0' .              wait semaphore,                  14979933
001080 0000000000000000           1755            DC     F'0,0' .              channel status word              14979937
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

001088 00                          1756          DC    X'00'                                                14979941
00108C                             1757          DS    0F                                                   14979945
                                   1758 *                        UCB for 3270 TERMINAL                    14979949
00108C 000000C3                    1759 UCB32706 DC    X'000000C3' .       device address,                  14979953
001090 0000000100000000            1760          DC    F'1,0' .            user semaphore,                  14979957
001098 0000000000000000            1761          DC    F'0,0' .            wait semaphore,                  14979961
0010A0 0000000000000000            1762          DC    F'0,0' .            channel status word              14979965
0010A8 00                          1763          DC    X'00'                                                14979969
0010AC                             1764          DS    0F                                                   14979973
                             010AC 1765 UCBTBEND EQU   *                                                    14980000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                      ASM 0201 18.24 01/17/16

                                  1767 ********************************************************************** 15000000
                                  1768 *                                                                    * 15010000
                                  1769 *             I/O INTERRUPT HANDLER                                  * 15020000
                                  1770 *                                                                    * 15030000
                                  1771 ********************************************************************** 15040000

                            010AC 1773 IOHANDL  EQU   * .                   THE I/O INTERRUPT HANDLER            15060000
0010AC 900F 01DC      001DC       1774          STM   0,15,IOHSAVE .        SAVE REGISTERS                       15070000
0010B0 0510                       1775          BALR  1,0                                                        15080000
                            010B2 1776          USING *,1 .                 ESTABLISH ADRESSING                  15090000
0010B2 94FD 0039      00039       1777          NI    IOOLD+1,X'FD' .       TURN OFF WAIT BIT                    15100000
0010B6 5860 172E      017E0       1778          L     6,=A(UCBTABLE) .      GET POINTER TO UCB TABLE             15110000
0010BA D501 6002 003A 00002 0003A 1779 IOCOMP   CLC   2(2,6),IOOLD+2 .      COMPARE DEVICE AND CHANNEL           15120000
0010C0 4780 1022      010D4       1780          BE    IODEVFND .            IF EQUAL, REG 6 INDICATES PTR        15130000
0010C4 4166 0020      00020       1781          LA    6,UCBLENG(6) .        INCREMENT TO NEXT ENTRY              15140000
0010C8 5960 1732      017E4       1782          C     6,=A(UCBTBEND) .      ARE WE AT END OF TABLE?              15150000
0010CC 4770 1008      010BA       1783          BNE   IOCOMP .              IF NOT DONE, TRY NEXT UCB            15160000
0010D0 47F0 106C      0111E       1784          B     IOBACK .              ELSE, IGNORE IT                      15170000
                            00000 1785          USING UCB,6 .               IT'S A UCB PTR                       15180000
0010D4 D203 6014 0040 00014 00040 1786 IODEVFND MVC   UCBCSW(4),CSW .       MOVE IN THE NEW CSW                  15190000
0010DA 5870 0044      00044       1787          L     7,CSW+4 .             GET STATUS BYTE                      15200000
0010DE 5670 6018      00018       1788          O     7,UCBCSW+4 .          OR IN NEW STATUS INFORMATION         15210000
0010E2 5070 6018      00018       1789          ST    7,UCBCSW+4 .           AND STORE IT BACK                   15220000
0010E6 D201 601A 0046 0001A 00046 1790          MVC   UCBCSW+6(2),CSW+6 .   MOVE IN BYTE COUNT                   15230000
0010EC 4120 600C      0000C       1791          LA    2,UCBWS                                                    15240000
0010F0 9500 601C      0001C       1792          CLI   UCBFPR,X'00' .        IS FAST PROCESSING                   15250000
0010F4 4780 106A      0111C       1793          BE    IONOFPR .              REQUIRED? IF NOT, RETURN            15260000
0010F8 58F0 0270      00270       1794          L     15,RUNNING .          IF SO, STOP GUY NOW RUNNING          15270000
                            00000 1795          USING PCB,15                                                     15280000
0010FC 95FF F019      00019       1796          CLI   PCBBLOKT,X'FF' .      IS ANYONE REALLY RUNNING?            15290000
001100 4780 1062      01114       1797          BE    IOWAIT .              IF NOT, START UP SLEEPER             15300000
001104 41D0 F04C      0004C       1798          LA    13,PCBISA .           IF SO, STOP RUNNING PROCESS          15310000
                            00000 1799          USING SA,13                                                      15320000
001108 D207 D000 0038 00000 00038 1800          MVC   SAPSW,IOOLD .         SAVE PROCESS WHICH WAS               15330000
00110E D23F D008 01DC 00008 001DC 1801          MVC   SAREGS,IOHSAVE .       INTERRUPTED                         15340000
                                  1802          DROP  13,15                                                      15350000
001114 9200 0278      00278       1803 IOWAIT   MVI   NEXTTRYM,X'00' .      MAKE NEXTTRY NOT MODIFIED            15360000
001118 0AE5                       1804          SVC   C'V' .                SO CAN FAST PROCESS SLEEPER          15370000
00111A 0A4B                       1805          SVC   C'.' .                GO PROCESS IT RIGHT AWAY             15380000
00111C 0AE5                       1806 IONOFPR  SVC   C'V' .                AND WAKE UP THE SLEEPER              15390000
00111E 980F 01DC      001DC       1807 IOBACK   LM    0,15,IOHSAVE .        RELOAD OUR REGISTERS                 15400000
001122 8200 0038      00038       1808          LPSW  IOOLD .               AND STEALTHILY RETURN                15410000
                                  1809          DROP  1,6                                                        15420000
```

```
  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

                                   1811 ********************************************************************** 15440000
                                   1812 *                                                                    * 15450000
                                   1813 *             IPL ENTERED ROUTINE                                    * 15460000
                                   1814 *                                                                    * 15470000
                                   1815 *        FUNCTION: TO INITIALIZE SYSTEM PARAMETERS, SET STORAGE KEYS, * 15480000
                                   1816 *                  AND CREATE MULTIPLE JOB STREAMS.                  * 15490000
                                   1817 *                                                                    * 15500000
                                   1818 ********************************************************************** 15510000

                            01126  1820 IPLRTN   EQU   * .                   THE IPL-ENTERED ROUTINE            15530000
001126 0510                        1821          BALR  1,0                                                      15540000
                            01128  1822          USING *,1 .                 ESTABLISH ADDRESSING               15550000
001128 D202 007D 1281 0007D 013A9  1823          MVC   IONEW+5(3),SOSIONEW activate IO handler                  15553002
00112E D202 005D 1289 0005D 013B1  1824          MVC   EXTNEW+5(3),IPLEXNEW ignore external interrupts for now  15556002
001134 41F0 10D0      011F8        1825          LA    15,IPLPCB .           I'M RUNNING                        15560000
001138 50F0 0270      00270        1826          ST    15,RUNNING .          INITIALIZE 'RUNNING'               15570000
00113C 50F0 0274      00274        1827          ST    15,NEXTTRY .          INITIALIZE 'NEXTTRY'               15580000
001140 D207 1700 1690 01828 017B8  1828          MVC   VERYEND,=A(0,CORESIZE-(VERYEND-PROGRAM)) FREE CORE       15590000
001146 4130 0008      00008        1829          LA    3,8 .                 SET ZERO KEY AND FETCH PROTECT     15600000
00114A 5820 1224      0134C        1830          L     2,CORESIZ .           START PAST THE LAST BLOCK          15610000
00114E 5B20 161C      01744        1831 IPLCL    S     2,PAGESIZE .          get the previous block, page aligned 15620002
001152 4740 1036      0115E        1832          BM    IPLTH .               IF NEGATIVE, WE'RE THROUGH HERE    15630000
                                   1833 *        SSKE  3,2 .                 else set the storage key to        15640002
001156 B22B0032                    1834          DC    X'B22B0032'           Assembler (XF) doesn't support SSKE 15643002
00115A 47F0 1026      0114E        1835          B     IPLCL .                ZERO, AND WORK BACKWARDS          15650000
00115E 1B44                        1836 IPLTH    SR    4,4 .                 INDEX IN TABLES FOR INPUT STREAM   15660000
001160 5850 1088      011B0        1837          L     5,STREAMS .           HOW MANY STREAMS?                  15670000
001164 4120 1218      01340        1838 IPLLOOP  LA    2,IPLAPCBS .          READY TO ALLOCATE A PCB            15680000
                            00000  1839          USING XAX,2                                                    15690000
001168 0AC1                        1840          SVC   C'A' .                ALLOCATE                           15700000
00116A 5820 2004      00004        1841          L     2,XAXADDR .           GET THE ADDRESS                    15710000
00116E D253 2000 1228 00000 01350  1842          MVC   0(TYPLEN,2),TYPPCB .MAKE IT LOOK LIKE A PCB              15720000
001174 0AC9                        1843          SVC   C'I' .                CHAIN IT ON                        15730000
                            00000  1844          USING PCB,2                                                    15740000
001176 5020 2008      00008        1845          ST    2,PCBNPTG .           BUT PUT IT IN A GROUP BY ITSELF    15750000
00117A 5020 200C      0000C        1846          ST    2,PCBLPTG                                                15760000
                                   1847          DROP  2                                                        15770000
                            00000  1848          USING PCB,15                                                   15780000
00117E 50F0 F00C      0000C        1849          ST    15,PCBLPTG .          LIKEWISE FOR THE IPL PCB           15790000
001182 50F0 F008      00008        1850          ST    15,PCBNPTG                                               15800000
                                   1851          DROP  15                                                       15810000
                            00000  1852          USING PCB,2                                                    15820000
001186 4180 204C      0004C        1853          LA    8,PCBISA .            GET THE NEW PCB'S ISA              15830000
                            00000  1854          USING SA,8                                                     15840000
00118A 4190 8008      00008        1855          LA    9,SAREGS .            ABOUT TO FIX INIT REGS             15850000
                            00000  1856          USING REGS,9                                                   15860000
00118E 41A0 108C      011B4        1857          LA    10,UCBTAB                                                15870000
001192 1AA4                        1858          AR    10,4                                                     15880000
001194 D203 900C A000 0000C 00000  1859          MVC   REG3,0(10) .          REG3 -> (RDRUCB,PRTUCB)            15890000
00119A D203 9010 A010 00010 00010  1860          MVC   REG4,KEYTAB-UCBTAB(10) . REG4 = KEY                      15900000
                                   1861          DROP  9                                                        15910000
0011A0 4144 0004      00004        1862          LA    4,4(4) .              GO TO NEXT JOB STREAM              15920000
0011A4 4650 103C      01164        1863          BCT   5,IPLLOOP .           DO FOR EACH STREAM                 15930000
0011A8 D202 005D 1285 0005D 013AD  1864          MVC   EXTNEW+5(3),SOSEXNEW reactivate ext interrupt handler    15935002
0011AE 0A4B                        1865          SVC   C'.' .                THEN ENTER TRAFFIC CONTROLLER      15940000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

0011B0 00000004                   1867 STREAMS  DC    F'4' .              NUMBER OF STREAMS                    15960002

                                  1869 UCBTAB   EQU   * .                 TABLE OF PTRS TO UCB BLOCKS          15980000
0011B4 000011D4                   1870          DC    A(UCBLP1)                                                15990000
0011B8 000011DC                   1871          DC    A(UCBLP2)                                                16000000
0011BC 000011E4                   1872          DC    A(UCBLP3)                                                16003002
0011C0 000011EC                   1873          DC    A(UCBLP4)                                                16006002

                                  1875 KEYTAB   EQU   * .                 TABLE OF PROTECTION KEYS             16020000
0011C4 00100000                   1876          DC    X'00100000'         storage key for stream 1 region      16030002
0011C8 00200000                   1877          DC    X'00200000'         storage key for stream 2 region      16034002
0011CC 00300000                   1878          DC    X'00300000'         storage key for stream 3 region      16038002
0011D0 00400000                   1879          DC    X'00400000'         storage key for stream 4 region      16042002

0011D4 00000EAC00000ECC           1881 UCBLP1   DC    A(UCBRDR1,UCBPRT1)                                       16060000
0011DC 00000EEC00000F0C           1882 UCBLP2   DC    A(UCBRDR2,UCBPRT2)                                       16070000
0011E4 00000F2C00000F4C           1883 UCBLP3   DC    A(UCBRDR3,UCBPRT3)                                       16073002
0011EC 00000F6C00000F8C           1884 UCBLP4   DC    A(UCBRDR4,UCBPRT4)                                       16076002

