BELL TELEPHONE LABORATORIES, INCORPORATED

6-152

COMMON SYSTEMS
FOR USE WITH NO. 3 ESS
ARRANGED WITH 2-WIRE FEATURES
COMMON INITIALIZATION
(CINIT)

ISSUE 4
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SPCS

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SECTION DICTIONARY

NUMBER	NAME	MAXIMUM	ORIGIN	TYP	ADDRESS-MODIFICATION
01	CINIT	0002352		C	
02	CPATCH	0000601		C	
03	CPATCH1	0000344		C	
04	CPATCH2	0000664		C	
05	CPATCH3	0000000		C	
06	CPATCH7	0000000		C	
07	TPATCH	0000000		C	

```
                 DBNAM  NO33E3I3.OFF.DATABASE
                 RELNAM  NO3ESS
                 GETLIB  LIBRARY,MEMBER=MOPTBL
                 GETLIB  LIBRARY,MEMBER=SYSMAC
                 GETLIB  LIBRARY,MEMBER=SYSSYM
                 GETLIB  LIBRARY,MEMBER=PATCH2
0004730          FIRSTOPTSS
0004730          VERSION 3ACC,FIELD,ESS2E
0004730          PATCHINIT
          NO33E3I3.OFF.OPMS(O) DECK
                 DSQUAL  NO33E3I3
                 LISTING N,CRUNCH=Y,SYSOUT=N
          #################
          ##
          ## UNIX ID = NO3PAG
          ##
          #################
          ##############################################
          ###
          ####  pid  date      time   rel
          ###
          #### cinit 1/20/81 20:11:18 7.1.1.1
          ###
          ##############################################
                 VERSIONS (LAB,FACTORY,FIELD),(3ACC,INTERDATA),(ESS3,ESS2B)
                 NAME    CINIT


          ## The following is a list of the valid csects for program CINIT

0004730   CINIT  CSECT

          ## The following csects are necessary for patching

0111432   CPATCH CSECT
0112562   CPATCH1 CSECT
0114107   CPATCH2 CSECT
0115073   CPATCH3 CSECT
0121236   CPATCH7 CSECT

0600000   TPATCH CSECT
```

```
01        GETLIB  MEMBER=BSAIMAC
02        GETLIB  MEMBER=CCSYM
03        GETLIB  MEMBER=CTVTAB
04        GETLIB  MEMBER=GPMAC
05        GETLIB  MEMBER=SPMAC
06        GETLIB  MEMBER=TTYMAC
07        GETLIB  MEMBER=TTYSYM
08 TOPTTL TEXT    '3A-CC COMMON SYSTEM INTERFACES'
09 BOTTTL TEXT    'X-74292 THRU X-74298          IV-C MAY,1973'
10 PRINT  MEMOINIT DELETE=NO
```

```
01  * AN INITIALIZATION IS ANY HARDWARE, SOFTWARE, OR MANUALLY INITIATED
02  * EXECUTION OF THE CINIT PROGRAM.  THE STIMULUS IS THE FAILURE OF A CHECK
03  * THAT INDICATES THE INTEGRITY OF THE PROGRAMMING SYSTEM AND/OR ITS DATA
04  * BASE IS QUESTIONABLE.  AN INITIALIZATION CONSISTS OF:
05  *      -RESTORING THE CU TO A KNOWN GOOD STATE
06  *      -RESTORING THE PERIPHERY TO A KNOWN GOOD STATE
07  *      -ABORTING CERTAIN ACTIVITIES
08  *      -ZEROING OR OTHERWISE INITIALIZING TEMPORARY DATA
09  *      -RELOADING THE PROGRAMS FROM TAPE
10  * NOT ALL OF THE ABOVE ARE PERFORMED ON EVERY INITIALIZATION.
11  * AN INITIALIZATION CAN BE MORE OR LESS DRASTIC DEPENDING ON WHICH,
12  * AND TO WHAT EXTENT, THE ABOVE ROUTINES ARE INVOKED.  FOR EXAMPLE,
13  * A GIVEN INITIALIZATION MAY ZERO NONE, SOME, OR ALL OF TEMPORARY STORE.
14  * IN GENERAL, THE SYSTEM REACTION BECOMES MORE DRASTIC EACH TIME A
15  * PREVIOUS RECOVERY ATTEMPT FAILS.  THE ESCALATION IS ENCODED IN THE
16  * 'LEVEL NUMBER' WHICH IS INCREMENTED ON EACH FAILURE.  THE HIGHER THE
17  * LEVEL NUMBER, THE MORE DRASTIC SHOULD BE THE RESPONSE.
18  *
19  * THE FIRST AND MAIN SECTION OF CINIT CONTAINS THE CODE
20  * NECESSARY TO PERFORM THE COMMON SYSTEM PORTION OF A COMPLETE SYSTEM
21  * INITIALIZATION. THE REMAINING SECTIONS CONTAIN ROUTINES OR SUBROUTINES WHICH
22  * ARE USED PRIMARILY BY THE INITIALIZATION SECTION OR WHICH HANDLE CC ORIENTED
23  * INTERRUPTS.
24  * THE INTERRUPT ROUTINES BEAR NO DIRECT RELATION TO THE INITIALIZATION ROUTINE
25  * ALTHOUGH THEY SHARE SOME SUBROUTINES. EACH SECTION BEGINS WITH A NARRATIVE
26  * DESCRIPTION OF THE SECTION AND SHOULD BE CONSULTED FOR DETAILS.
```

```
01        COLS    SAVE,(8,16,36,108)
02        PUBLIC  AD1TODB
03        PUBLIC  AD1TODB_
04        PUBLIC  BOOTRTN
05        PUBLIC  CLPTF
06        PUBLIC  ERR_INT
07        PUBLIC  ERRPRTCK
08        PUBLIC  INITAER
09        PUBLIC  INITAMR
10        PUBLIC  INITAFR
11        PUBLIC  INITBOOT
12        PUBLIC  INITPROG
13        PUBLIC  INITTSTC
14        PUBLIC  LDDB15_0
15        PUBLIC  INITL
16        PUBLIC  MCH_INT
17        PUBLIC  MCHUPENT
18        PUBLIC  MCHUPLEN
19        PUBLIC  OFL_HG
20        PUBLIC  OFL_IM
21        PUBLIC  OMASTEST
22        PUBLIC  OPPOSTMO
23        PUBLIC  OSANITY
24        PUBLIC  OSANUCL
25        PUBLIC  PIM
26        PUBLIC  SANITY
27        PUBLIC  SANITYC
28        PUBLIC  SANITYDG
29        PUBLIC  SWCCACHK
30        PUBLIC  SWCCUCL
31        PUBLIC  SWCCUPD
32        PUBLIC  SWCU
33        PUBLIC  SWINIT
34        PUBLIC  SWITCHCC
35        PUBLIC  SWSYC
36        PUBLIC  UPDXSW
37        PUBLIC  Z_CRITTS



43 # THE FOLLOWING SYMBOLS REFER TO DATA IN THE POST MORTEM LAYOUT
44        PUBLIC  PAPPL
45        PUBLIC  PHG
46        PUBLIC  PIS
47        PUBLIC  PR13
48        PUBLIC  PMISC
49 # THE FOLLOWING SYMBOLS ARE PART OF PMISC
```

PUBLIC SYMBOLS


```
01        PUBLIC  BOOT
02        PUBLIC  ICC
03        PUBLIC  ILEVEL
04        PUBLIC  ILON
05        PUBLIC  JAMSTB
06        PUBLIC  MAN_INIT
07        PUBLIC  NOSTACC
08        PUBLIC  OODST
09        PUBLIC  RELOAD
10        PUBLIC  RLDXLATE
```

```
01 # APPLICATION LINKAGES TO BLMMA,INITA,TDATA,TTYARP, AND  TTYTBL APPEAR FIRST

03 LAYOUT EXTERN  HGAREA

05 BLMMA  EXTERN  ASWBEGIN          # APPLICATION SWITCH BEGIN (SUBR)
06 BLMMA  EXTERN  ASWCHK            # APPLICATION SWITCH CHECK (SUBR)
07 BLMMA  EXTERN  ASWCOMPL          # APPLICATION SWITCH COMPLETE (SUBR)
08 BLMMA  EXTERN  MSFOFL            # MSFS THAT AFFECT OFF-LINE CU (SYMBOL)

10 INITA  EXTERN  INITAE            # EARLY INITIALIZATION (COROUTINE)
11 INITA  EXTERN  INITAM            # MIDDLE INITIALIZATION (COROUTINE)
12 INITA  EXTERN  INITAF            # FINAL INITIALIZATION (COROUTINE)

14 MASACS EXTERN  TRBLMSG

16 TDATA  EXTERN  EQIOCHAN          # DEFINITION OF EQUIPPED IO CHANNELS (TABLE)
17 TDATA  EXTERN  STRLIM            # ADDRESS OF HIGHEST EQUIPPED MAS ADDRESS (TABLE)
18 TDATA  EXTERN  WDSTR

20 TTYAPP EXTERN  ITTYFLG
21 TTYAPP EXTERN  LINKRDY           # CHECK IF LAST TTY OUTPUT MESSAGE LINK IS DONE (SUBR)

23 TTYTBL EXTERN  TTY_IP            # TTY INPUT MESSAGE RESPONSE (SYMBOL)
24 TTYTBL EXTERN  TTY_OK            # TTY INPUT MESSAGE RESPONSE (SYMBOL)
25 TTYTBL EXTERN  TTY_PF            # TTY INPUT MESSAGE RESPONSE (SYMBOL)
26 TTYTBL EXTERN  TTY_RL            # TTY INPUT MESSAGE RESPONSE (SYMBOL)
27 TTYTBL EXTERN  UCL               # UNCONDITIONAL ACTION OPTION FLAG (SYMBOL)

29 MASACS EXTERN  AUMASBLK
30 MASACS EXTERN  MAS_ZERO
31 MASACS EXTERN  MASCIOSC          # TABLE OF IO SUBCHANNELS FOR MAS




37 CBLM   EXTERN  CHGSSP
38 CBLM   EXTERN  CK_OST
39 CBLM   EXTERN  COROFL
40 CBLM   EXTERN  CORONL
41 CBLM   EXTERN  DGNUPD
42 CBLM   EXTERN  EM_ACT
43 CBLM   EXTERN  INITQ_IP
44 CBLM   EXTERN  INTMAX
45 CBLM   EXTERN  MASID
46 CBLM   EXTERN  MAS_OOS
47 CBLM   EXTERN  MONSEQ
48 CBLM   EXTERN  MSFABT
49 CBLM   EXTERN  MSFREQN
```

EXTERNAL SYMBOLS 0:17:53 2/06/81 ****

CINIT W77D

```
01 CBLM   EXTERN  OFL_OOS
02 CBLM   EXTERN  OFL_STBY
03 CBLM   EXTERN  ONL_CC
04 CBLM   EXTERN  OSA_FALT
05 CBLM   EXTERN  OSM_OFL
06 CBLM   EXTERN  QOFLCC
07 CBLM   EXTERN  REQ_UPD
08 CBLM   EXTERN  RESFTPT
09 CBLM   EXTERN  RMV_CC
10 CBLM   EXTERN  RMV_MAS
11 CBLM   EXTERN  RST_IP
12 CBLM   EXTERN  SSP_OOS
13 CBLM   EXTERN  SSPCBO
14 CBLM   EXTERN  SSPCBOI
15 CBLM   EXTERN  SSPCB1
16 CBLM   EXTERN  SSPCB1I
17 CBLM   EXTERN  SSPDBM
18 CBLM   EXTERN  SSPDBL
19 CBLM   EXTERN  SSPIOADR
20 CBLM   EXTERN  SW_IP
21 CBLM   EXTERN  UCOROFL
22 CBLM   EXTERN  UCORONL
23 CBLM   EXTERN  UPDCKEYS
24 CBLM   EXTERN  UPDSTATZ



30 CIPL   EXTERN  BOOTLOAD



36 CSYSUB EXTERN  BCDXBIN
37 CSYSUB EXTERN  EXCMCH
38 CSYSUB EXTERN  EXCOFLMG
39 CSYSUB EXTERN  EXCOFLPG
40 CSYSUB EXTERN  GET_OTS
41 CSYSUB EXTERN  INIT_OCC
42 CSYSUB EXTERN  INITOST
43 CSYSUB EXTERN  INITST
44 CSYSUB EXTERN  INITSTH
45 CSYSUB EXTERN  INTBEGIN
46 CSYSUB EXTERN  INTBGNX
47 CSYSUB EXTERN  INTEND
48 CSYSUB EXTERN  L2_13
49 CSYSUB EXTERN  MOVST
```

```
01 CSYSUB EXTERN  REPT_ERR
02 CSYSUB EXTERN  RGCHKADR
03 CSYSUB EXTERN  RGCHK32
04 CSYSUB EXTERN  SIO
05 CSYSUB EXTERN  SENDIO
06 CSYSUB EXTERN  SENDMIO
07 CSYSUB EXTERN  SENDMIOS
08 CSYSUB EXTERN  STPSTUPD
09 CSYSUB EXTERN  UPD_OTS
10 CSYSUB EXTERN  WPST
11 CSYSUB EXTERN  WPOST
12 CSYSUB EXTERN  ZERO_TS



18 CTSD   EXTERN  AUMASCTL
19 CTSD   EXTERN  CCLRTBL
20 CTSD   EXTERN  CCOLOOPS
21 CTSD   EXTERN  CCKTSTAT
22 CTSD   EXTERN  ERPRTCTL
23 CTSD   EXTERN  IM_IMAGE
24 CTSD   EXTERN  INITQCD      # USED TO COUNT DOWN THE INITIALIZATION INTERVAL
25 CTSD   EXTERN  INITLVL
26 CTSD   EXTERN  INITTST1
27 CTSD   EXTERN  INITTST2
28 CTSD   EXTERN  INTCNT
29 CTSD   EXTERN  IOPARSAV
30 CTSD   EXTERN  L6CLR
31 CTSD   EXTERN  L7CLR
32 CTSD   EXTERN  MASTATE
33 CTSD   EXTERN  MCHFCN
34 CTSD   EXTERN  MINUTES
35 CTSD   EXTERN  POSTMORT
36 CTSD   EXTERN  SAVSER
37 CTSD   EXTERN  SYSTATE

40 CUTIL  EXTERN  FIXDMPST
41 CUTIL  EXTERN  IDMPCHK

44 CTTYT  EXTERN  TTYINIT
```

```
01 TTYTBL EXTERN  TTY_NG
```

```
01 EQIOCHANR EQUR R0
```

```
                01      COLS    RESTORE
                        0121334         02 INITTSTC EQU   41692          # THIS CONSTANT WHEN LOADED IN BOTH WORDS
0600000                                 03                               # INITTST1 AND INITTST2 FLAGS CINIT THAT
                                                                           THIS IS A TEST
0600000                                 05                               # 41692 IS AN ARBITRARY NUMBER.
                        0000001         06 CLRLVL EQU     1
                        7757577         07 OFL_IM EQU     ¬ES(MANI,OCCI)  # BLOCK ALL INTERRUPTS IN THE OFFLINE CC
                                                                           EXCEPT FOR PANEL & ONLINE CC
                        0000160         09 OFL_HG EQU     7*16           # OFFLINE HG IS SET LOW TO AVOID INTERFERING
                                                                           WITH ONLINE VALUE DURING A CC SWITCH
                        0000000         11 CIPLTRK EQU    0
                        0000023         12 S(CIPLTRK) EQU 19             # TRACK BIT USED BY MICRO-CODE FOR 2ND BOOT
                                                                           ATTEMPT
                        0000013         14 FORCE  EQUR    11
                        0000011         15 S(FORCE) EQU   D(9)
                        0000013         16 SELCU1 EQUR    11
                        0000003         17 S(SELCU1) EQU  D(3)
                        0000013         18 SELCU0 EQUR    11
                        0000002         19 S(SELCU0) EQU  D(2)
                        0000007         20 S(TMRSW) EQU   7
```

```
01 POSTMORT LAYOUT 24,CLASS=FLTBLK    # DATA AT TIME OF INITIALIZATION
02 ILEVEL ITEM    3                   # OLD LEVEL NUMBER
03 RCYCLVL ITEM   1                   # LEVEL COUNT RECYCLED TO ZERO
04 PSECONDS ITEM  6                   # CONTENTS OF SECONDS
05 PMINUTES ITEM  6                   # CONTENTS OF MINUTES
06 PAPPL  ITEM    16                  # APPLICATION ORIENTED DATA
07 PSYSTATE ITEM  16                  # CONTENTS OF SYSTATE
08 PMISC  ITEM    16                  # SEE LAYOUT BELOW
09 PTI    ITEM    16                  # CONTENTS OF TI-SEE LAYOUT BELOW
10 PIS    ITEM    16                  # CONTENTS OF IS
11 PPA    ITEM    ADDR                # CONTENTS OF PA
12 PR8    ITEM    16                  # CONTENTS OF R8
13 PR9    ITEM    16                  # CONTENTS OF R9
14 PR10   ITEM    16                  # CONTENTS OF R10
15 PR11   ITEM    16                  # CONTENTS OF R11
16 PSPARE ITEM    16                  # SPARE
17 PIM    ITEM    16                  # CONTENTS OF IM
18 PDB    ITEM    ADDR                # CONTENTS OF DB = PA AT LAST B IF DISP=1
19 PR12   ITEM    16                  # CONTENTS OF R12
20 PR13   ITEM    16                  # CONTENTS OF R13
21 PR14   ITEM    16                  # CONTENTS OF R14
22 PR15   ITEM    16                  # CONTENTS OF R15
23 PHG    ITEM    16                  # CONTENTS OF HG
24 PSPARF ITEM    16                  # SPARE
25 PSS    ITEM    ADDR                # CONTENTS OF SS
26 PHGRETURN ITEM ADDR                # RETURN ADDR OF THE CURR HG SLOT
27 PHGRETURN+16 ITEM ADDR             # RETURN ADDR OF THE CURR HG SLOT +16
28 PHGRETURN+32 ITEM ADDR             # RETURN ADDR OF THE CURR HG SLOT +32
29 PER    ITEM    ADDR                # CONTENTS OF THE ERROR REGISTER
30        LOEND
```