0011F8                            1886          DS    0D                                                       16090000
0011F8 4040404040404040           1887 IPLPCB   DC    CL8' ' .            IPL ROUTINE PCB                      16100000
001200 000011F8000011F8           1888          DC    4A(IPLPCB)                                               16110000
001210 FF000000                   1889          DC    X'FF000000' .       INITIALIZED FLAGS                    16120000
001214 0000000100000000           1890          DC    F'1,0'                                                   16130000
00121C 0000000000000000           1891          DC    5F'0,0'                                                  16140000
001244 0002000000000000           1892          DC    X'0002000000000000'                                      16150000
00124C                            1893          DS    CL76                                                     16160000
001298                            1894          DS    CL84                                                     16170000
0012EC                            1895          DS    CL84                                                     16180000

001340 00000148                   1897 IPLAPCBS DC    A(LENPCB) .         ALLOC LIST FOR PCB'S                 16200000
001344 00000000                   1898          DC    A(0)                                                     16210000
001348 00000008                   1899          DC    F'8'                                                     16220000
00134C 01000000                   1900 CORESIZ  DC    A(CORESIZE) .       BYTES OF CORE IN OBJECT MACHINE      16230000

001350                            1902          DS    0D                                                       16250000
001350 5CC9C2E2E4D74040           1903 TYPPCB   DC    CL8'*IBSUP' .       A TEMPLATE *IBSUP PCB                16260000
001358 0000000000000000           1904          DC    4A(0)                                                    16270000
001368 00000000                   1905 TEMPLATE DC    X'00000000' .       INITIALIZED FLAGS                    16280000
00136C 0000000100000000           1906          DC    F'1,0'                                                   16290000
001374 0000000000000000           1907          DC    5F'0,0'                                                  16300000
00139C FF000000000013B4           1908          DC    X'FF00000000',AL3(JSP)                                   16310000
                           00054  1909 TYPLEN   EQU   *-TYPPCB                                                  16320000
0013A4 8200 0018      00018       1910 EXINTRPT LPSW  EXTOLD          ignore external interrupts               16321002
0013A8                            1911          DS    0F              align                                    16322002
0013A8 00                         1912          DC    X'00'           filler                                   16323002
0013A9 0010AC                     1913 SOSIONEW DC    AL3(IOHANDL)    sample OS IO new PSW instruction addr    16324002
0013AC 00                         1914          DC    X'00'           filler                                   16325002
0013AD 00027A                     1915 SOSEXNEW DC    AL3(EXTHANDL)   sample OS ext new PSW instruction addr   16326002
0013B0 00                         1916          DC    X'00'           filler                                   16327002
0013B1 0013A4                     1917 IPLEXNEW DC    AL3(EXINTRPT)   IPLRTN ext new PSW instruction addr    16328002
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

                                  1919 ********************************************************************** 16340000
                                  1920 *                                                                    * 16350000
                                  1921 *             JOB STREAM PROCESSOR                                   * 16360000
                                  1922 *                                                                    * 16370000
                                  1923 ********************************************************************** 16380000

                            013B4  1925 JSP      EQU   * .                   THE JOB STREAM PROCESSOR            16400000
0013B4 0510                        1926          BALR  1,0 .                  (PROCESS *IBSUP)                   16410000
                            013B6  1927          USING *,1 .                 ESTABLISH ADDRESSING                16420000
0013B6 4120 1392      01748        1928          LA    2,JSPSUSEM .          LOCK OURSELVES UNTIL                16430000
0013BA 0AD7                        1929          SVC   C'P' .                 WE CAN ALLOCATE STORAGE            16440000
0013BC 4120 139A      01750        1930          LA    2,JSPAAS .            READY TO ALLOCATE                   16450000
                            00000  1931          USING XAX,2                                                     16460000
0013C0 0AC5                        1932          SVC   C'E' .                ALLOCATE                            16470000
0013C2 58C0 2004      00004        1933          L     12,XAXADDR .          PTR TO AUTO AREA                    16480000
                                   1934          DROP  2                                                         16490000
                            00000  1935          USING JSPAS,12 .            USE FOR ADDRESSING                  16500000
0013C6 4120 1392      01748        1936          LA    2,JSPSUSEM .          UNLOCK OURSELVES                    16510000
0013CA 0AE5                        1937          SVC   C'V'                                                      16520000
0013CC D207 C164 140A 00164 017C0  1938          MVC   TREAD+0(8),=CL8'*IN' . INITIALIZE VALUES IN AUTOMATIC     16530000
0013D2 D203 C16C 1432 0016C 017E8  1939          MVC   TREAD+8(4),=F'8' .     STORAGE                            16540000
0013D8 D203 C170 1436 00170 017EC  1940          MVC   TREAD+12(4),=C'READ'                                      16550000
0013DE 4120 C084      00084        1941          LA    2,CARD                                                    16560000
0013E2 5020 C174      00174        1942          ST    2,ACARD                                                   16570000
0013E6 D207 C190 1412 00190 017C8  1943          MVC   USERL+0(8),=CL8'USERPROG'                                 16580000
0013EC D20B C178 1352 00178 01708  1944          MVC   WRITE(12),SKIP                                            16590000
0013F2 D203 C184 143A 00184 017F0  1945          MVC   WRITE+12(4),=C'PRIN'                                      16600000
0013F8 4150 C000      00000        1946          LA    5,LINE                                                    16610000
0013FC 5050 C188      00188        1947          ST    5,WRITE+16                                                16620000
001400 D203 C1B0 138E 001B0 01744  1948          MVC   CORE+8(4),PAGESIZE  align to page boundary                16630002
001406 D207 C1B8 1412 001B8 017C8  1949          MVC   TALK+0(8),=CL8'USERPROG'                                  16640000
00140C D203 C1C0 143E 001C0 017F4  1950          MVC   TALK+8(4),=F'12'                                          16650000
001412 D203 C1D8 1442 001D8 017F8  1951          MVC   ANYBACK+8(4),=F'1'                                        16660000
001418 D203 C1B4 1446 001B4 017FC  1952          MVC   RLDTEMP,=A(0)                                             16670000
00141E 5040 C18C      0018C        1953          ST    4,KEY .               STORE KEY                           16680000
001422 1853                        1954          LR    5,3 .                 GET PTR TO UCB PTR BLOCK            16690000
001424 5835 0000      00000        1955          L     3,0(5) .              GET READER POINTER                  16700000
001428 4120 1362      01718        1956          LA    2,INSEQ .             READY TO CREATE & START *IN         16710000
00142C 0AC3                        1957          SVC   C'C' .                CREATE                              16720000
00142E 0AE8                        1958          SVC   C'Y' .                START                               16730000
001430 5835 0004      00004        1959          L     3,4(5) .              GET PTR TO PRINTER UCB              16740000
001434 4120 136E      01724        1960          LA    2,OUTSEQ .            READY TO CREATE & START *OUT        16750000
001438 0AC3                        1961          SVC   C'C' .                CREATE                              16760000
00143A 0AE8                        1962          SVC   C'Y' .                START                               16770000

00143C 4120 C164      00164        1964 LOOP     LA    2,TREAD .             READT TO READ A CARD                16790000
001440 0AE2                        1965          SVC   C'S' .                START TO READ                       16800000
001442 D203 C0DC 144A 000DC 01800  1966          MVC   RREPLY1,=F'132' .     132 CHARS FOR REPLY                 16810000
001448 4120 C0D4      000D4        1967          LA    2,RREPLY                                                  16820000
00144C 0AD9                        1968          SVC   C'R' .                LISTEN FOR REPLY                    16830000
00144E D501 C0E0 145A 000E0 01810  1969          CLC   REPLY(2),=C'OK' .     IS REPLY 'OK'?                      16840000
001454 4770 10B0      01466        1970          BNE   STOP .                IF NOT, STOP                        16850000
001458 D504 145C C084 01812 00084  1971          CLC   =C'$JOB,',CARD .      HAVE WE A JOB CARD?                 16860000
00145E 4780 10B6      0146C        1972          BE    JOB .                 GOOD!                               16870000
001462 47F0 1086      0143C        1973          B     LOOP .                ELSE LOOP                           16880000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

001466 4120 134A      01700        1974 STOP     LA    2,JSPNEVER .        WAIT FOR A "V" OPERATION             16890000
00146A 0AD7                        1975          SVC   C'P' .               THAT NEVER COMES                    16900000

00146C 9200 C1DD      001DD        1977 JOB      MVI   LOADED,X'00' .      REMEMBER NOT LOADED                 16920000
001470 D283 C000 141A 00000 017D0  1978          MVC   LINE,=CL8' ' .      CLEAR A LINE, PUT IN                16930000
001476 D27B C008 C007 00008 00007  1979          MVC   LINE+8(124),LINE+7 .ALL BLANKS                          16940000
00147C D24F C000 C084 00000 00084  1980          MVC   LINE(80),CARD .     GET READY TO SEND $JOB CARD         16950000
001482 4120 C178      00178        1981          LA    2,WRITE .           TO PRINTER                          16960000
001486 0AE2                        1982          SVC   C'S' .              SEND IT                             16970000
001488 4120 C0D4      000D4        1983          LA    2,RREPLY                                                16980000
00148C 0AD9                        1984          SVC   C'R' .              AND WAIT FOR REPLY                  16990000
00148E 4120 C190      00190        1985          LA    2,USERL .           CREATE USERPROG                     17000000
001492 0AC3                        1986          SVC   C'C'                                                    17010000
001494 4140 C088      00088        1987          LA    4,CARD+4 .          START TO SCAN CARD                  17020000
001498 4530 131C      016D2        1988          BAL   3,SCAN .            GET NEXT TOKEN                      17030000
00149C 0650                        1989          BCTR  5,0 .               less one to remove K                17040002
00149E 5650 138A      01740        1990          O     5,COREPKLN .        length of packed size for execute   17049002
0014A2 4450 137A      01730        1991          EX    5,COREPACK .        pack core digits                    17058002
0014A6 4F80 1382      01738        1992          CVB   8,COREPCKD .        convert core requested to binary    17067002
0014AA 1B99                        1993          SR    9,9 .               is core ..                          17076002
0014AC 8C80 0002      00002        1994          SRDL  8,2 .                .. modulo four ..                  17085002
0014B0 1299                        1995          LTR   9,9 .                .. equal zero?                     17094002
0014B2 4780 1104      014BA        1996          BZ    COREOK .             -> yes, use it                     17103002
0014B6 4180 8001      00001        1997          LA    8,1(,8) .            -> no, up one page                 17112002
0014BA 8980 000C      0000C        1998 COREOK   SLL   8,12 .              core bytes, rounded up to full pages 17121002
0014BE 5080 C1A8      001A8        1999          ST    8,CORE .            remember core requirement           17130002
0014C2 4530 131C      016D2        2000 ASGNUNIT BAL   3,SCAN .            GET NEXT TOKEN                      17150000
0014C6 957E 4000      00000        2001          CLI   0(4),C'=' .         IS IT AN '='?                       17160000
0014CA 4770 1194      0154A        2002          BNE   LOAD .              IF NOT, LOAD IN THE OBJECT DECK     17170000
0014CE 955C 9000      00000        2003          CLI   0(9),C'*' .         HAS USER NAMED IT STARTING          17180000
0014D2 4780 12C8      0167E        2004          BE    EXPUNGE .            WITH '*'? IF SO, THROW HIM OUT     17190000
0014D6 4120 C19C      0019C        2005          LA    2,SEQ .             ELSE CREATE A PROCESS               17200000
0014DA D207 C19C 141A 0019C 017D0  2006          MVC   SEQ,=CL8' ' .       BLANK OUT THE NAME                  17210000
0014E0 4450 1154      0150A        2007          EX    5,UNAMMOV .         THEN MOVE THE RELEVANT              17220000
0014E4 0AC3                        2008          SVC   C'C' .               CHARACTERS AND CREATE              17230000
0014E6 4120 C19C      0019C        2009          LA    2,SEQ .             WE'LL START IT IN A MOMENT          17240000
0014EA 4530 131C      016D2        2010          BAL   3,SCAN .            SCAN AGAIN                          17250000
0014EE 4450 115A      01510        2011          EX    5,CMPIN .           IS IT 'IN'?                         17260000
0014F2 4780 116C      01522        2012          BE    ASIN .              IF SO, ASSIGN IT AS IN              17270000
0014F6 4450 1160      01516        2013          EX    5,CMPOUT .          IF IT'S 'OUT'                       17280000
0014FA 4780 117C      01532        2014          BE    ASOUT .              ASSIGN IT AS OUT                   17290000
0014FE 4450 1166      0151C        2015          EX    5,CMPEXCP .         IS IT 'EXCP'?                       17300000
001502 4780 1184      0153A        2016          BE    ASEXCP .             IF SO, ASSIGN IT AS EXCP           17310000
001506 47F0 12C8      0167E        2017          B     EXPUNGE .            ERROR: GO ON TO NEXT JOB           17320000
00150A D200 C19C 9000 0019C 00000  2018 UNAMMOV  MVC   SEQ(0),0(9) .       MOVE THE UNIT'S PROCESS NAME        17330000
001510 D500 9000 1461 00000 01817  2019 CMPIN    CLC   0(0,9),=C'IN ' .    DOES IT SAY 'IN'?                   17340000
001516 D500 9000 144E 00000 01804  2020 CMPOUT   CLC   0(0,9),=C'OUT ' .   DOES IT SAY 'OUT'?                  17350000
00151C D500 9000 1464 00000 0181A  2021 CMPEXCP  CLC   0(0,9),=C'EXCP ' .  DOES IT SAY 'EXCP'?                 17360000