CONSTANT DEFINITIONS 0:17:53 2/06/81 ****

CINIT W77D

POSIMORT -003- 01 #

00	PMINUTES CONTENTS OF MINUTES	PSECONDS CONTENTS OF SECONDS	TRCYCLVL	ILEVEL OLD LEVEL NUMBER
01	PAPPL APPLICATION ORIENTED DATA			
02	PSYSTATE CONTENTS OF SYSTATE			
03	PMISC SEE LAYOUT BELOW			
04	PTI CONTENTS OF TI-SEE LAYOUT BELOW			
05	PIS CONTENTS OF IS			
06	**********			PPA CONTENTS OF PA
07				
08	PR8 CONTENTS OF R8			
09	PR9 CONTENTS OF R9			
10	PR10 CONTENTS OF R10			
11	PR11 CONTENTS OF R11			
12	PSPARE SPARE			
13	PIM CONTENTS OF IM			
14	**********			PDB
15				
16	PR12 CONTENTS OF R12			
17	PR13 CONTENTS OF R13			
18	PR14 CONTENTS OF R14			
19	PR15 CONTENTS OF R15			
20	PHG CONTENTS OF HG			
21	PSPARF SPARE			
22	**********			PSS CONTENTS OF SS
23				

```
                                                                                           CINIT          W77D
24 |-------------------------------------------------------------------------------------|     PHGRETURN        |
   |*************************************************************************************|----------------------|
25 |                                                                                                            |
   |-------------------------------------------------------------------------------------|   PHGRETURN+16       |
26 |*************************************************************************************|----------------------|
27 |                                                                                                            |
   |-------------------------------------------------------------------------------------|   PHGRETURN+32       |
28 |*************************************************************************************|----------------------|
29 |                                                                                                            |
   |-------------------------------------------------------------------------------------|        PER           |
30 |*************************************************************************************| CONTENTS OF THE ERROR REGISTER|
31 |                                                                                                            |
   |  15  |  14  |  13  |  12  |  11  |  10  |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |

                        -002- 28 #      ******************************
                        -002- 29 #      BLOCK SIZE HAS BEEN EXCEEDED
                        -002- 30 #      ******************************


                              36 TI       LAYOUT
                              37 TC       ITEM    8                 #TIMING COUNTER
                              38 25CTR    ITEM    6                 #25MS COUNTER
                              39 1ST_TO   ITEM    1                 #FIRST CC TIMEOUT
0600000                       40                                    #WHEN SET BY OVERFLOW FROM 25CTR, THIS BIT
                                                                      CAUSES ONLINE CC TO STOP & SWITCH
0600000                       42                                    #CAUSES OFFLINE CC TO INITIALIZE
                              43 2ND_TO   ITEM    1                 #SECOND CC TIMEOUT
0600000                       44                                    #WHEN SET BY OVERFLOW FROM 1ST_TO/25CTR,
                                                                      THIS BIT CAUSES CC TO INITIALIZED INDEPENDE
                                                                     NT OF ON-OFF STATUS
                              47          LOEND
TI                      -003- 48 #
00 |2ND_TO |1ST_TO |            25CTR                 |                    TC                              |
   |       |       |        25MS COUNTER              |              TIMING COUNTER                        |
   |  15   |  14   |  13  |  12  |  11  |  10  |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |
```

```
                                01 R5     LAYOUT                  # PMISC IMAGE FROM POSTMORTEM
                                02 ICC    ITEM    1               # OLD CC
                                03 IMCHI  ITEM    1               # HISTORY FLAG IN MCH
0600000                         04                                # FLAG SAYS MCH CAUSED INIT
                                05 I1ST   ITEM    1               # 1-ST TIMEOUT BIT,TI(14)
                                06 I2ND   ITEM    1               # 2-ND TIMEOUT BIT,TI(15)
                                07 ILON   ITEM    1               # LOCK ON-LINE BIT
                                08 BOOT   ITEM    1               # BOOT=1==>BOOTSTRAP(IPL) TOOK PLACE
                                09 OODST  ITEM    1               # MAS WAS INITIALLY OUT-OF-DATE
0600000                         10                                # IF NOSTACC=1 IT IS STILL OUT-OF-DATE
                                11 NOSTACC ITEM   1               # NO ACCESS TO OTHER STORE, CANNOT MOVE
                                                                    MEMORY ACROSS
                                13 ICC1   ITEM    1               # IDENTITY OF THE CC WHICH IS INITIALIZING
                                14 NOMCH  ITEM    1               # IF NOMCH=1, THE MCH FAILED WHILE ATTEMPTIN
                                                                    G TO RETRIEVE OFF-LINE REGISTERS FOR
                                                                    POST-MORTEM
                                17 BADST  ITEM    1               # NO ACCESS TO OTHER STORE
                                18 RLDXLATE ITEM  1               # SOME PORTION OF TRANSLATION HAS BEEN
                                                                    RELOADED DURING BOOTSTRAP
                             -002- 20 #*#*#*#*#*#*# RLDXLATE WILL APPEAR AS RLDXLAT IN PICTURES
                                21        ITEM    1               # SPARE
                                22 JAMSTB ITEM    1               # IF JAMSTB=1 A STABLE CLEAR IS JAMED
                                23 RELOAD ITEM    1               # REQUEST TO BOOTSTRAP FROM SSP


                                27 ### PROGRAM ASSUMES RELOAD AND MAN_INIT IN BITS 14 & 15 CORRESPONDING TO THEIR
                                     POSITION IN THE SSP BUFFER.


                                32 MAN_INIT ITEM  1               # INIT WAS FROM SSP
                             -002- 33 #*#*#*#*#*#*# MAN_INIT WILL APPEAR AS MAN_INI IN PICTURES
                                34        LOEND
R5                           -003- 35 #
00 MAN_INI RELOAD JAMSTB  SPARE  RLDXLAT BADST  NOMCH  ICC1  NOSTACC OODST  BOOT  ILON  I2ND  I1ST  IMCHI  ICC
                                                                                                    OLD CC
    15     14     13      12      11     10     9     8     7      6     5     4     3     2     1     0


                                46 EQIOCHANR LAYOUT 2             # IMAGE OF HEADER WORD AND ONE ENTRY
                                47 NCHN   ITEM    5               # NUMBER OF IO CHANNELS
                                48 NSTCHN ITEM    5               # NUMBER OF STANDARD CHANNELS
                                49        LOSKIP
                                50 IOCHAN ITEM    5               #NUMBER OF CHANNEL
                                51        ITEM    4               #SPARE
```

```
                              01 IOSP   ITEM    1               #SPECIAL IO CHANNEL (NOT SERIAL)
                              02 IO3%6  ITEM    6               #3-OUT-OF-6 CODE TO ADDRESS CHANNEL
                              03        LOEND
EQIOCHANR___________________-003- 04 #________________________________________________________________
00 |                              |              NSTCHN                 |              NCHN               |
   |                              |     NUMBER OF STANDARD CHANNELS     |      NUMBER OF IO CHANNELS      |
01 |            IO3%6             | IOSP |                              |             IOCHAN              |
   |  3-OUT-OF-6 CODE TO ADDRESS CHANNEL |             SPARE            |        NUMBER OF CHANNEL        |
   | 15 | 14 | 13 | 12 | 11 | 10 |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |


                              18 IOPARSAV LAYOUT 2              # BLOCK USED BY ERROR INTERRUPT
                              19 IOPAR  ITEM    1               # FLAG INDICATES IO BAD PARITY INTERRUPT
                                                                  OCCURRED
                              21 IOPDATA ITEM   16              # DATA CONSTANT RETURNED (WITH PARITY
                                                                  CORRECTED)
                              23        LOEND
IOPARSAV____________________-003- 24 #_________________________________________________________________
00 |                                                                                          | IOPAR |
   |******************************************************************************************|       |
01 |                                      IOPDATA                                                      |
   |                      DATA CONSTANT RETURNED (WITH PARITY CORRECTED)                              |
   | 15 | 14 | 13 | 12 | 11 | 10 |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |


                              38 MCHFCN LAYOUT  2               # FUNCTION REQUEST FOR OCC INTERRUPT
                              39 FCN    ITEM    2               #FCN CODE OF MESSAGE
                              40        ITEM    2               ## RESERVE FOR EXPANSION OF FCN
                              41 #      0--INIT MESSAGE RECEIVED BY ON-LINE CC
                              42 #      1--STOP
                              43 #      2--COMPLETE NORMAL SWITCH
                              44 #      3--ZERO PROGRAM TIMER(PT)
                              45        ITEM    16              # DATA FOR REQUESTED FCN (IF REQUIRED)
                              46        LOEND
MCHFCN______________________-003- 47 #_________________________________________________________________
00 |                                                                        |           |     FCN     |
   |************************************************************************|           |             |
01 |                                                                                                   |
   |                        DATA FOR REQUESTED FCN (IF REQUIRED)                                      |
   | 15 | 14 | 13 | 12 | 11 | 10 |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |
```

```
                                  01 INITLVL LAYOUT 1,CLASS=FLTBLK
                                  02 INITL   ITEM    4                # INITIALIZATION LEVEL
                                  03 RECYCLE ITEM    1                # COUNT HAS RECYCLED
                                  04         ITEM    11               # SPARE
                                  05         LOEND
INITLVL-----------------------------003- 06 #
00 |-----------------------------------------------------------------------------------------------|
   |                                                              |RECYCLE|          INITL          |
   |----------------------------------SPARE-----------------------|-------|---INITIALIZATION LEVEL--|
   |  15  |  14  |  13  |  12  |  11  |  10  |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |

                      0000000     15 INITF   EQU    0             # INITIALIZATION FUNCTION
                      0000001     16 STOPF   EQU    1             # STOP CC FUNCTION
                      0000002     17 SWCCF   EQU    2             # SWITCH CC COMPLETE FUNCTION
                      0000003     18 CLPTF   EQU    3             # ZERO PT FUNCTION
```

```
0004730                                  01 CINIT  CSECT
0004730                                  02 REGTBL
0004730 01 000000 111613 ------          03        VFD     8,TI%F 8,IS%F
                                         04 CINIT  OW      0(1)                # 3E790441
                                -001-    05        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000001 **********

0004731 01 000001 113000 ------          08        VFD     8,PA%F 8,0          # (8,0) SLOT IS NOT USED
0004732 01 000002 063151 ------          09        VFD     8,R8%F 8,R9%F
0004733 01 000003 065154 ------          10        VFD     8,R10%F 8,R11%F
0004734 01 000004 031607 ------          11        VFD     8,CR%F 8,IM%F
0004735 01 000005 124400 ------          12        VFD     8,DB%F 8,0          # (8,0) SLOT IS NOT USED
0004736 01 000006 043513 ------          13        VFD     8,R12%F 8,R13%F
0004737 01 000007 046516 ------          14        VFD     8,R14%F 8,R15%F
0004740 01 000010 032625 ------          15        VFD     8,HG%F 8,SAR%F
0004741 01 000011 107000 ------          16        VFD     8,SS%F 8,0          # (8,0) SLOT IS NOT USED
0004742                                  17        EOW                         # 3E790441
                                -001-    18        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000011 *********
                                                           *

0004742 01 000012 125252 ------          22        VFD     8,ER%F 8,ER%F
                          0000023        23 TBLSIZ(REGTBL) EQU *-REGTBL



                                         29 # DEFINE THE CURRENT POST-MORTEM SLOT FOR USE BY
                                         30 # SUBROUTINE UPD_OTS.
0004743                                  31 CURPMS
0004743 01 000013 000002 ------          32        DATA    TBLSIZ(CURPMS)
0004744 01 000014 001760 043352 CTSD     33        ADDR    POSTMORT,TBLSIZ(POSTMORT)-1
0004746 01 000016 000000 043026 CTSD     34 SYSTATEX ADDR  SYSTATE,0
                          0000002        35 TBLSIZ(CURPMS) EQU (*-CURPMS-1)/2

0004750 01 000020 000000 043351 CTSD     37 MASTATEX ADDR  MASTATE
0004752 01 000022 000000 043000 CTSD     38 INITTST1X ADDR INITTST1
0004754 01 000024 000000 043350 CTSD     39 INITTST2X ADDR INITTST2
0004756 01 000026 000000 043025 CTSD     40 INITLVLX ADDR  INITLVL
```

```
01  * THE SYSTEM INITIALIZATION SECTION IS FUNCTIONALLY SPLIT INTO THREE SECTIONS.
02  * --CENTRAL CONTROL INITIALIZATION
03  * --IO AND MEMORY CONTENTS INITIALIZATION
04  * --ADMINISTRATION
05  * AFTER EACH OF THESE SECTIONS AN ENTRY IS MADE TO THE APPLICATION
06  * INITIALIZATION PROGRAM TO ALLOW IT TO PERFORM WORK.
07  *
08  * CENTRAL CONTROL INITIALIZATION
09  *
10  * THE INITIALIZATION PROCEEDS IN A SERIES OF STEPS.
11  * 1.  THE STATE OF THE CC IS SAVED IN THE POST-MORTEM AREA
12  *     MOST GENERAL REGISTERS ARE INITIALIZED SIMULTANEOUSLY.
13  * 2.  SPECIAL REGISTERS AND THE MAINTENANCE CHANNEL (MCH) ARE INITIALIZED.
14  * 3.  THE SYSTEM STATUS PANEL (SSP) IS INTERROGATED FOR KEY REQUESTS.
15  *     IF A MEMORY RELOAD REQUEST IS FOUND, IT IS INITIATED IMMEDIATELY.
16  * 4.  THE DECISION OF WHETHER TO GO ON-LINE IS MADE USING A SET OF PRIORITY  RULES.
17  * 5.  THE SANITY OF THE INITIALIZING CC IS CHECKED AND IF SANE, THE OTHER  CC IS DISABLED.
18  * 6.  IF THE INITIALIZATION INVOLVED A BOOTSTRAP OPERATION FROM TAPE, THE  REMAINING MEMORY IS VALIDATED.
19  * 7.  THE MAIN STORE (MAS) OF THE INITIALIZING CC IS INITIALIZED.
20  * 8.  IF A SWITCH OCCURRED, THE STATE OF THE OTHER CC IS SAVED IN THE  POST-MORTEM AREA.
21  * 9.  THE OTHER MAIN STORE (OMAS) IS INITIALIZED.
22  * 10. IF THE MAS IS OUT-OF-DATE, THE CURRENT CONTENTS OF UNPROTECTED MAS IS COPIED FROM THE OMAS.
23  * 11. THE LEVEL COUNT IS INCREMENTED.
24  * 12. SOFTWARE STATES ARE SAVED IN THE POST-MORTEM AREA.
25  * 13. HARDWARE CHECK CIRCUITS ARE ENABLED.
26  * 14. THE FIRST APPLICATION ROUTINE (INITAE) IS ENTERED.
27  *
28  * IO AND MEMORY INITIALIZATION
29  * 1.  ALL SERIAL IO CHANNELS ARE INITIALIZED.
30  * 2.  IF THE INITIALIZATION LEVEL IS SUFFICIENTLY HIGH, COMMON SYSTEM MEMORY
;31   *     IS ZEROED WITH THE EXCEPTION OF CERTAIN CRITICAL AREAS.
32  * 3.  THE CRITICAL AREAS ARE CHECKED FOR BAD PARITY.  IF ANY IS FOUND, THEY  ARE ALSO ZEROED.
33  * 4.  ALL MULTISCAN FUNCTIONS ARE STOPPED.  IF COMMON SYSTEMS MEMORY WAS
34  *     ZEROED, THIS HAS NO EFFECT SINCE ALL RECORD OF THEM HAS ALREADY
35  *     DISAPPEARED.
36  * 5.  THE SECOND APPLICATION ROUTINE (INITAM) IS ENTERED.
37  *
38  * ADMINISTRATION
39  *
40  * 1.  THE ISC2 BIT IS RESET ON ALL BUT THE HIGHEST LEVEL OF INITIALIZATION  TO PREVENT A BOOTSTRAP.
41  * 2.  THE TTY RECOVERY MESSAGE IS FORMATED.
42  * 3.  THE SYSTEM STATUS PANEL IS PARTIALLY INITIALIZED.
43  * 4.  A VARIETY OF ADMINISTRATIVE FUNCTIONS ARE PERFORMED.
44  * 5.  THE DECISION IS MADE ON WHETHER OR NOT THE OTHER CU SHOULD BE TAKEN  OUT-OF-SERVICE.
45  * 6.  THE FINAL APPLICATION ROUTINE (INITAF) IS ENTERED.
```

```
01 # PRIOR TO ENTERING THE CINIT PROGRAM, CERTAIN REGISTERS
02 # HAVE BEEN INITIALIZED BY HARDWARE OR MICROPROGRAM.
03 # A LIST OF ALL INTERNAL REGISTERS FOLLOWS WITH THEIR
04 # PREDETERMINED CONTENTS.

06 # KEY---
07 # *     EXECUTION IS A FUNCTION OF THIS REGISTER, HENCE IT IS A FUNCTION OF
08 #       CINIT
09 # -     HAS NOT BEEN INITIALIZED
10 # C     CONTAINS THE CONSTANT C
11 # (C)   WAS INITIALIZED TO C, BUT MAY HAVE CHANGED
12 # R(A,B) REFERS TO PART OF A REGISTER, IE, BIT A & B OF REGISTER R


16 # PA     *
17 # SAR    *
18 # SIR    *
19 # SIR1   *              NOT EQUIPPED IN BASIC 3ACC
20 # SIB    *              NOT EQUIPPED IN BASIC 3ACC
21 # SDR    *
22 # SDR1   0              NOT EQUIPPED IN BASIC 3ACC
23 # MCS(OPF,I)                                  0
24 # MCS(RU,DR,TR2,TR1,DS,CF)                    *
25 # MMSR(MM1,MM2,RW,REV)                        *
26 # MMSR(UPD)                                   0
27 # MMSR(ISO,BDSR)                                  1
28 # TI     -
29 # MCHB   -
30 # AK     OLD PA
31 # AI     OLD SS
32 # DK     OLD IM
33 # DI     OLD IS
34 # DB     -
35 # ER     -
36 # IS     (0)
37 # MS     0
38 # MCHTR  -
39 # HG     -
40 # IM(EXCEPT MANI)                             1
41 # IM(MANI)                                    0
42 # SS(AME,DME,HLT,MAN,REJ,BPC)                 -
43 # SS(BHC,BIN,BTC,CC,ISC1)                     1
44 # SS(MINT,STP)                                0
```

```
01 # R0      -
02 # R1      -
03 # R2      -
04 # R3      -
05 # R4      -
06 # R5      -
07 # R6      -
08 # R7      -
09 # R8      -
10 # R9      -
11 # R10     -
12 # R11     -
13 # R12     -
14 # R13     -
15 # R14     -
16 # R15     -
```

```
27 # THE FIRST CONCERN IS TO PROTECT THE INITIALIZING CC.
28 # THERE ARE THREE SOURCES OF INTERFERENCE FROM THE OTHER CC:
29 #     1-MAINTENANCE CHANNEL
30 #     2-INTERRUPT
31 #     3-MAIN STORE BUS
32 # THESE THREE SOURCES HAVE BEEN BLOCKED PRIOR TO ENTRY TO CINIT BY:
33 #     1-CC=1 DISABLES FATAL MCH COMMANDS SUCH AS STOP
34 #     2-BIN=1 BLOCKS ALL INTERRUPTS
35 #     3-ISO=1 ISOLATES OUR STORE FROM OTHER CC

37 # IN ADDITION TO THESE EXTERNAL SOURCES, WE COULD BE DEFEATED
38 # BY INTERNAL CHECK CIRCUITS DUE TO BAD DATA LATENT IN
39 # THE CC OR JUST AN ABNORMAL CC STATE.  ALL CHECK CIRCUITS
40 # ARE NOW BLOCKED.  ONLY ONE OF THESE (BTC) CAN RESET ITSELF AND
41 # BECOME ACTIVE.  WE HAVE ONLY ABOUT 30 MS TO GET OFF
42 # THE GROUND BEFORE THIS HAPPENS.
43 # THE PMD_CC ROUTINE AND INITIALIZATION OF THIS CC IS GUARANTEED
44 # TO COMPLETE IN MUCH LESS THAN 30 MS. HENCE THE PT IS INITIALIZED
45 # ALONG WITH THE OTHER REGISTERS.
46 # ALL OF THESE PRECAUTIONS ARE NECESSARY BECAUSE THERE IS NO
47 # GUARANTEE OF WHAT THE SYSTEM STATE WAS AT THE TIME OF THE ERROR.
```

```
                                    01 # THROUGHOUT THE FIRST SECTION OF CC INITIALIZATION, R5 IS USED TO ACCUMULATE
                                    02 # FLAGS FOR THE PMISC WORD IN THE POST-MORTEM AREA.
                                    03 INITBOOT
0004760
0004760 01 000030 103521 000040     04          LI      BOOT,ES(BOOT)       # FLAG--BOOTSTRAP ENTRY
0004762 01 000032 053002 ------ 0004764  05      B       INITMERGE



                                    11 INITPROG
0004763
0004763 01 000033 103120 ------     12          ZR      BOOT                # FLAG--NORMAL ENTRY
0004764                             13 INITMERGE
                                    14 # BECAUSE WE ARE PROTECTED, THERE IS NO NEED TO RUSH TO
                                    15 # CONTROL THE OTHER CC. BEFORE BEGINNING THE INITIALIZATION
                                    16 # AND THEREBY DESTROYING THE CURRENT STATE OF THIS CC, THE
                                    17 # STATE IS SAVED IN CASE THERE WAS NO SWITCH. IF NO SWITCH
                                    18 # OCCURRED WE ARE IN THE MACHINE THAT WAS HIT BY THE ERROR
                                    19 # AND NEED TO SAVE THIS CC STATE FOR THE POST-MORTEM.
0004764 01 000034 137000 005623 0005623  20          BL      PMD_CC
0004766                             21 PMD_CC_RTN



                                    27 # IT IS ASSUMED THAT R2-R15 WERE USED DURING THE DATA COLLECTION
                                    28 # FOR THIS CC (POST-MORTEM) AND THEREFORE HAVE GOOD PARITY.
                                    29 # R0 AND R1 MAY STILL HAVE BAD PARITY.
                                    30 # R0 AND R1 ARE USED BELOW FOR THAT REASON.
                                    31 # ALL OF THE SPECIAL REGISTERS NOW NEED TO BE INITIALIZED.
                                    32          MIMODE                      # DO MCH 1ST BECAUSE IT HAS BAD PARITY
0004766
0004766 01 000036 113400 ------  -001- 33      MI      0
0004767                             34          L       CR,NOP              # ZERO CR BECAUSE TMCH IS GOING TO 'OR' BITS
                                                                              INTO IT
0004767 01 000037 031760 ------  -001- 36              VFD     8,CR%T 8,NOP%F
0004770                             37          TMCH                        # LOOK FOR TRACE OF MCH INITIALIZATION
0004770 01 000040 016730 ------  -001- 38              DATA    TMCH%
0004771                             39          L       R1,CR               # R1 MAY NOW HAVE BAD PARITY
0004771 01 000041 052463 ------  -001- 40              VFD     8,R1%T 8,CR%F
0004772                             41          ZMINT
0004772 01 000042 026750 ------  -001- 42              DATA    ZMINT%
0004773 01 000043 024022 ------     43          TBN     R1,S(MCHI)          # TEST MCH INIT FLAG
0004774 01 000044 030121 ------     44          ICF     IMCHI,S(IMCHI)
0004775 01 000045 003000 ------     45          ZR      R0
0004776 01 000046 003421 042160 LAYOUT  46      LI      R1,HGAREA+OFL_HG
                                    47 # SET HG REGISTER TO THE LOW END OF THE HGAREA.
                                    48 # THIS IS DONE TO AVOID DESTROYING ANY PERTINENT HG DATA
                                    49 # BECAUSE THE HG AREA IS ANALYZED BY APPLICATION ROUTINES (INITAE)
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                                                 01 # IN AN ATTEMPT TO PINPOINT THE CAUSE OF THE INITIALIZATION.
                                                 02 # IT WOULD BE BEST TO AVOID SUBROUTINES ENTIRELY, BUT THIS IS
                                                 03 # PROHIBITIVELY EXPENSIVE.  HENCE A FEW OF THE LEAST USED (HOPEFULLY NEVER),
                                                 04 # HG SLOTS ARE USED TO ALLOW BOTH CINIT AND THE BOOTSTRAP
                                                 05 # LOADER TO USE SUBROUTINES.
                                                 06 # R1 IS USED HERE TO INSURE ANY BAD PARITY FROM MCHC ACCESS IS PURGED
0005000                                          07         MIMODE
0005000 01 000050 013400 ------          -001-  08         MI      0
0005001                                          09         L       MCHC,R0              # CLEAR MCH INIT FLAG
0005001 01 000051 160523 ------          -001-  10               VFD     8,MCHC%T 8,R0%F
                                                 11 # THE GATING OPERATION IS SUPERFLUOUS
                                                 12 # THE CLEAR SIGNAL IS GENERATED INDEPENDENT OF THE DATA
                                                 13 # BY THE CLEAR & GATE CROSSPOINT
0005002                                          14         IDLMCH                       # IDLE MCH
0005002 01 000052 154330 ------          -001-  15               DATA    IDLMCH%
0005003                                          16         IDSWQ                        # CLEAR MCH INITIALIZATION SEQUENCER
0005003 01 000053 026712 ------          -001-  17               DATA    IDSWQ%
0005004                                          18         L       HG,R1
0005004 01 000054 032525 ------          -001-  19               VFD     8,HG%T 8,R1%F
0005005                                          20         L       ER,NOP
0005005 01 000055 125360 ------          -001-  21               VFD     8,ER%T 8,NOP%F
0005006                                          22         L       MCHTR,NOP            # MUST ZERO PARITY BITS ALSO
0005006 01 000056 111760 ------          -001-  23               VFD     8,MCHTR%T 8,NOP%F
0005007                                          24         L       BR,R0
0005007 01 000057 070523 ------          -001-  25               VFD     8,BR%T 8,R0%F
0005010                                          26         BRXTI
0005010 01 000060 154066 ------          -001-  27               DATA    BRXTI%
0005011                                          28         ZMINT
0005011 01 000061 026750 ------          -001-  29               DATA    ZMINT%
0005012 01 000062 007600 ------                  30         LSR     DI,R0
0005013 01 000063 007560 ------                  31         LSR     DK,R0
                                                 32 CINIT   OW      0(64)                # 3E790441
                                         -001-   33         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000064 **********

                                                 36 CPATCH  BGNP    0(553)               # 3E790441
0005014 01 000064 037000 112205 0112205  -001-   37         BL      XXX230
                                         -001-   38         NOTE    CPATCH 'CSECT'
                                         -001-   39         NOTE    ****************** PATCH AREA BEGINS AT 000553 ****************


0112205                                  -001-   42 XXX230  PATCHAREA
0112205 02 000553 107520 ------                  43         LSR     AK,R0
0112206 02 000554 007540 ------                  44         LSR     AI,R0
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```
                                                  01 # NOW THAT THE HG REGISTER HAS BEEN RESET TO ITS BASE LEVEL
                                                  02 # VALUE, DATA CAN BE COLLETED FROM THE STORE ERROR REGISTER
                                                  03 # OF INTEREST, FOR INSERTION IN THE POSTMORTEM AREA. IF STORE
                                                  04 # 0 WAS BEING ACCESED AT THE TIME OF THE MRF, THEN THE SER
                                                  05 # HAS ALREADY BEEN WRITTEN IN THE POSTMORTEM VIA SAVSER, WHICH
                                                  06 # WAS SAVED IN CTSD.

0112207 02 000555 030440 043400 CTSD              08        LL      R2,POSTMORT+22      # THE HIGH 2 BITS OF SAR ARE IN THE
0112211 02 000557 003442 140000                   09        NI      R2,X(C000)          # HIGH 2 BITS OF POSTMORT+22
0112213 02 000561 014042 ------                   10        TZ      R2                  # IF R2=0 (STORE 0), THEN THE SER
0112214                                           11                                    # HAS ALREADY BEEN SAVED.
0112214                                           12        IF      CF = 0 THEN RGBEGIN
0112214 02 000562 054015 ------ 0112231  -001-   13            BC      IFS232
0112215 02 000563 010455 ------                   14            RRN     R2,13           # ROTATE TO THE LOW END & MULT 2 = ROTATE 13
0112216 02 000564 031201 016446 MASACS            15            LAL     R8,MASCIOSC,RA0 # GET STORE CONTROLLER ADDRESS
0112220 02 000566 043222 ------                   16            LAX     R9,R2(RA0)      # GET PROPER MAIN&SUB CHANNEL
0112221 02 000567 003641 007100                   17            LI      R10,X(E40)      # ORDER TO LOAD STORE ERROR REGISTER
0112223                                           18                                    # INTO SERIAL I/O CHANNEL
0112223                                           19            CALL    SENDMIOS        # ORDER FOR SER
0112223 02 000571 073040 ------          -001-    20            BSAI    sendmIos        # SUBROUTINE SENDMIOS IS IN PROGRAM CSYSUB
0112224                                           21            IF      CF = 0 THEN RGBEGIN
0112224 02 000572 154003 ------ 0112227  -001-    22            BC      IFS235
0112225 02 000573 003661 177376                   23            LI      R11,X(FEFE)     # FEFE SIGNIFIES THE I/O ORDER FAILED
0112227                                           24                                    # UNDER A NO SWITCH CONDITION.
0112227                                           25            RGEND
0112227                                  -001-    26 IFS235
0112227 02 000575 134660 043366 CTSD              27            STL     R11,POSTMORT+12 # SAVE SER IN POSTMORT
0112231                                           28            RGEND
0112231                                  -001-    29 IFS232
0112231                                           30        ENDP                        # 3E790441
0112231 02 000577 137000 005016 0005016  -001-    31        BL      XXX238
                                         -001-    32        NOTE    ************ LAST PATCH ADDRESS USED IS 000600 ***************
                                         -001-    33        NOTE    ***** NUMBER OF PATCH WORDS USED IS 22 (DECIMAL) ********