001522 41B0 140A      017C0        2023 ASIN     LA    11,=CL8'*IN' .      POINT TO NAME OF READER HANDLER     17380000
001526 D203 C1A4 1452 001A4 01808  2024 SETDIM   MVC   UNITRTN,=A(DIM) .   USE DIM AS THE INTERFACE            17390000
00152C 0AE8                        2025          SVC   C'Y'                                                   17400000
00152E 47F0 110C      014C2        2026          B     ASGNUNIT                                              17410000
001532 41B0 1422      017D8        2027 ASOUT    LA    11,=CL8'*OUT' .     POINT TO NAME OF PRINTER HANDLER    17420000
001536 47F0 1170      01526        2028          B     SETDIM                                                17430000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                    ASM 0201 18.24 01/17/16

00153A D203 C1A4 1456 001A4 0180C  2029 ASEXCP   MVC   UNITRTN,=A(EXCPHNDL) . USE FOR USER SUPPLIED             17440000
001540 58B0 C18C      0018C        2030          L     11,KEY                                                   17450000
001544 0AE8                        2031          SVC   C'Y' .              I/O ROUTINE                          17460000
001546 47F0 110C      014C2        2032          B     ASGNUNIT                                                 17470000

00154A 4120 C1A8      001A8        2034 LOAD     LA    2,CORE .            READY TO ALLOCATE THE REGION         17490000
00154E 0AC1                        2035          SVC   C'A' .              AND ALLOCATE IT                      17500000
001550 92FF C1DD      001DD        2036          MVI   LOADED,X'FF' .      REMEMBER THAT WE'RE LOADED           17510000
001554 5890 C1AC      001AC        2037          L     9,CORE+4 .          GET THE FIRST ADDRESS                17520000
001558 5840 C18C      0018C        2038          L     4,KEY .             GET THE KEY                          17530000
00155C 8840 0010      00010        2039          SRL   4,16                                                     17540000
001560 5640 13A2      01758        2040          O     4,FETCHPRT          fetch protected                      17545002
001564 1839                        2041          LR    3,9 .               GET THE BLOCK FOLLOWING OURS         17550000
001566 1A38                        2042          AR    3,8                                                      17560000
001568 5B30 138E      01744        2043 LOADSK   S     3,PAGESIZE .        get the previous block, page aligned 17570002
00156C 1939                        2044          CR    3,9 .               HAVE WE PASSED THE START?            17580000
00156E 4740 11C4      0157A        2045          BL    LOADLOOP .          IF SO, START LOADING                 17590000
                                   2046 *        SSKE  4,3 .               else set this block to the key       17600002
001572 B22B0043                    2047          DC    X'B22B0043'         Assembler (XF) doesn't support SSKE  17603002
001576 47F0 11B2      01568        2048          B     LOADSK .            AND BRANCH BACK                      17610000
00157A 4120 C164      00164        2049 LOADLOOP LA    2,TREAD .           READ IN OBJECT DECK                  17620000
00157E 0AE2                        2050          SVC   C'S' .              GET A CARD A'READING                 17630000
001580 D203 C0DC 144A 000DC 01800  2051          MVC   RREPLY1,=F'132'                                          17640000
001586 4120 C0D4      000D4        2052          LA    2,RREPLY                                                 17650000
00158A 0AD9                        2053          SVC   C'R' .              WAIT FOR ANSWER                      17660000
00158C D502 C085 1469 00085 0181F  2054          CLC   CARD+1(3),=C'TXT' . IS IT A TXT CARD?                    17670000
001592 4780 11F8      015AE        2055          BE    TXTCARD                                                  17680000
001596 D502 C085 146C 00085 01822  2056          CLC   CARD+1(3),=C'RLD' . IS IT A RLD CARD?                    17690000
00159C 4780 1212      015C8        2057          BE    RLDCARD                                                  17700000
0015A0 D502 C085 146F 00085 01825  2058          CLC   CARD+1(3),=C'END' . IS IT AN END CARD?                   17710000
0015A6 4780 1270      01626        2059          BE    ENDCARD                                                  17720000
0015AA 47F0 11C4      0157A        2060          B     LOADLOOP .          IF NONE, IGNORE.                     17730000

0015AE 58A0 C088      00088        2062 TXTCARD  L     10,CARD+4 .         GET THE RELATIVE ADDRESS             17750000
0015B2 1AA9                        2063          AR    10,9 .              PLUS THE ABSOLUTE ADDRESS            17760000
0015B4 48B0 C08E      0008E        2064          LH    11,CARD+10 .        GET THE COUNT,                       17770000
0015B8 06B0                        2065          BCTR  11,0 .               DECREMENTED                         17780000
0015BA 44B0 120C      015C2        2066          EX    11,TXTMOV .         AND MOVE THE TEXT                    17790000
0015BE 47F0 11C4      0157A        2067          B     LOADLOOP .          AND READ ANOTHER CARD! OH WOW!       17800000
0015C2 D200 A000 C094 00000 00094  2068 TXTMOV   MVC   0(0,10),CARD+16                                          17810000

0015C8 48B0 C08E      0008E        2070 RLDCARD  LH    11,CARD+10 .        GET THE BYTE COUNT                   17830000
0015CC 41D0 C098      00098        2071          LA    13,CARD+20 .        AND AN INDEX INTO THE CARD           17840000
0015D0 58AD 0000      00000        2072 RLDLOOP  L     10,0(13) .          GET THE LOCATION TO BE RLD'D         17850000
0015D4 1AA9                        2073          AR    10,9 .              GET THE ABSOLUTE ADDRESS             17860000
0015D6 9103 D003      00003        2074          TM    3(13),X'03' .       IS IT A FULLWORD?                    17870000
0015DA 4770 1252      01608        2075          BNZ   NOTALGND .          IF NO, HANDLE AS THREE BYTES         17880000
0015DE 587A 0000      00000        2076          L     7,0(10) .           GET THAT WORD (HAD BETTER BE         17890000
0015E2 1A79                        2077          AR    7,9 .                ONE); ADD THE RELOCATION            17900000
0015E4 507A 0000      00000        2078          ST    7,0(10) .            ADDRESS, AND STORE IT BACK          17910000
0015E8 9101 D000      00000        2079 RLDCONT  TM    0(13),X'01' .       CHECK IF LONG OR SHORT FIELD         17920000
0015EC 4770 1242      015F8        2080          BNZ   SHORT .             AND BRANCH ACCORDINGLY               17930000
0015F0 4140 0008      00008        2081          LA    4,8 .               SKIP EIGHT BYTES                     17940000
0015F4 47F0 1246      015FC        2082          B     RLDFINI                                                  17950000
0015F8 4140 0004      00004        2083 SHORT    LA    4,4 .               SKIP FOUR BYTES                      17960000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                  ASM 0201 18.24 01/17/16

0015FC 1AD4                      2084 RLDFINI  AR    13,4 .              INCREMENT THE CARD INDEX             17970000
0015FE 1BB4                      2085          SR    11,4 .              DECREMENT THE BYTE COUNT             17980000
001600 4720 121A      015D0      2086          BP    RLDLOOP .           AND TRY AGAIN                        17990000
001604 47F0 11C4      0157A      2087          B     LOADLOOP .          OR READ ANOTHER CARD                 18000000
001608 D202 C1B5 A000 001B5 00000 2088 NOTALGND MVC   RLDTEMP+1(3),0(10) . PUT ADDRESS HERE                   18010000
00160E 5870 C1B4      001B4      2089          L     7,RLDTEMP .         RELOCATE IT                          18020000
001612 1A79                      2090          AR    7,9                                                      18030000
001614 5070 C1B4      001B4      2091          ST    7,RLDTEMP .         AND PUT IT BACK TO                   18040000
001618 D202 A000 C1B5 00000 001B5 2092          MVC   0(3,10),RLDTEMP+1 .  WHERE IT BELONGS                  18050000
00161E 9400 C1B4      001B4      2093          NI    RLDTEMP,X'00' .     CLEAR OUT TEMPORARY                  18060000
001622 47F0 1232      015E8      2094          B     RLDCONT .           AND LOOP BACK                        18070000

001626 4120 C190      00190      2096 ENDCARD  LA    2,USERL .           FIND THE PCB FOR USERPROG            18090000
00162A 0AD5                      2097          SVC   C'N'                                                     18100000
00162C 5840 C198      00198      2098          L     4,USERL+8 .         GET THE ADDRESS                      18110000
                           00000 2099          USING PCB,4                                                    18120000
001630 92FF 4019      00019      2100          MVI   PCBBLOKT,X'FF' .    TEMPORARILY BLOCK IT                 18130000
001634 5090 C198      00198      2101          ST    9,USERL+8 .         STORE THE BEGINNING ADDRESS          18140000
001638 0AE8                      2102          SVC   C'Y' .              THEN START IT                        18150000
00163A 5850 C18C      0018C      2103          L     5,KEY .             GET THE KEY                          18160000
00163E 5650 404C      0004C      2104          O     5,PCBISA+0 .        THEN OR THIS INTO THE                18170000
001642 5050 404C      0004C      2105          ST    5,PCBISA+0 .         FIRST WORD OF THE PCB               18180000
001646 9601 404D      0004D      2106          OI    PCBISA+1,X'01' .    OR IN A 'PROGRAM STATE' BIT          18190000
00164A 9200 4019      00019      2107          MVI   PCBBLOKT,X'00' .    AND THEN UNBLOCK IT                  18200000
                                 2108          DROP  4                                                        18210000
00164E 4120 C1B8      001B8      2109          LA    2,TALK .            LISTEN TO WHAT IT SAYS               18220000
001652 0AD9                      2110          SVC   C'R'                                                     18230000

001654 D207 C000 141A 00000 017D0 2112          MVC   LINE(8),=CL8' ' .   IF JOB FINISHED, CLEAR A LINE        18250000
00165A D27B C008 C007 00008 00007 2113          MVC   LINE+8(124),LINE+7                                       18260000
001660 D20B C000 C1C4 00000 001C4 2114          MVC   LINE(12),TALK+12 .  MOVE THE MESSAGE ONTO THE LINE       18270000
001666 4120 C178      00178      2115          LA    2,WRITE .           AND SAY TO WRITE IT                  18280000
00166A 0AE2                      2116          SVC   C'S'                                                     18290000
00166C 4120 C1D0      001D0      2117          LA    2,ANYBACK                                                18300000
001670 0AD9                      2118          SVC   C'R'                                                     18310000
001672 4120 1352      01708      2119          LA    2,SKIP .            SKIP TO THE TOP OF THE NEXT PAGE     18320000
001676 0AE2                      2120          SVC   C'S'                                                     18330000
001678 4120 C1D0      001D0      2121          LA    2,ANYBACK                                                18340000
00167C 0AD9                      2122          SVC   C'R'                                                     18350000