0005016                                  -001-    36 XXX238 OWCONTINUE
0005016                                           37        EOW                         # 3E790441
                                         -001-    38        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000065 *********
                                                                     *


                                                  42 CINIT  OW      0(66)               # 3E800006
                                         -001-    43        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000066 **********
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                                                   01 CPATCH2 BGNP   0(412)                # 3E800006
0005016 01 000066 137000 114521 0114521     -001- 02         BL     %%%244
                                            -001- 03         NOTE   CPATCH2 'CSECT'
                                            -001- 04         NOTE   ****************** PATCH AREA BEGINS AT 000412 *****************

0114521                                     -001- 07 %%%244 PATCHAREA
0114521 04 000412 107460 ------                   08         LSR    MCHB,R0
0114522 04 000413 007620 ------                   09         LSR    DB,R0

                                                  12 # WE MUST NOW ESTABLISH THE IM SINCE THE PACK BELOW WILL ZERO BIN.
                                                  13 # A MASK OF (DFFF) IS USED TO PROTECT AGAINST INTERFERENCE FROM
                                                  14 # THE OFFLINE CC. ONLY THE PANEL INTERRUPT IS ALLOWED.

0114523 04 000414 003401 157777                   16         LI     R0,X(DFFF)             # ALLOW PANEL INTERRUPT ONLY
0114525 04 000416 007700 ------                   17         LSR    IM,R0
0114526                                           18         ENDP                          # 3E800006
0114526 04 000417 037000 005020 0005020     -001- 19         BL     %%%246
                                            -001- 20         NOTE   ************* LAST PATCH ADDRESS USED IS 000420 ****************
                                            -001- 21         NOTE   ***** NUMBER OF PATCH WORDS USED IS 7 (DECIMAL) ********

0005020                                     -001- 24 %%%246 OWCONTINUE
0005020                                           25         EOW                           # 3E800006
                                            -001- 26         NOTE   **************** THE LAST ADDRESS OVERWRITTEN IS 000067 *********
                                                                     *

                                                  30 # BTC IN THE SS REGISTER MUST BE RESET NOW BECAUSE THE
                                                  31 # SANITY TEST (IF IT IS RUN) DOES TIMING CHECKS WHICH ASSUME THE
                                                  32 # TI IS COUNTING. LIKEWISE BHC SHOULD BE RESET DURING THE SANITY
                                                  33 # TEST. THE ENTIRE SS REGISTER IS NOT INITIALIZED AT THIS TIME
                                                  34 # BECAUSE THE ISC1 AND ISC2 BITS CANNOT BE CLEARED BEFORE THE
                                                  35 # LEVEL COUNT IS INCREMENTED.
                                                  36 R2      =      MSK(3)                 # DO NOT ZERO TRACK BIT SS(19) USED BY MICRO
                                                                                             BOOT PROGRAM
0005020 01 000070 103047 ------             -004- 38            LN     R2,MSK(3)
                                                  39 R3      =      ¬ES(LOF,LON,ISC1,ISC2,CC,BHC) # DO NOT CLEAR THESE BITS
0005021 01 000071 003461 166075             -004- 40            LI     R3,¬ES(LOF,LON,ISC1,ISC2,CC,BHC)
0005023 01 000073 012360 ------                   41         PACK   SS_R
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01 # THE DECISION AS TO WHICH MACHINE IS TO BE ON-LINE IS
02 # A PROGRAM DECISION(EITHER MAIN OR MICRO).  THE FOLLOWING
03 # RULES ARE USED AND THE PRIORITY IS AS NUMBERED.

05 # 1. IF THE CC RESET CIRCUIT IS ACTIVE == GO OFFLINE.
06 #    THE CIRCUIT CAN BE ACTIVATED BY DEPRESSING THE RESET
07 #    CIRCUIT BUTTON ON THE PROCESSOR PANEL OR BY THE POWER
08 #    UP SEQUENCE.  THESE TWO ACTIONS CAN ONLY OCCUR IN THE
09 #    OFFLINE CC, THEORETICALLY.  IF THE RESET CIRCUIT IS
10 #    ACTIVATED IN THE ONLINE (EG. BY INVOKING TEST MODE REVERSAL)
11 #    A MAJOR FLAP WILL RESULT. BOTH CC'S WILL BE
12 #    OFF-LINE AND RECOVERY WILL OCCUR VIA A PT TIMEOUT.
13 #    THIS IS WHY IT IS IMPERATIVE THAT MANUAL INITIALIZATION BE
14 #    EXECUTED FROM THE SYSTEM STATUS PANEL AND NOT THE PROCESSOR PANEL.
15 #    THIS PRIORITY WAS SELECTED BECAUSE THE ALTERNATIVE OF
16 #    IGNORING THE RESET IS BOTH MORE DANGEREOUS AND LIKELY.
17 #    NAMELY, SOMEONE GOT THE OFF-LINE INTO A WEIRD STATE
18 #    (EG. LON=1) AND IS NOW PRESSING RESET TO GET HIMSELF
19 #    OUT OF TROUBLE. IF A TEST FOR RESET IS NOT EXPLICITLY
20 #    PERFORMED. THE CC MIGHT DECIDE TO GO ON-LINE.
21 # 2. IF LON OR LOF IS SET THEY ARE THE BASIS OF THE DECISION.
22 # 3. IF INITTST1=INITTST2=INITTSTC THIS INITIALIZATION IS A TEST
23 #    AND THEREFORE GO OFF-LINE.  IT MAY BE DIAGNOSTICS RUNNING A
24 #    TEST ON THE SOURCES OF INIT OR THE ON-LINE CC
25 #    INITIALIZING THE OFF-LINE CC TO A KNOWN STATE.
26 # 4. IF A LEGITIMATE INITIALIZATION SWITCH SOURCE CAN BE FOUND
27 #    INTERNAL TO THIS CC, IT WILL GO ON-LINE. THE LEGITIMATE
28 #    SOURCES ARE PT TIMEOUT (EITHER 1ST OR 2ND) OR A MCH
29 #    INIT MESSAGE.
30 # 5. IF NONE OF THE ABOVE APPLY THE ON-LINE/OFF-LINE STATUS
31 #    IS GOVERNED BY THE OLD STATE OF THE CC FLIP-FLOP,
32 #    THAT IS THE CC IN THE IMAGE OF THE SS SAVED IN AI.
33 #    THUS AN INITIALIZATION SIGNAL FROM THE EMERGENCY ACTION
34 #    PANEL WILL NOT CAUSE A SWITCH BUT WILL CAUSE THE ON-LINE CC
35 #    TO INITIALIZE ITSELF.
36 #    ALSO THE ERROR BITS THAT CAUSE AN INITIALIZATION BUT
37 #    NO SWITCH FALL INTO THIS CLASS.  THAT IS NO SWITCH IMPLIES
38 #    THIS IS THE OLD ON-LINE CC AND IT WILL STAY ON-LINE
39 # 6. WHILE THE FIVE STEPS LISTED SHOULD BE SUFFICIENT, ONE
40 #    SPECIAL CASE EXISTS THAT REQUIRES SPECIAL ATTENTION.
41 #    AN INITIALIZATION FROM THE SYSTEM STATUS PANEL WHILE
42 #    ISC1 IS SET WILL RESULT IN A SYSTEM DEADLOCK AND A
43 #    PROGRAM TIMER RECOVERY.  THIS OCCURS BECAUSE THE SSP INITIALIZES
44 #    BOTH THE ON-LINE AND OFF-LINE CCS THEREBY CAUSING THEM
45 #    BOTH TO GO ACTIVE MOMENTARILY.  BY THE TIME THE ON-LINE
46 #    MICROCODE SEQUENCE INTERROGATES THE ISC BITS AND DECIDES TO
47 #    STOP AND SWITCH THE OFF-LINE IS ALREADY ACTIVE MAKING IT
48 #    IMMUNE TO THE SWITCH MESSAGE.  THE OFF-LINE FAILS ALL FIVE
49 #    CRITERIA FOR GOING ON-LINE AND HALTS.  THUS THE SYSTEM DEADLOCKS
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                                                    01 #    WITH THE FORMERLY ON-LINE CC STOPPED AND THE FORMERLY
                                                    02 #    OFF-LINE CC HALTED.  TO CIRCUMVENT THIS PROBLEM, THE
                                                    03 #    STATE OF THE OTHER CC WILL BE INTERROGATED AFTER THE DECISION
                                                    04 #    TO GO OFF-LINE HAS BEEN MADE.  IF THE OTHER CC IS STOPPED, THIS
                                                    05 #    INITIALIZATION WILL PROCEED TO THE ON-LINE BRANCH.



                                                    09 # SET UP FOR PRIORITY 3
                                                    10 # TEST WORDS ARE ALWAYS ZEROED AS A PRECAUTION
                                                    11 # IF THIS IS PRIORITY 3, THEY MUST BE ZEROED TO FLAG CU DIAGNOSTICS
                                                    12 CINIT  OW      0(74)                 # 3E800056
                                               -001- 13       NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000074 **********


0005024 01 000074 003020 ------                      16       ZR      R1
0005025 01 000075 031700 004752 0004752             17       LAL     RA0,INITTST1X,RA1
0005027 01 000077 040721 ------                     18       L       RA0+1,1(RA1)
0005030                                             19       L_ONL   0(RA0),PC=NO          # READ INITTST1
E0005030 01 000100 000400 ------               -001- 20       MS;F    0(RA0)
 0005031 01 000101 136260 ------               -001- 21       DATA    B(10111100010110000)
 0005032 01 000102 006100 ------                     22       LR      R4,R0                 # SAVE INITTST1
 0005033 01 000103 044020 ------                     23       ST      R1,0(RA0)             # ZERO INITTST1
 0005034 01 000104 031700 004754 0004754            24       LAL     RA0,INITTST2X,RA1
 0005036 01 000106 040721 ------                    25       L       RA0+1,1(RA1)
 0005037                                            26       L_ONL   0(RA0),PC=NO          # READ INITTST2
E0005037 01 000107 000400 ------               -001- 27       MSTF    0(RA0)
 0005040 01 000110 136260 ------               -001- 28       DATA    B(10111100010110000)
 0005041 01 000111 006140 ------                    29       LR      R6,R0                 # SAVE INITTST2
 0005042 01 000112 044020 ------                    30       ST      R1,0(RA0)             # ZERO INITTST2

                                                    32 # PRIORITY 1
                                                    33 # THIS PRIORITY IS IMPLEMENTED IN THE MICRO SEQUENCE.

                                                    35 # PRIORITY 2.
 0005043 01 000113 012417 ------                    36       UNPK    SS
 0005044 01 000114 024070 ------                    37       TBN     R3,S(LOF)
 0005045 01 000115 054024 ------ 0005071            38       BC      OFFLINE
                                                    39 CPATCH2 BGNP   0(421)                # 3E800056
 0005046 01 000116 037000 114530 0114530    -001- 40       BL      XXX263
                                            -001- 41       NOTE    CPATCH2 'CSECT'
                                            -001- 42       NOTE    ***************** PATCH AREA BEGINS AT 000421 *****************


 0114530                                    -001- 45 XXX263 PATCHAREA
 0114530 04 000421 124071 ------                    46       TBN     R3,S(LON)
 0114531 04 000422 030124 ------                    47       ICF     R5,S(ILON)            # SAVE FOR PMISC
 0114532                                            48       IF      CF THEN RGBEGIN
 0114532 04 000423 055037 ------ 0114571    -002- 49           BNC     IFS266
```

```
                                                 02 # ARRIVE HERE IF THE PROCESSOR THINKS IT IS LOCKED ONLINE. THIS MAY
                                                 03 # BE THE RESULT OF SPURIOUS NOISE ON THE LOCK LEADS.
                                                 04 # INSERT DELAY IF IN CC1 TO PREVENT BOTH CC'S FROM SIMILTANEOUSLY ACCESSING
                                                 05 # THE SSP.
0114533 04 000424 003000 ------                   06           ZR      R0
0114534 04 000425 057437 ------                  07           TCC1
0114535 04 000426 030010 ------                  08           ICF     R0,8
0114536 04 000427 136000 114536 0114536          09 SELF      BX      R0,SELF
                                                 10 # GET THE STATE OF THE FORCE KEY.
0114540 04 000431 003621 016160 CBLM             11           LI      R9,SSPIOADR
0114542 04 000433 003641 000072 CBLM             12           LI      R10,SSPCB1
0114544                                          13           CALL    SENDIO
0114544 04 000435 073034 ------          -001-   14           BSAI    SXENDIO         # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
0114545                                          15           IF      CF THEN RGBEGIN
0114545 04 000436 155023 ------ 0114570  -002-   16           BNC     IFS269
0114546 04 000437 024271 ------                  17           TBN     R11,S(FORCE)
0114547                                          18           IF      CF THEN RGBEGIN
0114547 04 000440 055021 ------ 0114570  -002-   19           BNC     IFS271
                                                 20 #IF WE ARE NOT FORCED THEN IGNORE LON STATE
                                                 21 #(THE LON STATE WAS DUE TO NOISE.)

                                                 23 # GET THE STATE OF THE SELECT KEYS.
0114550 04 000441 003641 000036 CBLM             24           LI      R10,SSPCB0
0114552                                          25           CALL    SENDIO
0114552 04 000443 073034 ------          -001-   26           BSAI    SXENDIO         # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
0114553                                          27           IF      CF THEN RGBEGIN
0114553 04 000444 155015 ------ 0114570  -002-   28           BNC     IFS274
                                                 29 # IF WE ARE IN CC1(CC0), BUT SELCU1(SELCU0) IS NOT SET, THEN
                                                 30 # GO OFFLINE. THE LON STATE WAS PROBABLY SET DUE TO NOISE.
                                                 31 # THIS ALSO MEANS THAT THE LOF STATE MUST HAVE BEEN RESET DUE
                                                 32 # TO NOISE; IF WE ARE NOT THE CU LOCKED ONLINE, THEN WE SHOULD
                                                 33 # NOT EVEN BE IN THIS PART OF THE CODE, AS THE LOF BIT WAS
                                                 34 # TESTED BEFORE THE LON BIT.
0114554 04 000445 057437 ------                   35           TCC1
0114555                                          36           IF      CF THEN RGBEGIN
0114555 04 000446 055006 ------ 0114563  -002-   37           BNC     IFS276
0114556 04 000447 024273 ------                  38           TBN     R11,S(SELCU1)+8 # IS CU1 LOCKED?
                                                 39 DDELETE   NOTE    2
0114557 04 000450 050400 005071 0005071          40           BNCL    OFFLINE         # NO, GO OFFLINE
0114561 04 000452 037000 005075 0005075          41           BL      ONLINE          # YES, GO ONLINE
                                                 42 DINSERT   NOTE    ' BNC OFFLINE   # NO, GO OFFLINE
                                                 43 DINSERT   NOTE    ' B ONLINE      # YES, GO ONLINE
0114563                                          44           RGEND
0114563                                  -001-   45 IFS276
0114563 04 000454 124272 ------                  46           TBN     R11,S(SELCU0)+8 # IS CU0 LOCKED?
                                                 47 DDELETE   NOTE    2
0114564 04 000455 050400 005071 0005071          48           BNCL    OFFLINE         # NO, GO OFFLINE
0114566 04 000457 037000 005075 0005075          49           BL      ONLINE          # YES, GO ONLINE
```

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                                                 01 DINSERT    NOTE    ' BNC OFFLINE   # NO, GO OFFLINE
                                                 02 DINSERT    NOTE    ' B ONLINE      # YES, GO ONLINE
0114570                                          03                    RGEND
0114570                                  -001-   04 IFS274
0114570                                          05                    RGEND
0114570                                  -001-   06 IFS271
0114570                                          07                    RGEND
0114570                                  -001-   08 IFS269
                                                 09 # THE ILON BIT WILL BE ZEROED HERE BECAUSE EITHER THE SSP
                                                 10 # COULD NOT BE READ, OR THE FORCE KEY WAS NOT SET.
0114570 04 000461 122124 ------                   11                    ZBN     R5,S(ILON)      # CORRECT PMISC
0114571                                          12                    RGEND
0114571                                  -001-   13 IFS266

                                                 15 # PRIORITY 3
0114571                                          16            TAKEOUT 4                       # 3E800056
0114571 04 000462 106000 ------          -001-   17            LR      0,0
0114572 04 000463 006000 ------          -001-   18            LR      0,0
0114573 04 000464 006000 ------          -001-   19            LR      0,0
0114574 04 000465 006000 ------          -001-   20            LR      0,0
0114575                                          21            ENDP                            # 3E800056
0114575 04 000466 037000 005050 0005050  -001-   22            BL      XXX283
                                         -001-   23            NOTE    ************ LAST PATCH ADDRESS USED IS 000467 ****************
                                         -001-   24            NOTE    ***** NUMBER OF PATCH WORDS USED IS 39 (DECIMAL) ********


0005050                                  -001-   27 XXX283 OWCONTINUE
0005050 01 000120 103545 121334                  28            CI      R6,INITTSTC
0005052                                          29            IF      CF THEN RGBEGIN
0005052 01 000122 055003 ------ 0005055  -002-   30                BNC     IFS286
0005053 01 000123 020144 ------                  31                CR      R6,R4
0005054                                          32                EOW                             # 3E800056
                                                 33                NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000123
                                                                           **********


0005054 01 000124 054015 ------ 0005071          37                BC      OFFLINE
0005055                                          38                RGEND
0005055                                  -001-   39 IFS286

                                                 41 # PRIORITIES 4 AND 5.
                                                 42 # THE DATA FOR THIS DECISION HAS BEEN ACCUMULATED IN R5
                                                 43 # NAMELY R5(3-0)=2ND TIMEOUT,1ST TIMEOUT,MCH INIT,OLD CC
                                                 44 # THE FIRST THREE ARE PRIORITY 4 AND OLD CC IS 5.
                                                 45 # IF ANY OF THESE IS A ONE, GO ON-LINE OR
                                                 46 # EQUIVALENTLY, IF ALL ARE ZERO GO OFF-LINE
```

```
0005055, 01 000125 117520 027400                01      CIRM    R5,0,0,ES(BOOT,I2ND,I1ST,IMCHI,ICC) # TEST FOR ABSENCE OF ALL
                                                                                                      FOUR
0005057 01 000127 055016 ------ 0005075         03      BNC     ONLINE

                                                05 # PRIORIY 6.
                                                06 # THIS IS THE FIRST USE OF THE MCH AND IT MAY BE HUNG, IE, THE
                                                07 # FIRST TRANSMISSION MAY NOT WORK. THEREFORE, SEND AN EXTRA
                                                08 # ORDER (LDMCHB) TO CLEAR CHANNEL.
0005060                                         09      LMCH    LDMCHB
0005060                                 -001-   10      CALL    SLDMCHB
0005060 01 000130 037020 111072 CSYSUB  -002-   11      BSA     SLDMCHB
0005062                                         12      LMCH    RTNSS
0005062 01 000132 103401 000223         -001-   13      LI      R0,RTNSS
0005064                                 -001-   14      CALL    SMCH
0005064 01 000134 073027 ------         -002-   15      BSAI    S%MCH                   # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0005065                                         16      IF      CF THEN RGBEGIN         # USE DATA ONLY IF MCH SUCCEEDS
0005065 01 000135 155004 ------ 0005071 -002-   17          BNC     IFS295
0005066 01 000136 012403 ------                 18          UNPK    MCHB
0005067 01 000137 024076 ------                 19          TBN     R3,S(STP)
0005070 01 000140 054005 ------ 0005075         20          BC      ONLINE          # IF OTHER CC IS STOPPED, GO ON-LINE
0005071                                         21          RGEND
0005071                                 -001-   22 IFS295


                                                28 CINIT  OW      0(141)                  # 05877
                                        -001-   29        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000141 **********


0005071                                         32 OFFLINE
                                                33 #ZERO THE CC AND LON BITS (LON MAY HAVE BEEN EROUNIOUSLY SET
                                                34 #BY NOISE)
0005071 01 000141 103401 011000                 35      LI      R0,M(CC)+M(LON)
0005073                                         36      EOW                             # 05877
                                        -001-   37      NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000142 *********
                                                         *


0005073 01 000143 007760 ------                 41      LSR     SS_R,R0
0005074 01 000144 056540 ------                 42      HALT
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   SYSTEM INITIALIZATION                                                                    0:17:53   2/06/81  ****

   CHECK ON-LINE CU SANITY AND DISABLE THE OFF-LINE CU                                                CINIT          W77D

0005075                                      01 ONLINE
                                             02 # THE DECISION HAS BEEN MADE THAT THIS CC WILL
                                             03 # ATTEMPT TO GO ON-LINE.  THE BASIS OF THE DECISION HAS BEEN
                                             04 # THE INTERNAL STATUS OF THIS CC. ONE FINAL CHECK IS
                                             05 # MADE BY RUNNING THE SANITY TEST TO DETERMINE WHETHER
                                             06 # OR NOT THIS CC IS REASONABLY CAPABLE OF RUNNING. IF THE
                                             07 # SANITY TEST FAILS, IT WILL HALT THIS CC AND GIVE THE
                                             08 # OTHER CC A CHANCE TO TAKE OVER. IF THE SANITY TEST
                                             09 # IS PASSED, THE IRREVOCABLE DECISION TO GO ON-LINE WILL HAVE
                                             10 # BEEN MADE AND THE OTHER CC WILL BE DISABLED.