00167E 5850 0270      00270      2124 EXPUNGE  L     5,RUNNING .         EXPUNGE A JOB: LOOK AT ALL PCBS      18370000
001682 4120 C19C      0019C      2125          LA    2,SEQ                                                    18380000
                           00000 2126          USING PCB,5                                                    18390000
001686 D207 C19C 5000 0019C 00000 2127 EXPLOOP  MVC   SEQ(8),PCBNAME .   GET THE PROCESS NAME                 18400000
00168C 5840 5008      00008      2128          L     4,PCBNPTG .         GET THE NEXT PTR                     18410000
001690 955C C19C      0019C      2129          CLI   SEQ+0,C'*' .        IS IT A '*' PROCESS?                 18420000
001694 4780 12E6      0169C      2130          BE    EXPNXT .            IF SO, SKIP OVER                     18430000
001698 0AE9                      2131          SVC   C'Z' .              ELSE STOP IT                         18440000
00169A 0AC4                      2132          SVC   C'D' .              AND DESTROY IT                       18450000
00169C 1854                      2133 EXPNXT   LR    5,4 .               GO TO THE NEXT PCB                   18460000
00169E 5950 0270      00270      2134          C     5,RUNNING .         ARE WE THROUGH?                      18470000
0016A2 4770 12D0      01686      2135          BNE   EXPLOOP .           IF NOT, LOOP AGAIN                   18480000
0016A6 9500 C1DD      001DD      2136          CLI   LOADED,X'00' .      WAS CORE ALLOCATED?                  18490000
0016AA 4780 1086      0143C      2137          BE    LOOP .              IF NOT, GO READ THE NEXT $JOB CARD   18500000
0016AE 4140 0008      00008      2138          LA    4,8 .               set zero key and fetch protect       18510002
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

0016B2 1839                      2139           LR    3,9 .              AND A POINTER TO THE NEXT            18520000
0016B4 1A38                      2140           AR    3,8 .               BLOCK AFTER OURS                    18530000
0016B6 5B30 138E      01744      2141 LOADCL    S     3,PAGESIZE .       get the previous block, page aligned 18540002
0016BA 1939                      2142           CR    3,9 .              ARE WE THROUGH?                      18550000
0016BC 4740 1312      016C8      2143           BL    LOADD .            IF SO, GO FREE CORE                  18560000
                                 2144 *         SSKE  4,3 .              else clear storage key               18570002
0016C0 B22B0043                  2145           DC    X'B22B0043'        Assembler (XF) doesn't support SSKE  18573002
0016C4 47F0 1300      016B6      2146           B     LOADCL .           AND LOOP BACK                        18580000
0016C8 4120 C1A8      001A8      2147 LOADD     LA    2,CORE                                                  18590000
0016CC 0AC6                      2148           SVC   C'F' .             FREE THE STORAGE                     18600000
0016CE 47F0 1086      0143C      2149           B     LOOP .             READ ANOTHER $JOB CARD               18610000

0016D2 1B55                      2151 SCAN      SR    5,5 .              START THE TOKEN COUNT AT ZERO        18630000
0016D4 4144 0001      00001      2152 SCANLOOP  LA    4,1(4) .           GO TO NEXT CHARACTER                 18640000
0016D8 956B 4000      00000      2153           CLI   0(4),C',' .        DO WE HAVE A DELIMITER? IF SO,       18650000
0016DC 4780 1342      016F8      2154           BE    TOKSTART                                                18660000
0016E0 957E 4000      00000      2155           CLI   0(4),C'=' .        DITTO                                18670000
0016E4 4780 1342      016F8      2156           BE    TOKSTART                                                18680000
0016E8 9540 4000      00000      2157           CLI   0(4),C' ' .        DITTO                                18690000
0016EC 4780 1342      016F8      2158           BE    TOKSTART                                                18700000
0016F0 4155 0001      00001      2159           LA    5,1(5) .           AND UP COUNT                         18710000
0016F4 47F0 131E      016D4      2160           B     SCANLOOP .         AND LOOP                             18720000
0016F8 1894                      2161 TOKSTART  LR    9,4 .              SET REG9 TO START                    18730000
0016FA 1B95                      2162           SR    9,5 .              OF THIS TOKEN                        18740000
0016FC 0650                      2163           BCTR  5,0 .              LESS ONE FOR EXECUTE INSTRUCTION     18750000
0016FE 07F3                      2164           BR    3                                                       18760000

001700 0000000000000000          2166 JSPNEVER  DC    F'0,0' .           A GOOD WAY TO DIE: P(JSPNEVER)       18780000
001708 5CD6E4E340404040          2167 SKIP      DC    CL8'*OUT' .        MESSAGE BLOCK FOR A NEW PAGE         18790000
001710 00000008                  2168           DC    F'8'                                                    18800000
001714 E2E3C3F1                  2169           DC    CL4'STC1'                                               18810000
001718 5CC9D54040404040          2170 INSEQ     DC    CL8'*IN' .         SEQ TO CREATE & START *IN            18820000
001720 00000AC6                  2171           DC    A(RDRHANDL)                                             18830000
001724 5CD6E4E340404040          2172 OUTSEQ    DC    CL8'*OUT' .        SEQ TO CREATE & START *OUT           18840000
00172C 00000C48                  2173           DC    A(PRTHANDL)                                             18850000
001730 F200 1382 9000 01738 00000 2174 COREPACK PACK  COREPCKD(1),0(1,9) . executed to pack core size req'd   18860002
001738                           2175 COREPCKD  DS    D .                packed core requirement goes here    18880002
001740 00000070                  2176 COREPKLN  DC    X'00000070' .      length of packed size for execute    18900002
001744 00001000                  2177 PAGESIZE  DC    F'4096' .          page size for core computation       18920002
001748 0000000100000000          2178 JSPSUSEM  DC    F'1,0' .           SEMAPHORE TO LOCK ROUTINE            18990000
001750 000001E0                  2179 JSPAAS    DC    A(LENJSPAS) .      ALLOCATE LIST FOR AUTO STORAGE       19000000
001754                           2180           DS    A                                                       19010000
001758 00000008                  2181 FETCHPRT  DC    F'8'               reused to or in fetch protection     19020002
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

                                  2183 ********************************************************************** 19040000
                                  2184 *                                                                    * 19050000
                                  2185 *                          DEVICE INTERFACE MODULE                   * 19060000
                                  2186 *                                                                    * 19070000
                                  2187 *        FUNCTION: TO INTERFACE BETWEEN USERPROG AND DEVICE HANDLER  * 19080000
                                  2188 *       DATABASES: NONE                                              * 19090000
                                  2189 *   ROUTINES USED: XA, XP, XV, XR, XS                                * 19100000
                                  2190 *       PROCEDURE: ALLOCATE AUTOMATIC STORAGE; START TO READ MESSAGE * 19110000
                                  2191 *                  FROM USER; SEND MESSAGE TO DEVICE HANDLER;        * 19120000
                                  2192 *                  CONTINUE LOOPING, SENDING MESSAGES FROM USER TO   * 19130000
                                  2193 *                  DEVICE HANDLER AND BACK.                          * 19140000
                                  2194 *    ERROR CHECKS: NONE                                              * 19150000
                                  2195 *      INTERRUPTS: ON                                                * 19160000
                                  2196 *     USER ACCESS: YES                                               * 19170000
                                  2197 *                                                                    * 19180000
                                  2198 ********************************************************************** 19190000

                         0175C    2200 DIM      EQU   * .                THE DEVICE INTERFACE MODULE          19210000
00175C 0510                       2201          BALR  1,0                                                     19220000
                         0175E    2202          USING *,1 .              ESTABLISH ADDRESSING                 19230000
00175E 4120 1042      017A0       2203          LA    2,DIMSEM .         LOCK UNTIL GET STORAGE               19240000
001762 0AD7                       2204          SVC   C'P'                                                    19250000
001764 4120 104A      017A8       2205          LA    2,DIMAAS .         READY TO ALLOCATE STORAGE            19260000
                         00000    2206          USING XAX,2                                                   19270000
001768 0AC5                       2207          SVC   C'E' .             DO IT                                19280000
00176A 58C0 2004      00004       2208          L     12,XAXADDR .       GET THE ADDRESS                      19290000
                                  2209          DROP  2                                                       19300000
00176E 4120 1042      017A0       2210          LA    2,DIMSEM .         UNLOCK OURSELVES                     19310000
001772 0AE5                       2211          SVC   C'V'                                                    19320000
                               00000  2212          USING DIMAS,12 .         USE 12 FOR AUTO STORAGE            19330000
001774 D207 C090 B000 00090 00000  2213          MVC   DIMLMS,0(11) .     MOVE NAME OF RECIEVER              19340000
00177A 4180 0084      00084       2214          LA    8,132 .            REG 8 = SIZE OF MESSAGE              19350000
00177E 5080 C008      00008       2215 DIMLOOP  ST    8,DIMMSG+8 .       GET READY TO READ A MESSAGE          19360000
001782 4120 C000      00000       2216          LA    2,DIMMSG                                                19370000
001786 0AD9                       2217          SVC   C'R' .             READ                                 19380000
001788 D207 C098 C000 00098 00000  2218          MVC   DIMTEMP,DIMMSG .   SAVE SENDER NAME                     19390000
00178E D207 C000 C090 00000 00090  2219          MVC   DIMMSG,DIMLMS .    SEND IT BACK TO THE LAST GUY         19400000
001794 0AE2                       2220          SVC   C'S' .             SEND IT                              19410000
001796 D207 C090 C098 00090 00098  2221          MVC   DIMLMS,DIMTEMP .   AND REMEMBER WHO TO SEND TO NEXT     19420000
00179C 47F0 1020      0177E       2222          B     DIMLOOP .          RELOOP                               19430000
0017A0 0000000100000000           2223 DIMSEM   DC    F'1,0' .           SEMAPHORE FOR ENTRY                  19440000
0017A8 000000A0                   2224 DIMAAS   DC    A(DIMLEN) .        ALLOCATE SEQ FOR AUTO STORAGE        19450000
0017AC 00000000                   2225          DC    A(0)                                                    19460000
0017B0 00000008                   2226          DC    F'8'                                                    19470000
                                  2227          DROP  12                                                      19480000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

0017B8                            2229           LTORG                                                    19500000
0017B8 0000000000FFE7D8           2230                 =A(0,CORESIZE-(VERYEND-PROGRAM))
0017C0 5CC9D54040404040           2231                 =CL8'*IN'
0017C8 E4E2C5D9D7D9D6C7           2232                 =CL8'USERPROG'
0017D0 4040404040404040           2233                 =CL8' '
0017D8 5CD6E4E340404040           2234                 =CL8'*OUT'
0017E0 00000EAC                   2235                 =A(UCBTABLE)
0017E4 000010AC                   2236                 =A(UCBTBEND)
0017E8 00000008                   2237                 =F'8'
0017EC D9C5C1C4                   2238                 =C'READ'
0017F0 D7D9C9D5                   2239                 =C'PRIN'
0017F4 0000000C                   2240                 =F'12'
0017F8 00000001                   2241                 =F'1'
0017FC 00000000                   2242                 =A(0)
001800 00000084                   2243                 =F'132'
001804 D6E4E340                   2244                 =C'OUT '
001808 0000175C                   2245                 =A(DIM)
00180C 00000D74                   2246                 =A(EXCPHNDL)
001810 D6D2                       2247                 =C'OK'
001812 5BD1D6C26B                 2248                 =C'$JOB,'
001817 C9D540                     2249                 =C'IN '
00181A C5E7C3D740                 2250                 =C'EXCP '
00181F E3E7E3                     2251                 =C'TXT'
001822 D9D3C4                     2252                 =C'RLD'
001825 C5D5C4                     2253                 =C'END'
001828                            2254 VERYEND  DS    7D .              beginning of free storage          19510007
001860                            2255 LOADER   DS    0D                IPL loader goes here               19521002
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

                           00000  2257 R0       EQU   0                                                    19521502
                           00001  2258 R1       EQU   1                                                    19522002
                           00002  2259 R2       EQU   2                                                    19522502
                           00003  2260 R3       EQU   3                                                    19523002
                           00004  2261 R4       EQU   4                                                    19523502
                           00005  2262 R5       EQU   5                                                    19524002
                           00006  2263 R6       EQU   6                                                    19524502
                           00007  2264 R7       EQU   7                                                    19525002
                           00008  2265 R8       EQU   8                                                    19525502
                           00009  2266 R9       EQU   9                                                    19526002
                           0000A  2267 R10      EQU   10                                                   19526502
                           0000B  2268 R11      EQU   11                                                   19527002
                           0000C  2269 R12      EQU   12                                                   19527502
                           0000D  2270 R13      EQU   13                                                   19528002
                           0000E  2271 R14      EQU   14                                                   19528502
                           0000F  2272 R15      EQU   15                                                   19529002
                                  2273 ************************************************************************ 19530000
                                  2274 *                                                                  * 19540000
                                  2275 *                          DATABASE DEFINITIONS                    * 19550000
                                  2276 *                                                                  * 19560000
                                  2277 ************************************************************************ 19570000

000000                            2279 PCB      DSECT .                 PROCESS CONTROL BLOCK DEFINITION     19590000
000000                            2280 PCBNAME  DS    CL8 .             NAME                                 19600000
000008                            2281 PCBNPTG  DS    F .               NEXT POINTER THIS GROUP              19610000
00000C                            2282 PCBLPTG  DS    F .               LAST POINTER THIS GROUP              19620000
000010                            2283 PCBNPALL DS    F .               NEXT POINTER ALL                     19630000
000014                            2284 PCBLPALL DS    F .               LAST POINTER ALL                     19640000
000018                            2285 PCBSTOPT DS    C .               STOPPED                              19650000
000019                            2286 PCBBLOKT DS    C .               BLOCKED                              19660000
00001A                            2287 PCBINSMC DS    C .                IN SMC                              19670000
00001B                            2288 PCBSW    DS    C .               STOP WAITING                         19680000
00001C                            2289 PCBMSC   DS    CL8 .             MESSAGE SEMAPHORE COMMON             19690000
000024                            2290 PCBMSR   DS    CL8 .             MESSAGE SEMAPHORE RECEIVER           19700000
00002C                            2291 PCBFM    DS    F .               FIRST MESSAGE                        19710000
000030                            2292 PCBNSW   DS    F .               NEXT SEMAPHORE WAITER                19720000
000034                            2293 PCBSRS   DS    CL8 .             STOPPER SEMAPHORE                    19730000
00003C                            2294 PCBSES   DS    CL8 .             STOPPEE SEMAPHORE                    19740000
000044                            2295 PCBASIZE DS    F .               AUTOMATIC STORAGE SIZE               19750000
000048                            2296 PCBAADDR DS    A .               AUTOMATIC STORAGE ADDRESS            19760000
00004C                            2297 PCBISA   DS    CL84 .            INTERRUPT SAVE AREA                  19770000
0000A0                            2298 PCBFSA   DS    CL84 .            FAULT SAVE AREA                      19780000
0000F4                            2299 PCBMSA   DS    CL84 .            MEMORY SAVE AREA                     19790000
000148                            2300          DS    0D .              (ALIGN)                              19800000
                           00148  2301 LENPCB   EQU   *-PCB .           (LENGTH)                             19810000

000000                            2303 SA       DSECT .                 SAVE AREA DEFINITION                 19830000
000000                            2304 SAPSW    DS    D .               PROGRAM STATUS WORD                  19840000
000008                            2305 SAREGS   DS    CL64 .            REGISTERS                            19850000
000048                            2306 SATEMP   DS    CL12 .            TEMPORARIES                          19860000

000000                            2308 REGS     DSECT .                 REGISTER DEFINITION                  19880000
000000                            2309 REG0     DS    F .               REGISTER 0                           19890000
000004                            2310 REG1     DS    F .               REGISTER 1                           19900000
000008                            2311 REG2     DS    F .               REGISTER 2                           19910000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                ASM 0201 18.24 01/17/16

00000C                             2312 REG3     DS    F .               REGISTER 3                          19920000
000010                             2313 REG4     DS    F .               REGISTER 4                          19930000
000014                             2314 REG5     DS    F .               REGISTER 5                          19940000
000018                             2315 REG6     DS    F .               REGISTER 6                          19950000
00001C                             2316 REG7     DS    F .               REGISTER 7                          19960000
000020                             2317 REG8     DS    F .               REGISTER 8                          19970000
000024                             2318 REG9     DS    F .               REGISTER 9                          19980000
000028                             2319 REG10    DS    F .               REGISTER 10                         19990000
00002C                             2320 REG11    DS    F .               REGISTER 11                         20000000
000030                             2321 REG12    DS    F .               REGISTER 12                         20010000
000034                             2322 REG13    DS    F .               REGISTER 13                         20020000
000038                             2323 REG14    DS    F .               REGISTER 14                         20030000
00003C                             2324 REG15    DS    F .               REGISTER 15                         20040000

000000                             2326 FSB      DSECT .                 FREE STORAGE BLOCK DEFINITIONS      20060000
000000                             2327 FSBNEXT  DS    A .               NEXT                                20070000
000004                             2328 FSBSIZE  DS    F .               SIZE                                20080000

000000                             2330 SM       DSECT .                 SEMAPHORE DEFINITION                20100000
000000                             2331 SMVAL    DS    F .               VALUE                               20110000
000004                             2332 SMPTR    DS    F .               PTR                                 20120000

000000                             2334 MSG      DSECT .                 MESSAGE DEFINITION                  20140000
000000                             2335 MSGSENDR DS    A .               POINTER TO SENDER'S PCB             20150000
000004                             2336 MSGNEXT  DS    A .               NEXT                                20160000
000008                             2337 MSGSIZE  DS    F .               SIZE                                20170000
00000C                             2338 MSGTEXT  DS    0C .              TEXT                                20180000
                             0000C 2339 LENMSG   EQU   *-MSG .           (LENGTH)                            20190000

000000                             2341 XAX      DSECT .                 XA ARGUMENT LIST                    20210000
000000                             2342 XAXSIZE  DS    F .               SIZE                                20220000
000004                             2343 XAXADDR  DS    F .               ADDRESS                             20230000
000008                             2344 XAXALGN  DS    F .               ALIGNMENT                           20240000

000000                             2346 XFX      DSECT .                 XF ARGUMENT LIST                    20260000
000000                             2347 XFXSIZE  DS    F .               SIZE                                20270000
000004                             2348 XFXADDR  DS    F .               ADDRESS                             20280000

000000                             2350 XBX      DSECT .                 XB ARGUMENT LIST                    20300000
000000                             2351 XBXSIZE  DS    F .               SIZE                                20310000
000004                             2352 XBXADDR  DS    F .               ADDRESS                             20320000

000000                             2354 XCX      DSECT .                 XC ARGUMENT LIST                    20340000
000000                             2355 XCXNAME  DS    CL8 .             NAME                                20350000

000000                             2357 XDX      DSECT .                 AD ARGUMENT LIST                    20370000
000000                             2358 XDXNAME  DS    CL8 .             NAME                                20380000

000000                             2360 XNX      DSECT .                 XN ARGUMENT LIST                    20400000
000000                             2361 XNXNAME  DS    CL8 .             NAME                                20410000
000008                             2362 XNXADDR  DS    A .               ADDRESS                             20420000

000000                             2364 XRX      DSECT .                 XR ARGUMENT LIST                    20440000
000000                             2365 XRXNAME  DS    CL8 .             NAME                                20450000
000008                             2366 XRXSIZE  DS    F .               SIZE                                20460000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                 ASM 0201 18.24 01/17/16
00000C                             2367 XRXTEXT  DS    0C .              TEXT                                20470000

000000                             2369 XSX      DSECT .                 XS ARGUMENT LIST                    20490000
000000                             2370 XSXNAME  DS    CL8 .             NAME                                20500000
000008                             2371 XSXSIZE  DS    F .               SIZE                                20510000
00000C                             2372 XSXTEXT  DS    0C .              TEXT                                20520000

000000                             2374 XYX      DSECT .                 XY ARGUMENT LIST                    20540000
000000                             2375 XYXNAME  DS    CL8 .             NAME                                20550000
000008                             2376 XYXADDR  DS    A .               ADDR                                20560000

000000                             2378 XZX      DSECT .                 XZ ARGUMENT LIST                    20580000
000000                             2379 XZXNAME  DS    CL8 .             NAME                                20590000

000000                             2381 RDRHAS   DSECT .                 READER HANDLER AUTOMATIC STORAGE    20610000
000000                             2382 RDRHCCB  DS    2F .              CCB                                 20620000
000008                             2383 RDRHMSG  DS    CL8 .             MESSAGE BLOCK FOR REQUESTS          20630000
000010                             2384          DS    F'8'                                                  20640000
000014                             2385          DS    CL8                                                   20650000
00001C                             2386 RDRHTEMP DS    CL80 .            AREA FOR $JOB IN DATA STREAM        20660000
00006C                             2387 RDRHM    DS    CL8 .             MESSAGE BLOCK FOR REPLY             20670000
000074                             2388          DS    F'2'                                                  20680000
000078                             2389          DS    CL2                                                   20690000
00007A                             2390 JOBBIT   DS    1C                                                    20700000
000080                             2391          DS    0D                                                    20710000
                          00080    2392 LENRDRHA EQU   *-RDRHAS .        (LENGTH)                            20720000

000000                             2394 PRTHAS   DSECT .                 PRINTER HANDLER AUTOMATIC STORAGE   20740000
000000                             2395 PRTHCCB  DS    2F .              CCB                                 20750000
000008                             2396 PRTHMSG  DS    CL8 .             MESSAGE BLOCK FOR REQUESTS          20760000
000010                             2397          DS    F'2'                                                  20770000
000014                             2398          DS    CL8                                                   20780000
00001C                             2399 PRTHM    DS    CL8 .             MESSAGE BLOCK FOR REPLY             20790000
000024                             2400          DS    F'2'                                                  20800000
000028                             2401          DS    CL2                                                   20810000
000030                             2402          DS    0D                                                    20820000
                          00030    2403 LENPRTHA EQU   *-PRTHAS .        (LENGTH)                            20830000

000000                             2405 EXCPHAS  DSECT .                 EXCP HANDLER AUTOMATIC STORAGE      20850000
000000                             2406 EXCPHMSG DS    CL8 .             MESSAGE BLOCK FOR REQUESTS          20860000
000008                             2407          DS    F'12'                                                 20870000
00000C                             2408          DS    CL12                                                  20880000
000018                             2409 EXCPHM   DS    CL8 .             MESSAGE BLOCK FOR REPLY             20890000
000020                             2410          DS    F'12'                                                 20900000
000024                             2411          DS    CL12                                                  20910000
000030                             2412          DS    0D                                                    20920000
                          00030    2413 LENEXCPA EQU   *-EXCPHAS .        (LENGTH)                            20930000

000000                             2415 UCB      DSECT .                 UNIT CONTROL BLOCK DEFINITION       20950000
000000                             2416 UCBADDR  DS    F .               ADDRESS                             20960000
000004                             2417 UCBUS    DS    FL8 .             USER SEMAPHORE                      20970000
00000C                             2418 UCBWS    DS    FL8 .             WAITER SEMAPHORE                    20980000
000014                             2419 UCBCSW   DS    FL8 .             CHANNEL STATUS WORD                 20990000
00001C                             2420 UCBFPR   DS    CL1 .             FAST PROCESSING REQUIRED            21000000
000020                             2421          DS    0F                                                    21010000
```

```
 LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                 ASM 0201 18.24 01/17/16
                            00020  2422 UCBLENG  EQU   *-UCB                                                    21020000