                                             12 # BHC HAS BEEN SET TO THIS POINT TO PROTEST AGAINST
                                             13 # THE EXISTENCE OF MAS ERRORS IN STORES 1,2 AND 3
                                             14 # (MAS 0 WAS INITIALIZED BY MICROCODE). THE SANITY
                                             15 # TEST, AS PART OF ITS DETECTION MECHANISM, REQUIRES
                                             16 # HARDWARE CHECKS TO BE ENABLED. HENCE,
                                             17 # RESETTING BHC IS THE FIRST OPERATION IN SANITY.
                                             18 # BEFORE THIS CAN BE DONE THE REMAINDER OF MAIN STORES
                                             19 # MUST BE INITIALIZED TO CLEAR ANY LATENT ERRORS.
                                             20 CINIT  OW      0(145)                  # 12279
                                        -001- 21        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000145 **********

                                             24 CPATCH BGNP    0(342)                  # 12279
0005075 01 000145 037000 111774 0111774 -001- 25        BL      XXX304
                                        -001- 26        NOTE    CPATCH 'CSECT'
                                        -001- 27        NOTE    ****************** PATCH AREA BEGINS AT 000342 ****************

0111774                                 -001- 30 XXX304 PATCHAREA
0111774 02 000342 124125 ------              31        TBN     BOOT,S(BOOT)
0111775 02 000343 055007 ------ 0112004      32        BNC     SOFTINIT
                                             33 # THIS IS A BOOTSTRAP.  IF TRACK BIT (BIT 19 OF THE SS REGISTER)
                                             34 # IS THE SECOND ATTEMPT AND BOOTSTRAP HAS BEEN READ
                                             35 # FROM TRACK 2 OF THE TAPE.  THE MICRO CODE SENT A HARD INIT TO
                                             36 # STORE 0 ON THE SECOND ATTEMPT, THEREFOR CALL INITSTH WHICH SENDS
                                             37 # A HARD INIT TO THE HIGHER STORES.  IF THE TRACK BIT IS SET THIS
                                             38 # IS THE FIRST BOOT.  USE THE SOFT INIT ENTRY POINT.
0111776 02 000344 012417 ------               39        UNPK    SS
0111777 02 000345 024043 ------              40        TBN     R2,S(CIPLTRK)-16
0112000 02 000346 054004 ------ 0112004      41        BC      SOFTINIT
0112001                                      42        CALL    INITSTH
0112001 02 000347 037020 112123 CSYSUB  -001- 43        BSA     INITSTH
0112003 02 000351 153003 ------ 0112006      44        B       DOSAN
0112004                                      45 SOFTINIT
0112004                                      46        CALL    INITST
0112004 02 000352 137020 110447 CSYSUB  -001- 47        BSA     INITST
0112006                                      48 DOSAN
0112006                                      49        ENDP                    # 12279

   COMMON INITIALIZATION                                                                          PR-1C952-50

     0:17:53   2/06/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CINIT     ISSUE 04      PAGE    31
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0112006 02 000354 137000 005077 0005077  -001- 01        BL      %%%308
                                         -001- 02        NOTE    ************* LAST PATCH ADDRESS USED IS 000355 ****************
                                         -001- 03        NOTE    ***** NUMBER OF PATCH WORDS USED IS 12 (DECIMAL) ********


0005077                                  -001- 06 %%%308 OWCONTINUE
0005077 01 000147 134520 043355 CTSD           07        STL     R5,POSTMORT+PMISC
0005101                                        08        EOW                             # 12279
                                         -001- 09        NOTE    **************** THE LAST ADDRESS OVERWRITTEN IS 000150 *********
                                                                   *


0005101                                        13        CALL    SANITY                  # IF CC IS BAD, SANITY WILL SET STOP BIT IN
                                                                                           SS
0005101 01 000151 037020 006760 0006760  -001- 15        BSA     SANITY
                                               16 # CC PASSED SANITY CHECK, IT IS GOING ON LINE COME HELL OR HIGH WATER.