000000                              2424 JSPAS    DSECT .                  JSP AUTOMATIC STORAGE               21040000
000000                              2425 LINE     DS    CL132 .            PRINTED LINE                        21050000
000084                              2426          DS    0F                                                     21060000
000084                              2427 CARD     DS    CL80 .             CARD READ                           21070000
0000D4                              2428          DS    0F                                                     21080000
0000D4                              2429 RREPLY   DS    CL8 .              MESSAGE BLOCK FOR REPLIES           21090000
0000DC                              2430 RREPLY1  DS    F                                                      21100000
0000E0                              2431 REPLY    DS    CL132                                                  21110000
000164                              2432 TREAD    DS    0F .               MESSAGE BLOCK FOR READING           21120000
000164                              2433          DS    CL8'*IN'                                               21130000
00016C                              2434          DS    F'8'                                                   21140000
000170                              2435          DS    CL4'READ'                                              21150000
000174                              2436 ACARD    DS    A(0)                                                   21160000
000178                              2437 WRITE    DS    CL8'*OUT' .        MESSAGE BLOCK TO PRINT A LINE       21170000
000180                              2438          DS    F'8'                                                   21180000
000184                              2439          DS    CL4'PRIN'                                              21190000
000188                              2440          DS    A(LINE)                                                21200000
00018C                              2441 KEY      DS    F                                                      21210000
000190                              2442 USERL    DS    CL8'USERPROG' .    LIST FOR MANIPULATING USERPROG      21220000
000198                              2443          DS    F                                                      21230000
00019C                              2444 SEQ      DS    CL8' ' .           COMMON ARG LIST FOR I/O PROCESS     21240000
0001A4                              2445 UNITRTN  DS    A                                                      21250000
0001A8                              2446 CORE     DS    F .                MEMORY ALLOCATED AND FREE           21260000
0001AC                              2447          DS    F .                SEQUENCE                            21270000
0001B0                              2448          DS    F'4096'            align to page boundary              21280002
0001B4                              2449 RLDTEMP  DS    F                                                      21290000
0001B8                              2450 TALK     DS    CL8'USERPROG' .    MESSAGE BLOCK FOR MESSAGE FROM      21300000
0001C0                              2451          DS    F'12' .             USERPROG                           21310000
0001C4                              2452          DS    CL12                                                   21320000
0001D0                              2453 ANYBACK  DS    CL8 .              MESSAGE BLOCK FOR IGNORING MESS     21330000
0001D8                              2454          DS    F'1'                                                   21340000
0001DC                              2455          DS    CL1                                                    21350000
0001DD                              2456 LOADED   DS    C .                IS CORE ALLOCATED                   21360000
0001E0                              2457          DS    0D                                                     21370000
                             001E0  2458 LENJSPAS EQU   *-JSPAS .          (LENGTH)                            21380000

000000                              2460 DIMAS    DSECT .                  DEVICE INTERFACE MODULE STORAGE     21400000
000000                              2461 DIMMSG   DS    CL8 .              MESSAGE BLOCK                       21410000
000008                              2462          DS    F'132'                                                 21420000
00000C                              2463          DS    CL132                                                  21430000
000090                              2464 DIMLMS   DS    CL8 .              LAST MESSAGE SENDER                 21440000
000098                              2465 DIMTEMP  DS    CL8 .              TEMPORARY                           21450000
0000A0                              2466          DS    0D                                                     21460000
                             000A0  2467 DIMLEN   EQU   *-DIMAS .          (LENGTH)                            21470000
                                    2468          END                                                          21480000
```

POS.ID	REL.ID	FLAGS	ADDRESS
0001	0001	08	000005
0001	0001	08	00005D
0001	0001	08	000065
0001	0001	08	00006D
0001	0001	0C	000180
0001	0001	08	00042D
0001	0001	08	000435
0001	0001	08	00043D
0001	0001	08	000445
0001	0001	08	00044D
0001	0001	08	000455
0001	0001	08	00045D
0001	0001	08	000465
0001	0001	08	00046D
0001	0001	08	000475
0001	0001	08	00047D
0001	0001	08	000485
0001	0001	08	00048D
0001	0001	08	000495
0001	0001	08	00049D
0001	0001	08	0004A5
0001	0001	08	0004AD
0001	0001	08	0004B5
0001	0001	08	0004BD
0001	0001	08	0004C5
0001	0001	0C	0004C8
0001	0001	08	0004DD
0001	0001	08	00059D
0001	0001	0C	000E64
0001	0001	0C	000E98
0001	0001	0C	0011B4
0001	0001	0C	0011B8
0001	0001	0C	0011BC
0001	0001	0C	0011C0
0001	0001	0C	0011D4
0001	0001	0C	0011D8
0001	0001	0C	0011DC
0001	0001	0C	0011E0
0001	0001	0C	0011E4
0001	0001	0C	0011E8
0001	0001	0C	0011EC
0001	0001	0C	0011F0
0001	0001	0C	001200
0001	0001	0C	001204
0001	0001	0C	001208
0001	0001	0C	00120C
0001	0001	08	0013A1
0001	0001	08	0013A9
0001	0001	08	0013AD
0001	0001	08	0013B1
0001	0001	0C	001720
0001	0001	0C	00172C
0001	0001	0C	0017E0
0001	0001	0C	0017E4
0001	0001	0C	001808

POS.ID	REL.ID	FLAGS	ADDRESS
0001	0001	0C	00180C
0001	0002	08	00007D
0003	0001	08	001905
0003	0001	08	001909
0003	0001	08	001911

SYMBOL LEN VALUE DEFN REFERENCES ASM 0201 18.24 01/17/16

```
ACARD    00004 00000174 02436  01942
ANYBACK  00008 000001D0 02453  01951 02117 02121
ASEXCP   00006 0000153A 02029  02016
ASGNUNIT 00004 000014C2 02000  02026 02032
ASIN     00004 00001522 02023  02012
ASOUT    00004 00001532 02027  02014
CARD     00080 00000084 02427  01941 01971 01980 01987 02054 02056 02058 02062 02064 02068 02070 02071
CARDLDR  00001 00001860 00074  00093 00097
CAW      00004 00000048 00173  00105 01400 01512 01594
CAWSEM   00004 00000194 00189  01398 01510 01592
CCBCON1  00004 00000C30 01443  01392 01502
CCWCHAIN 00008 00001900 00154  00104
CMPEXCP  00006 0000151C 02021  02015
CMPIN    00006 00001510 02019  02011
CMPOUT   00006 00001516 02020  02013
CONTINUE 00004 000018EC 00150  00127
CORE     00004 000001A8 02446  01948 01999 02034 02037 02147
COREOK   00004 000014BA 01998  01996
COREPACK 00006 00001730 02174  01991
COREPCKD 00008 00001738 02175  01992 02174
COREPKLN 00004 00001740 02176  01990
CORESIZ  00004 0000134C 01900  01830
CORESIZE 00001 01000000 00160  01900 02230
CSW      00008 00000040 00172  00137 01786 01787 01790
DIM      00001 0000175C 02200  02245
DIMAAS   00004 000017A8 02224  02205
DIMAS    00001 00000000 02460  02212 02467
DIMLEN   00001 000000A0 02467  02224
DIMLMS   00008 00000090 02464  02213 02219 02221
DIMLOOP  00004 0000177E 02215  02222
DIMMSG   00008 00000000 02461  02215 02216 02218 02219
DIMSEM   00004 000017A0 02223  02203 02210
DIMTEMP  00008 00000098 02465  02218 02221
EIGHT    00004 000018F8 00153  00120
ENBLECH0 00002 000018DE 00146  00103
ENDADATA 00006 00000BFE 01430  01421
ENDCARD  00004 00001626 02096  02059
EXCPCOMP 00004 00000DB4 01578  01582
EXCPDONE 00004 00000E38 01614  01609
EXCPFIND 00002 00000DCA 01584  01579
EXCPHAAS 00004 00000E4C 01619  01558
EXCPHAS  00001 00000000 02405  01567 02413
EXCPHM   00008 00000018 02409  01599 01600 01601 01602
EXCPHMSG 00008 00000000 02406  01568 01601 01604
EXCPHNDL 00001 00000D74 01552  02246
EXCPHSEM 00004 00000E44 01618  01556 01563
EXCPLOOP 00004 00000D92 01568  01573 01616
EXCPWAIT 00004 00000DF8 01597  01588 01611
EXINTRPT 00004 000013A4 01910  01917
EXPLOOP  00006 00001686 02127  02135
EXPNXT   00002 0000169C 02133  02130
EXPUNGE  00004 0000167E 02124  02004 02017
EXTHANDL 00001 0000027A 00206  00177 01915
EXTHRET  00004 000002A8 00222  00211 00215
EXTNEW   00001 00000058 00177  01824 01864
```

SYMBOL LEN VALUE DEFN REFERENCES ASM 0201 18.24 01/17/16

```
EXTOLD   00008 00000018 00167  00210 00218 00223 01910
FETCHPRT 00004 00001758 02181  02040
FSB      00001 00000000 02326  00607 00693 00762 00771
FSBNEXT  00004 00000000 02327  00620 00621 00628 00696 00710 00711 00765 00766 00772
FSBPTR   00004 00000180 00186  00603 00604 00691 00692 00758 00759
FSBSEM   00004 00000184 00187  00601 00647 00689 00724
FSBSIZE  00004 00000004 02328  00616 00629 00700 00703 00708 00763 00773
GWINC    00004 00000586 00489  00486
GWLOOP   00004 00000576 00485  00491
GWRUN    00006 000005A0 00496  00488
IDLE     00001 00000598 00494  00492
INSEQ    00008 00001718 02170  01956
IOBACK   00004 0000111E 01807  01784
IOCOMP   00006 000010BA 01779  01783
IODEVFND 00006 000010D4 01786  01780
IOHANDL  00001 000010AC 01773  01913
IOHSAVE  00004 000001DC 00192  01774 01801 01807
IOINTRPT 00001 000018CA 00136  00101 00181
IOINTRTN 00004 000018DA 00141  00138
IONEW    00001 00000078 00181  00102 00479 01823
IONOFPR  00002 0000111C 01806  01793
IOOLD    00008 00000038 00171  00139 00140 00141 01777 01779 01800 01808
IOWAIT   00004 00001114 01803  01797
IPLAPCBS 00004 00001340 01897  01838
IPLCL    00004 0000114E 01831  01835
IPLEXNEW 00003 000013B1 01917  01824
IPLLOOP  00004 00001164 01838  01863
IPLPCB   00008 000011F8 01887  01825 01888
IPLRTN   00001 00001126 01820  00164
IPLTH    00002 0000115E 01836  01832
JOB      00004 0000146C 01977  01972
JOBBIT   00001 0000007A 02390  01354 01368 01373 01434
JSP      00001 000013B4 01925  01908
JSPAAS   00004 00001750 02179  01930
JSPAS    00001 00000000 02424  01935 02458
JSPNEVER 00004 00001700 02166  01974
JSPSUSEM 00004 00001748 02178  01928 01936
KEY      00004 0000018C 02441  01953 02030 02038 02103
KEYTAB   00001 000011C4 01875  01860
LENEXCPA 00001 00000030 02413  01619
LENJSPAS 00001 000001E0 02458  02179
LENMSG   00001 0000000C 02339  01104 01158
LENPCB   00001 00000148 02301  01628 01897
LENPRTHA 00001 00000030 02403  01542
LENRDRHA 00001 00000080 02392  01446
LINE     00132 00000000 02425  01946 01978 01979 01979 01980 02112 02113 02113 02114 02440
LOAD     00004 0000154A 02034  02002
LOADADDR 00004 000018F0 00151  00107
LOADCL   00004 000016B6 02141  02146
LOADD    00004 000016C8 02147  02143
LOADED   00001 000001DD 02456  01977 02036 02136
LOADER   00008 00001860 02255  00080 00081 00083
LOADLOOP 00004 0000157A 02049  02045 02060 02067 02087
LOADSK   00004 00001568 02043  02048
LOOP     00004 0000143C 01964  01973 02137 02149
```

```
SYMBOL    LEN   VALUE   DEFN    REFERENCES
MEMORY   00004 0000018C 00188  00624 00719
MSG      00001 00000000 02334  00870 01081 01170 01178 02339
MSGNEXT  00004 00000004 02336  00871 01082 01173 01174 01179
MSGSENDR 00004 00000000 02335  01099 01180
MSGSIZE  00004 00000008 02337  00872 01090 01092 01103 01182
MSGTEXT  00001 0000000C 02338  01115 01193
NEXTCARD 00002 0000188C 00111  00119
NEXTTRY  00004 00000274 00197  00455 00482 00496 01827
NEXTTRYM 00001 00000278 00198  00453 00456 00497 01803
NOTALGND 00006 00001608 02088  02075
NUMCARDS 00004 000018F4 00152  00106
OUTSEQ   00008 00001724 02172  01960
PAGESIZE 00004 00001744 02177  01831 01948 02043 02141
PCB      00001 00000000 02279  00213 00253 00348 00349 00350 00404 00411 00450 00484 00504 00813 00856 00861 00865 00893
                               00948 00951 00955 00959 00962 00967 00987 00991 00994 00997 01001 01004 01008 01034 01044
                               01101 01117 01153 01195 01229 01240 01279 01291 01795 01844 01848 01852 02099 02126 02301
PCBAADDR 00004 00000048 02296  00652 00881
PCBASIZE 00004 00000044 02295  00651 00883
PCBBLOKT 00001 00000019 02286  00214 00414 00452 00485 00816 00816 01796 02100 02107
PCBFM    00004 0000002C 02291  00867 01080 01082 01168 01169
PCBFSA   00084 000000A0 02298  00349
PCBINSMC 00001 0000001A 02287  00523 00525 00548 00550 01280
PCBISA   00084 0000004C 02297  00216 00348 00415 00499 00816 01230 01798 01853 02104 02105 02106
PCBLPALL 00004 00000014 02284  00949 00952 00988 00995
PCBLPTG  00004 0000000C 02282  00960 00963 00998 01005 01846 01849
PCBMSA   00084 000000F4 02299  00350
PCBMSC   00008 0000001C 02289  01078 01166
PCBMSR   00008 00000024 02290  01075 01188
PCBNAME  00008 00000000 02280  00814 01036 01102 01266 02127
PCBNPALL 00004 00000010 02283  00489 00496 00945 00946 00953 00989 00992
PCBNPTG  00004 00000008 02281  00956 00957 00964 00999 01002 01035 01845 01850 02128
PCBNSW   00004 00000030 02292  00407 00408 00413 00451
PCBSES   00008 0000003C 02294  00558
PCBSRS   00008 00000034 02293  00556 01286
PCBSTOPT 00001 00000018 02285  00487 00815 00857 01235 01282
PCBSW    00001 0000001B 02288  00553 00555 01285
PGMHANDL 00001 000002B0 00225  00179
PROGRAM  00001 00000000 00073  00099 00158 02230
PROTCON1 00004 00000C34 01444  01379 01386 01489 01496
PROTCON2 00004 00000C38 01445  01382 01389 01492 01499
PRTHAAS  00004 00000D68 01542  01462
PRTHANDL 00001 00000C48 01456  02173
PRTHAS   00001 00000000 02394  01471 02403
PRTHCCB  00004 00000000 02395  01472 01503 01504 01505 01507
PRTHCOMM 00004 00000CEC 01510  01506 01538
PRTHLOOP 00004 00000C6A 01473  01482 01534
PRTHM    00008 0000001C 02399  01525 01527 01528 01529 01532
PRTHMSG  00008 00000008 02396  01473 01486 01529
PRTHNO   00006 00000D26 01525  01494 01501
PRTHOK   00006 00000D30 01527  01524
PRTHPOK  00004 00000CCA 01502  01487
PRTHPRIN 00004 00000C92 01484  01479
PRTHSEM  00004 00000D60 01541  01460 01467
PRTHSEND 00006 00000D36 01528  01526
PRTHSTC1 00006 00000CE0 01507  01481
```

SYMBOL LEN VALUE DEFN REFERENCES ASM 0201 18.24 01/17/16

```
PRTHWAIT 00004 00000D10 01519  01522
PTSTATUS 00002 00000D52 01535  01517
QUANTUM  00004 000005BC 00502  00500
RDRHAAS  00004 00000C3C 01446  01344
RDRHANDL 00001 00000AC6 01338  02171
RDRHAS   00001 00000000 02381  01353 02392
RDRHCCB  00004 00000000 02382  01355 01393 01394 01395
RDRHEXC  00004 00000BB8 01414  01410
RDRHLOOP 00004 00000AEC 01356  01361 01429
RDRHM    00008 0000006C 02387  01416 01422 01423 01424 01427 01430
RDRHMORE 00004 00000B2E 01376  01369
RDRHMSG  00008 00000008 02383  01356 01366 01376 01418 01424
RDRHNO   00006 00000BC0 01416  01371 01384 01391
RDRHOK   00004 00000BCA 01418  01413
RDRHPOK  00004 00000B60 01392  01377 01412 01439
RDRHSEM  00004 00000C28 01442  01342 01349
RDRHSEND 00006 00000BE2 01423  01417 01435
RDRHSOK  00006 00000BDC 01422  01374 01419
RDRHTEMP 00080 0000001C 02386  01372 01431
RDRHWAIT 00004 00000B96 01405  01408 01415
RDSTATUS 00002 00000C1C 01436  01403
READ     00001 000018E0 00147  00112
REGS     00001 00000000 02308  01856
REG3     00004 0000000C 02312  01859
REG4     00004 00000010 02313  01860
REPLY    00132 000000E0 02431  01969
RETURN   00001 000004D8 00359  00400 00447 00457 00501 00526 00560 00654 00727 00774 00819 00890 00966 01007 01042 01113
                               01191 01236 01284
RETURNR  00001 000004E0 00361  00359
RLDCARD  00004 000015C8 02070  02057
RLDCONT  00004 000015E8 02079  02094
RLDFINI  00002 000015FC 02084  02082
RLDLOOP  00004 000015D0 02072  02086
RLDTEMP  00004 000001B4 02449  01952 02088 02089 02091 02092 02093
RREPLY   00008 000000D4 02429  01967 01983 02052
RREPLY1  00004 000000DC 02430  01966 02051
RUNNING  00004 00000270 00196  00212 00252 00412 00498 01794 01826 02124 02134
R11      00001 0000000B 02268  00098 00099 00142
R12      00001 0000000C 02269  00094 00096 00097 00142
R2       00001 00000002 02259  00095 00096 00100 00102 00111 00112 00113 00114 00115 00126 00127
R3       00001 00000003 02260  00101 00102 00106 00119
R4       00001 00000004 02261  00107 00111 00117 00117
R5       00001 00000005 02262  00104 00105 00113 00115 00116 00118 00118 00120 00121
SA       00001 00000000 02303  00217 00261 01231 01232 01234 01239 01799 01854
SAPSW    00008 00000000 02304  00218 00262 00362 01232 01232 01233 01800
SAREGS   00064 00000008 02305  00219 00263 00363 01234 01234 01801 01855
SATEMP   00012 00000048 02306  00630 00713 00799 00848 00864 00885 01146 01221 01270
SCAN     00002 000016D2 02151  01988 02000 02010
SCANLOOP 00004 000016D4 02152  02160
SEQ      00008 0000019C 02444  02005 02006 02009 02018 02125 02127 02129
SETDIM   00006 00001526 02024  02028
SHORT    00004 000015F8 02083  02080
SKIP     00008 00001708 02167  01944 02119
SM       00001 00000000 02330  00394 00442 00718
SMPTR    00004 00000004 02332  00401 00402 00448 00451
```

```
SYMBOL    LEN   VALUE   DEFN    REFERENCES
SMVAL     00004 00000000 02331  00395 00397 00443 00445 00721
SOSEXNEW  00003 000013AD 01915  01864
SOSIONEW  00003 000013A9 01913  01823
STOP      00004 00001466 01974  01970
STREAMS   00004 000011B0 01867  01837
SVCCONST  00004 00000314 00272  00246
SVCHANDL  00001 000002B2 00242  00178
SVCHPROT  00004 00000302 00266  00251
SVCHTABL  00001 00000328 00274  00248 00275 00277 00279 00281 00283 00285 00287 00289 00291 00293 00295 00297 00299 00301
                                00303 00305 00307 00309 00311 00313 00315
SVCOK     00004 000002D0 00252  00268 00270
SVCOLD    00008 00000020 00168  00247 00259 00262 00266 00362 00364
SVCRTN    00008 00000428 00317  00249 00269
SVCSAVE   00004 000004C8 00346  00258
SVCXPER   00004 000002FA 00264  00260
SYSSEM    00004 000002DE 00257  00255
SYSSEMSA  00084 0000021C 00194  00347 00415
TALK      00008 000001B8 02450  01949 01950 02109 02114
TEMPLATE  00004 00001368 01905  00816
TIMER     00004 00000050 00175  00500
TOKSTART  00002 000016F8 02161  02154 02156 02158
TRAPSAVE  00004 0000019C 00191  00207 00219 00222 00243 00263
TREAD     00004 00000164 02432  01938 01939 01940 01964 02049
TXTCARD   00004 000015AE 02062  02055
TXTMOV    00006 000015C2 02068  02066
TYPLEN    00001 00000054 01909  01842
TYPPCB    00008 00001350 01903  01842 01909
UCB       00001 00000000 02415  01339 01457 01553 01785 02422
UCBADDR   00004 00000000 02416  01401 01515
UCBCSW    00008 00000014 02419  01396 01397 01407 01409 01411 01414 01513 01514 01521 01523 01590 01591 01599 01786 01788
                                01789 01790
UCBFPR    00001 0000001C 02420  01792
UCBLENG   00001 00000020 02422  01580 01781
UCBLP1    00004 000011D4 01881  01870
UCBLP2    00004 000011DC 01882  01871
UCBLP3    00004 000011E4 01883  01872
UCBLP4    00004 000011EC 01884  01873
UCBPRT1   00004 00000ECC 01661  01881
UCBPRT2   00004 00000F0C 01675  01882
UCBPRT3   00004 00000F4C 01689  01883
UCBPRT4   00004 00000F8C 01703  01884
UCBRDR1   00004 00000EAC 01654  01881
UCBRDR2   00004 00000EEC 01668  01882
UCBRDR3   00004 00000F2C 01682  01883
UCBRDR4   00004 00000F6C 01696  01884
UCBTAB    00001 000011B4 01869  01857 01860
UCBTABLE  00004 00000EAC 01652  01577 02235
UCBTBEND  00001 000010AC 01765  01639 02236
UCBUS     00008 00000004 02417  01364 01425 01484 01508 01530 01585 01614
UCBWS     00008 0000000C 02418  01405 01437 01519 01536 01597 01791
UNAMMOV   00006 0000150A 02018  02007
UNITRTN   00004 000001A4 02445  02024 02029
USERL     00008 00000190 02442  01943 01985 02096 02098 02101
VERYEND   00008 00001828 02254  00186 01828 02230
WAITPSWD  00004 000018E8 00149  00128
```

```
SYMBOL    LEN   VALUE   DEFN    REFERENCES
WRITE    00008 00000178 02437  01944 01945 01947 01981 02115
XA       00001 00000600 00588  00330 00596 01626
XABACK   00002 000006B0 00653  00650
XACOM    00002 0000060E 00597  00591
XAFOUND  00004 00000662 00627  00619
XALOOP   00002 0000062A 00608  00622
XANF     00002 00000686 00638  00634
XARETURN 00004 0000069C 00647  00642
XATOP    00004 00000616 00601  00626
XAUTO    00001 00000608 00592  00344
XAWAIT   00002 00000656 00623  00609
XAX      00001 00000000 02341  00599 00807 01155 01345 01463 01559 01839 01931 02206
XAXADDR  00004 00000004 02343  00627 00811 01164 01347 01465 01561 01841 01933 02208
XAXALGN  00004 00000008 02344  00605 00809 01162
XAXSIZE  00004 00000000 02342  00600 00808 01161
XB       00001 00000744 00753  00329
XBINSERT 00004 00000770 00769  00761 00764
XBLOOP   00004 0000075A 00763  00768
XBX      00001 00000000 02350  00631 00714 00755
XBXADDR  00004 00000004 02352  00635 00643 00716 00757
XBXSIZE  00004 00000000 02351  00636 00644 00715 00756
XC       00001 00000780 00795  00337
XCERR    00002 000007C4 00820  00804
XCOM     00001 000005D2 00545  00328
XCOMRET  00004 000005FC 00560  00552 00554
XCX      00001 00000000 02354  00798
XCXNAME  00008 00000000 02355  00801 00814
XD       00001 000007C6 00844  00341
XDCHECK  00006 0000081A 00881  00869
XDERR    00002 00000840 00891  00855 00858
XDLOOP   00002 000007F4 00868  00880
XDTHEN   00004 0000082E 00886  00882
XDX      00001 00000000 02357  00847
XDXNAME  00008 00000000 02358  00850
XEXC     00001 000005C0 00520  00327
XF       00001 000006B6 00680  00331
XFBACKUP 00002 00000706 00709  00701
XFINC    00004 00000708 00710  00705
XFLINK   00004 00000714 00713  00695
XFLOOP   00002 000006D4 00694  00712
XFTHEN   00002 000006F0 00702  00698
XFVDO    00002 0000073E 00728  00723
XFVLOOP  00004 0000072E 00723  00729
XFX      00001 00000000 02346  00684 00875 01108
XFXADDR  00004 00000004 02348  00686 00876 00886 01109
XFXSIZE  00004 00000000 02347  00685 00877 00887 01110
XH       00001 00000842 00913  00343
XHLOOP   00004 00000848 00917  00919
XHMSG1   00008 00000854 00921  00915
XHMSG2   00008 0000086C 00924  00917
XI       00001 0000087A 00943  00332
XJ       00001 000008A6 00984  00333
XN       00001 000008CA 01029  00338
XNX      00001 00000000 02360  00800 00849 01031 01147 01222 01271
XNXADDR  00004 00000008 02362  00803 00852 01041 01150 01225 01274
```

SYMBOL LEN VALUE DEFN REFERENCES ASM 0201 18.24 01/17/16

```
XNXFOUND 00004 000008E4 01041  01037
XNXLOOP  00004 000008CC 01035  01039
XNXNAME  00008 00000000 02361  00801 00850 01036 01148 01223 01272
XP       00001 000004EE 00392  00325
XPER     00001 0000056A 00478  00220 00334 00416 00494
XPLOOP   00002 0000050A 00405  00409
XPTHEN   00006 0000051C 00412  00406
XPWAIT   00004 00000502 00401  00399
XQUE     00001 00000A8E 01310  00342
XQUELOOP 00004 00000A94 01314  01316
XQUEM1   00008 00000AA0 01318  01312
XQUEM2   00008 00000AB8 01321  01314
XR       00001 000008EC 01071  00335
XRAFT    00004 00000938 01097  01095
XRFILL   00006 0000096C 01114  01088
XRMOVE   00006 00000972 01115  01096
XRNOB    00004 0000091C 01089  01087
XRTHEN   00002 0000092E 01094  01091
XRX      00001 00000000 02364  01074 01357 01367 01474 01569 01605
XRXNAME  00008 00000000 02365  01102 01370
XRXSIZE  00004 00000008 02366  01084 01098 01358 01475 01570 01606
XRXTEXT  00001 0000000C 02367  01086 01114 01114 01115 01360 01362 01477 01478 01480 01572 01574 01575 01608 01610
XS       00001 00000978 01142  00336
XSADD    00004 000009D2 01176  01172
XSAFT    00002 000009F4 01187  01185
XSERR    00002 00000A02 01192  01152
XSLOOP   00002 000009C0 01171  01175
XSMOVE   00006 00000A04 01193  01186
XSX      00001 00000000 02369  01145
XSXNAME  00008 00000000 02370  01148
XSXSIZE  00004 00000008 02371  01157 01181
XSXTEXT  00001 0000000C 02372  01193
XV       00001 00000534 00440  00326
XVRET    00004 00000566 00457  00454
XVWAKEUP 00004 00000548 00448  00446
XY       00001 00000A0A 01217  00339
XYERR    00002 00000A40 01237  01227
XYX      00001 00000000 02374  01220
XYXADDR  00004 00000008 02376  01233
XYXNAME  00008 00000000 02375  01223
XZ       00001 00000A42 01262  00340
XZERR    00002 00000A8C 01289  01269 01276
XZFINE   00004 00000A54 01270  01267
XZINSMC  00004 00000A7E 01285  01281
XZSTOP   00004 00000A6C 01280  01288
XZX      00001 00000000 02378  01265
XZXNAME  00008 00000000 02379  01268 01272
```

```
=X'8900000020000001'
         00008 00000E58 01624  01507
=F'1'    00004 00000E60 01625  00444
=A(XA)   00004 00000E64 01626  00595
=A(0)    00004 00000E68 01627  00803 00881 01179 01396 01397 01513 01514 01590 01591
=A(LENPCB)
         00004 00000E6C 01628  00808 00887
=F'8'    00004 00000E70 01629  00809 01162 01358 01475 01606
=F'-8'   00004 00000E74 01630  00874 01106 01160
=F'2'    00004 00000E78 01631  01085 01423 01528
=C'READ' 00004 00000E7C 01632  01360
=F'80'   00004 00000E80 01633  01395
=C'PRIN' 00004 00000E84 01634  01478
=C'STC1' 00004 00000E88 01635  01480
=F'132'  00004 00000E8C 01636  01505
=F'12'   00004 00000E90 01637  01570 01600
=C'EXCP' 00004 00000E94 01638  01572
=A(UCBTBEND)
         00004 00000E98 01639  01581
=C'NO'   00002 00000E9C 01640  01416 01430 01525
=C'OK'   00002 00000E9E 01641  01422 01527 01608
=C'$JOB,'
         00005 00000EA0 01642  01420
=X'80'   00001 00000EA5 01643  01587
=C'AGAIN'
         00005 00000EA6 01644  01610
=A(0,CORESIZE-(VERYEND-PROGRAM))
         00004 000017B8 02230  01828
=CL8'*IN'
         00008 000017C0 02231  01938 02023
=CL8'USERPROG'
         00008 000017C8 02232  01943 01949
=CL8' '  00008 000017D0 02233  01978 02006 02112
=CL8'*OUT'
         00008 000017D8 02234  02027
=A(UCBTABLE)
         00004 000017E0 02235  01778
=A(UCBTBEND)
         00004 000017E4 02236  01782
=F'8'    00004 000017E8 02237  01939
=C'READ' 00004 000017EC 02238  01940
=C'PRIN' 00004 000017F0 02239  01945
=F'12'   00004 000017F4 02240  01950
=F'1'    00004 000017F8 02241  01951
=A(0)    00004 000017FC 02242  01952
=F'132'  00004 00001800 02243  01966 02051
=C'OUT ' 00004 00001804 02244  02020
=A(DIM)  00004 00001808 02245  02024
=A(EXCPHNDL)
         00004 0000180C 02246  02029
=C'OK'   00002 00001810 02247  01969
=C'$JOB,'
         00005 00001812 02248  01971
=C'IN '  00003 00001817 02249  02019
=C'EXCP '
```

SYMBOL LEN VALUE DEFN REFERENCES ASM 0201 18.24 01/17/16

```
        00005 0000181A 02250  02021
=C'TXT' 00003 0000181F 02251  02054
=C'RLD' 00003 00001822 02252  02056
=C'END' 00003 00001825 02253  02058
```

```
NO STATEMENTS FLAGGED IN THIS ASSEMBLY
HIGHEST SEVERITY WAS    0
OPTIONS FOR THIS ASSEMBLY
  ALIGN, ALOGIC, BUFSIZE(STD), NODECK, ESD, FLAG(0), LINECOUNT(55), LIST, NOMCALL, YFLAG, WORKSIZE(2097152)
  NOMLOGIC, NONUMBER, OBJECT, NORENT, RLD, NOSTMT, NOLIBMAC, NOTERMINAL, NOTEST, XREF(SHORT)
  SYSPARM()
WORK FILE BUFFER SIZE/NUMBER =19066/ 1
TOTAL RECORDS READ FROM SYSTEM INPUT       2423
TOTAL RECORDS READ FROM SYSTEM LIBRARY        0
TOTAL RECORDS PUNCHED                       144
TOTAL RECORDS PRINTED                      3084
```

```
     GENERATE MAXFLDS=2,MAXLITS=8,MAXGPS=2
     RECORD IDENT=(3,'RLD',2),FIELD=(3,'TXT',,)
     RECORD IDENT=(3,'END',2),FIELD=(3,'END',,)

PROCESSING ENDED AT LAST REC ID
```

```
IDCAMS  SYSTEM SERVICES                                    TIME: 18:24:33        01/17/16     PAGE   1

 REPRO INFILE(OO) OUTFILE(CO) COUNT(138)
IDC0005I NUMBER OF RECORDS PROCESSED WAS 138
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

 REPRO INFILE(OO) OUTFILE(CO) COUNT(1) SKIP(143)
IDC0005I NUMBER OF RECORDS PROCESSED WAS 1
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

IDC0002I IDCAMS PROCESSING COMPLETE. MAXIMUM CONDITION CODE WAS 0
```

```
 F64-LEVEL LINKAGE EDITOR OPTIONS SPECIFIED MAP,XREF,LIST
          DEFAULT OPTION(S) USED -  SIZE=(231424,55296)
IEW0000     INCLUDE OBJ
IEW0000     NAME IPLMOD(R)



                                          CROSS REFERENCE TABLE


  CONTROL SECTION                       ENTRY

    NAME    ORIGIN  LENGTH                NAME   LOCATION     NAME   LOCATION     NAME   LOCATION     NAME   LOCATION
  IPLCARD       00      50
  CARDLDR       50      A0
  PROGRAM       F0    1860


 ENTRY ADDRESS       00

 TOTAL LENGTH      1950
****IPLMOD    DOES NOT EXIST BUT HAS BEEN ADDED TO DATA SET
AUTHORIZATION CODE IS         0.
```

```
 REPRO INFILE(LOAD) OUTFILE(IPLDECK) COUNT(1) SKIP(5)
IDC0005I NUMBER OF RECORDS PROCESSED WAS 1
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

IDC0002I IDCAMS PROCESSING COMPLETE. MAXIMUM CONDITION CODE WAS 0
```

```
 CDSCB HERC01.SOS15352.IPLDECK LRECL(80)
CHANGED
END
```

DATA SET UTILITY - GENERATE PAGE 0001

IEB352I WARNING : OUTPUT RECFM/LRECL/BLKSIZE COPIED FROM INPUT

PROCESSING ENDED AT EOD

```
                              SSSSSSSSSS   OOOOOOOOOOOO   SSSSSSSSSS   MM        MM   AAAAAAAAAA   KK        KK  EEEEEEEEEEEE
                            SSSSSSSSSSSS  OOOOOOOOOOOO  SSSSSSSSSSSS  MMM      MMM  AAAAAAAAAAAA  KK       KK   EEEEEEEEEEEE
                           SS        SS  OO        OO  SS        SS  MMMM    MMMM  AA        AA  KK      KK    EE
                          SS            OO        OO  SS            MM MM  MM MM  AA        AA  KK     KK     EE
                          SSS          OO        OO  SSS          MM  MMMM  MM  AA        AA  KK    KK      EE
                          SSSSSSSSS    OO        OO   SSSSSSSSS    MM   MM   MM  AAAAAAAAAAAA  KKKKKKK       EEEEEEEE
                          SSSSSSSSS   OO        OO    SSSSSSSSS   MM        MM  AAAAAAAAAAAA  KKKKKKK       EEEEEEEE
                                SSS  OO        OO           SSS  MM        MM  AA        AA  KK     KK      EE
                                SS  OO        OO           SS  MM        MM  AA        AA  KK     KK      EE
                     SS         SS  OO        OO  SS         SS  MM        MM  AA        AA  KK       KK    EE
                    SSSSSSSSSSSS  OOOOOOOOOOOO  SSSSSSSSSSSS  MM        MM  AA        AA  KK       KK   EEEEEEEEEEEE
                    SSSSSSSSSS   OOOOOOOOOOOO   SSSSSSSSSS   MM        MM  AA        AA  KK        KK  EEEEEEEEEEEE


                          JJJJJJJJJJ      11        00000000                                          AAAAAAAAAA
                          JJJJJJJJJJ     111       0000000000                                        AAAAAAAAAAAA
                              JJ        1111      00      0000                                        AA        AA
                              JJ          11      00     00 00                                        AA        AA
                              JJ          11      00    00  00                                        AA        AA
                              JJ          11      00   00   00                                        AAAAAAAAAAAA
                              JJ          11      00  00    00                                        AAAAAAAAAAAA
                              JJ          11      00 00     00                                        AA        AA
                        JJ    JJ          11      0000      00                                        AA        AA
                        JJ    JJ          11      000       00                                        AA        AA
                        JJJJJJJJ      1111111111   0000000000                                         AA        AA
                         JJJJJJ       1111111111    00000000                                          AA        AA

****A   END   JOB   10  SOSMAKE   Juergen Winkelmann    ROOM        6.24.33 PM 17 JAN 16  PRINTER1  SYS TK4-  JOB   10   END   A****
****A   END   JOB   10  SOSMAKE   Juergen Winkelmann    ROOM        6.24.33 PM 17 JAN 16  PRINTER1  SYS TK4-  JOB   10   END   A****
****A   END   JOB   10  SOSMAKE   Juergen Winkelmann    ROOM        6.24.33 PM 17 JAN 16  PRINTER1  SYS TK4-  JOB   10   END   A****
****A   END   JOB   10  SOSMAKE   Juergen Winkelmann    ROOM        6.24.33 PM 17 JAN 16  PRINTER1  SYS TK4-  JOB   10   END   A****
```