                                               20 # THE MCH CODES TO DISABLE THE OFFLINE ARE INTENTIONALLY
                                               21 # NOT LOADED HERE.  THIS PROTECTS AGAINST A WILD TRANSFER
                                               22 # TO THIS POINT AND THE ACCIDENTAL DISABLING OF THE GOOD CC.
                                               23 # INSTEAD THE CONSTANTS THAT CORRESPOND TO THE CODES HAVE BEEN
                                               24 # GENERATED IN SANITY AND LEFT IN R6 & R7.
                                               25 # THIS IS NOT A HANDICAP BECAUSE SANITY WILL ALWAYS BE
                                               26 # EXECUTED BEFORE WE DISABLE THE OTHER CC TO INSURE THIS
                                               27 # CC IS REASONABLY GOOD.
0005103 01 000153 106010 ------                28        LR      R0,R8
0005104                                        29        CALL    SMCH                    # DISA
0005104 01 000154 073027 ------          -001- 30        BSAI    S%MCH                   # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0005105 01 000155 106011 ------                31        LR      R0,R9
0005106                                        32        CALL    SMCH                    # DISB
0005106 01 000156 073027 ------          -001- 33        BSAI    S%MCH                   # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
                                               34 # MCH ERRORS ARE IGNORED HERE BECAUSE THIS IS THE LAST ALTERNATIVE
                                               35 # A FAILURE AT THIS POINT IN ADDITION TO THE PREVIOUS TWO
                                               36 # ATTEMPTS TO STOP THE OTHER CC, IMPLIES AT LEAST TWO FAULTS.
```

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   SYSTEM INITIALIZATION                                                                    0:17:53   2/06/81  ****

   CHECK FOR MEMORY RELOAD REQUEST FROM THE SSP                                                      CINIT          W77D

0005107 01 000157 130520 043355 CTSD          01        LL      R5,POSTMORT+PMISC
0005111'01 000161 003621 016160 CBLM          02        LI      R9,SSPIOADR
0005113 01 000163 003641 040072 CBLM          03        LI      R10,SSPCB1+M(EM_ACT)
0005115 01 000165 026056 ------ CBLM          04        SBN     R2,S(EM_ACT)
0005116                                       05        CALL    CHGSSP              # SET EM_ACT BIT IN SSP AND READ BUFFER
                                                                                      CONTENTS
0005116 01 000166 073051 ------          -001- 07        BSAI    CXHGSSP             # SUBROUTINE CHGSSP IS IN PROGRAM CBLM
0005117                                       08        IF      CF THEN IRM MAN_INIT,R11,ES(MAN_INIT) # USE DATA ONLY ON SUCCESS
0005117 01 000167 155003 ------ 0005122  -002- 09            BNC     IFS318
0005120 01 000170 016133 100000          -002- 10            IRM     MAN_INIT,R11,ES(MAN_INIT) #
0005122                                  -002- 11 IFS318




                                              17 CINIT  OW      0(172)              # 3E790699
                                         -001- 18       NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000172 **********


                                              21 CPATCH2 BGNP   0(470)              # 3E790699
0005122 01 000172 137000 114577 0114577  -001- 22       BL      XXX321
                                         -001- 23       NOTE    CPATCH2 'CSECT'
                                         -001- 24       NOTE    ****************** PATCH AREA BEGINS AT 000470 ****************


0114577                                  -001- 27 XXX321 PATCHAREA


                                              30 # IF THIS IS A RECYCLE, THEN SET RCYCLVL IN POSTMORT

0114577 04 000470 131340 004756 0004756       32        LAL     RA1,INITLVLX,RA0
0114601 04 000472 040361 ------               33        L       RA1+1,1(RA0)
0114602                                       34        L_ONL   0(RA1)              # SAFE READ OF RECYCLE
0114602 04 000473 076020 ------          -001- 35        STAF    0(RA1)
0114603 04 000474 136260 ------          -001- 36        DATA    B(1011110010110000)
0114604 04 000475 024004 ------               37        TBN     R0,S(RECYCLE)
0114605                                       38        IF      CF THEN RGBEGIN
0114605 04 000476 055004 ------ 0114611  -002- 39            BNC     IFS325
0114606 04 000477 031000 043352 CTSD          40            LAL     R0,POSTMORT,RA0
0114610 04 000501 061060 ------               41            SBS     N(RCYCLVL)(RA0),S(RCYCLVL) # FLAG TO INDICATE COUNT RECYCLED
0114611                                       42            RGEND
0114611                                  -001- 43 IFS325
```

```
SYSTEM INITIALIZATION                                                                    0:17:53   2/06/81  ****

CHECK FOR MEMORY RELOAD REQUEST FROM THE SSP                                                      CINIT          W77D

                                                01 # DOES THE SSP FAIL

0114611 04 000502 103641 000036 CBLM            03        LI      R10,SSPCB0
0114613                                         04        CALL    SENDIO              # CHECK SSP
0114613 04 000504 073034 ------          -001-  05        BSAI    S%ENDIO             # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
0114614                                         06        IF      CF THEN RGBEGIN
0114614 04 000505 155011 ------ 0114625  -002-  07            BNC     IFS329
0114615 04 000506 016133 040000                 08            IRM     R5,R11,ES(RELOAD) # TEST RELOAD
0114617 04 000510 057432 ------                 09            TSRPH   ER
0114620                                         10            IF      CF THEN RGBEGIN
0114620 04 000511 055003 ------ 0114623  -002-  11            BNC     IFS331
                                                12 # IGNOR RESULTS IF IO BAD PARITY ERROR OCCURRED
0114621 04 000512 003522 037777                 13            NI      R5,¬ES(MAN_INIT,RELOAD)
0114623                                         14            RGEND
0114623                                  -001-  15 IFS331
0114623 04 000514 137000 005135 0005135         16            BL      STPMISC
0114625                                         17            RGEND
0114625                                  -001-  18 IFS329


                                                21 # IS THE TEST MODE REVERSAL SWITCH OPERATED?

0114625 04 000516 112411 ------                 23        UNPK    DB
0114626 04 000517 012060 ------                 24        PACK    MCHB
0114627                                         25        MIMODE  SIS1XDB
0114627 04 000520 013000 ------          -001-  26        MIS     0
0114630 04 000521 026466 ------          -002-  27            DATA    SIS1XDB%
0114631 04 000522 012411 ------                 28        UNPK    DB
0114632                                         29        MIMODE  L DB,MCHB
0114632 04 000523 013000 ------          -001-  30        MIS     0
0114633 04 000524 124631 ------          -002-  31            VFD     8,DB%T 8,MCHB%F
0114634                                         32        ENDP                        # 3E790699
0114634 04 000525 037000 005124 0005124  -001-  33        BL      XXX338
                                         -001-  34        NOTE    ************ LAST PATCH ADDRESS USED IS 000526 ***************
                                         -001-  35        NOTE    ***** NUMBER OF PATCH WORDS USED IS 31 (DECIMAL) ********


0005124                                  -001-  38 XXX338 OWCONTINUE
0005124 01 000174 124067 ------                  39        TBN     R3,S(TMRSW)
0005125                                         40        IF      CF THEN RGBEGIN
0005125 01 000175 055010 ------ 0005135  -002-  41            BNC     IFS341


                                                44 # IS THIS A RECYCLE?
```

```
0005126                                            01          L_ONL   O(RA1)            # SAFE READ OF RECYCLE
0005126'01 000176 076020 ------           -001- 02          STAF    O(RA1)
0005127 01 000177 136260 ------           -001- 03          DATA    B(1011110010110000)
0005130 01 000200 024004 ------                 04          TBN     RO,S(RECYCLE)
0005131                                            05          IF      CF THEN RGBEGIN
0005131 01 000201 055004 ------ 0005135   -002-.06          BNC     IFS344


                                                 09 # IT IS NOW TIME TO PUNT. THE STATUS PANEL IS NOT RESPONDING,
                                                 10 # THE TEST MODE REVERSAL SWITCH IS OPERATED, AN THE COUNT HAS
                                                 11 # RECYCLED. ASSUME A MANUAL RELOAD AND JAM A STABLE CLEAR.

0005132 01 000202 026137 ------                 13          SBN     R5,S(MAN_INIT)    # JAM A MANUAL INIT
0005133 01 000203 026136 ------                 14          SBN     R5,S(RELOAD)      # JAM A MEMORY RELOAD
0005134 01 000204 026135 ------                 15          SBN     R5,S(JAMSTB)      # JAM A STABLE CLEAR
0005135                                            16 STPMISC
0005135                                            17          RGEND
0005135                                   -001- 18 IFS344
0005135                                            19          RGEND
0005135                                   -001- 20 IFS341


0005135 01 000205 134520 043355 CTSD           23       STL     R5,POSTMORT+PMISC   # SAVE STATUS BITS


0005137                                            26       EOW                        # 3E790699
                                          -001- 27       NOTE    **************** THE LAST ADDRESS OVERWRITTEN IS 000206 *********
                                                                  *




                                                 36 # THE MEMORY RELOAD REQUEST WILL ONLY BE HONORED IF
                                                 37 # THIS INITIALIZATION CAME FROM THE SSP. THE REQUEST
                                                 38 # WILL ALSO BE IGNORED IF THE SYSTEM IS ALREADY
                                                 39 # IN THE PROCESS OF RELOADING, IE, BOOTSTRAPPING
0005137 01 000207 003401 140000                 40       LI      RO,ES(RELOAD,MAN_INIT)
0005141 01 000211 017005 140040                 41       CRM     RO,R5,ES(RELOAD,MAN_INIT,BOOT)
0005143                                            42       IF      CF THEN RGBEGIN
0005143 01 000213 055013 ------ 0005156   -002- 43          BNC     IFS350
                                                 44 R15         =       ES(ISC1,ISC2)
0005144 01 000214 003761 000300           -004- 45          LI      R15,ES(ISC1,ISC2)
0005146 01 000216 007737 ------                 46          LSR     SS_S,R15          # INSURE RELOAD
                                                 47 # EVEN THOUGH THIS CU IS GUARANTEED TO BOOTSTRAP,
                                                 48 # THE SYSTEM MAY NOT IF THE OTHER CU TIMES OUT
                                                 49 # AND RECOVERS IT. TO INSURE A BOOTSTRAP, THE ISC BITS
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   SYSTEM INITIALIZATION                                                                    0:17:53   2/06/81  ****

   CHECK FOR MEMORY RELOAD REQUEST FROM THE SSP                                                        CINIT          W77D

                                                01 # IN THE OTHER CU MUST BE SET AS WELL IN ORDER
                                                02 # TO FORCE IT TO BOOTSTRAP ALSO
0005147 01 000217 003340 ------                 03            ZR      R14              # EXCOFLMG USES RA1 THEREFORE R14 AND R15
                                                                                          MUST BE SET UP
0005150 01 000220 003401 105561                05            LI      R0,SS_SXT*E(8)+ARXF # SET UP FOR EXCOFLMG
0005152                                        06            CALL    EXCOFLMG
0005152 01 000222 037020 111242 CSYSUB  -001- 07            BSA     EXCOFLMG
0005154                                        08            MIMODE  HMRF
0005154 01 000224 113000 ------         -001- 09            MIS     0
0005155 01 000225 026730 ------         -002- 10             DATA    HMRFX
0005156                                        11            RGEND
0005156                                 -001- 12 IFS350
                                               13 # FIRST, THE MEMORY IS RELOADED IF THIS IS A
                                               14 # BOOTSTRAP INITIALIZATION. THIS OPERATION HAS BEEN
                                               15 # DELAID UNTIL AFTER THIS CC TOOK COMPLETE CONTROL
                                               16 # (IE, AFTER ANY CONFLICTS WERE RESOLVED) BECAUSE IT
                                               17 # IS IMPORTANT THAT THE OTHER CC BE DORMANT.
                                               18 # THE BOOTSTRAP LOADER MAY USE THE TAPE UNIT NORMALLY
                                               19 # ASSOCIATED WITH THE OTHER CC, AND IF THAT CC IS
                                               20 # ALSO ATTEMPTING TO USE IT, INTERFERENCE IS POSSIBLE.
0005156                                        21       IF      BOOT THEN RGBEGIN   # HAVE WE ALREADY BOOTSTRAPPED
0005156 01 000226 124125 ------         -004- 22            TBN     BOOT,S(BOOT)
0005157 01 000227 055007 ------ 0005166 -002- 23            BNC     IFS360
                                               24 # WHEN BOOTSTRAPPING WE DIFFERENTIATE BETWEEN AUTO AND MANUAL
                                               25 # WHEN MANUAL REQUEST, EVERYTHING IS COPIED FROM TAPE.
                                               26 # IN THE AUTO MODE, RECOVERY SPEEDUP IS ATTEMPTED
                                               27 # BY USING CHECK SUMS TO DETERMINE WHICH AREAS OF STORE
                                               28 # NEED TO BE COPIED. IT IS HOPED THAT NORMALLY ONLY ONE
                                               29 # AREA OF THE STORE WILL BE DESTROYED AND HENCE MUCH TIME
                                               30 # CAN BE SAVED BY NOT COPYING THE GOOD AREAS.

                                               32 R0           =       0                # INIT TO COPY ONLY IF CHECKSUM FAILS
0005160 01 000230 003000 ------         -004- 33            ZR      R0
0005161                                        34            IF      RELOAD THEN R0 = 1 # CHANGE TO COPY EVERYTHING
0005161 01 000231 024136 ------         -004- 35            TBN     RELOAD,S(RELOAD)
0005162 01 000232 055002 ------ 0005164 -002- 36            BNC     IFS368
0005163 01 000233 003001 ------         -006- 37            LN      R0,1
0005164                                 -002- 38 IFS368
                                               39 CINIT        OW      0(234)           # 12639
                                        -001- 40            NOTE    ************ THE FIRST ADDRESS OVERWRITTEN IS 000234
                                                                      **********


0005164 01 000234 137000 010502 CIPL            44            BL      BOOTLOAD
0005166                                        45            EOW                      # 12639
                                        -001- 46            NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000235
                                                                      **********


   COMMON INITIALIZATION                                                                          PR-1C952-50

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SYSTEM INITIALIZATION 0:17:53 2/06/81 ****

CHECK FOR MEMORY RELOAD REQUEST FROM THE SSP CINIT W77D

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0005166                                      01          RGEND
0005166                                -001- 02 IFS360
0005166                                      03 BOOTRTN
0005166 01 000236 130520 043355 CTSD         04          LL      R5,POSTMORT+PMISC



                                             08 # IF AN ATTEMPT IS MADE TO MOVE THE CONTENTS OF THE
                                             09 # OFF-LINE MAS TO THE ON-LINE MAS, THE OFF-LINE MAS IS
                                             10 # FIRST INITIALIZED BY CALLING SUBROUTINE INITOST.
                                             11 # THIS SUBROUTINE ALSO INITIALIZES THE OFF-LINE CC AND IN
                                             12 # SO DOING DESTROYS THE CONTENTS OF SOME KEY REGISTERS,
                                             13 # NOTABLY THE PA AND HG. HENCE, THIS DATA MUST BE
                                             14 # COLLECTED, IF NEEDED, BEFORE THE MAS MOVE IS TRIED.

                                             16 # DID A SWITCH OCCUR?
                                             17 # IF IT DID, WE MUST OBTAIN POST MORTEM DATA AND OTHER
                                             18 # INFORMATION FROM THE NEWLY OFFLINE CC.
0005170                                      19          IF      ¬ ICC THEN BL PMD_OCC
0005170 01 000240 024120 ------        -004- 20            TBN     ICC,S(ICC)
0005171 01 000241 050400 005727 0005727 -002- 21            BNCL    PMD_OCC
0005173                                      22 PMD_OCC_RTN
```

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SYSTEM INITIALIZATION                                                    0:17:53   2/06/81  ****

MEMORY UPDATE                                                                      CINIT          W77D

                                    01 # THE IRREVOCABLE DECISION TO GO ON-LINE HAS NOW BEEN MADE--DO IT!!



0005173 01 000243 131340 004750 0004750      07        LAL     RA1,MASTATEX,RA0    # RA1=ADDRESS OF HIGHEST TS WORD
0005175 01 000245 040361 ------              08        L       RA1+1,1(RA0)
0005176                                      09        L_ONL   0(RA1)
0005176 01 000246 076020 ------        -001- 10        STAF    0(RA1)
0005177 01 000247 136260 003405        -001- 11        DATA    B(1011110010110000)
0005200                                      12        IF      R0 ¬= A.MASID THEN RGBEGIN # DO RANGE IF MAS IS OUT-OF-DATE
0005200 01 000250 003405 121334 CBLM   -002- 13            CI      R0,MASID
0005202 01 000252 054057 ------ 0005261 -001- 14            BC      IFS386
0005203 01 000253 026126 ------              15            SBN     00DST,S(00DST)
                                             16 # ATTEMPT TO MOVE MAS DATA ONLY IF THE OTHER CC IS NOT IN MANUAL.
                                             17 # THE MAIN STORE MOVE WILL BE SKIPPED IF THE MCH FAILED.
                                             18 # THIS PROVIDES A WAY OF PROTECTING THE SYSTEM DURING CERTAIN MASSIVE
                                             19 # UPDATES SUCH AS THOSE FOR NEW GENERICS AND NEW TRANSLATIONS.
                                             20 # DURING THESE PROCEDURES BOTH CC'S ARE PLACED IN THE MANUAL STATE
                                             21 # WHICH IS AN ABNORMAL CONDITION. THE MANUAL STATE IS INTERPRETED AS
                                             22 # MEANING THAT THAT CC SHOULD NOT BE TOUCHED EITHER TO CHANGE IT
                                             23 # OR TO USE ITS DATA. HENCE IN THIS CASE, THE DATA FROM THE OTHER
                                             24 # MAS SHOULD NOT BE USED IF THE OTHER CC IS IN MANUAL.
                                             25 CINIT      OW      0(254)          # 3E790715
                                       -001- 26            NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 000254
                                                                     **********


                                             30 CPATCH2    BGNP    0(577)          # 3E790715
0005204 01 000254 037000 114706 0114706 -001- 31            BL      XXX390
                                       -001- 32            NOTE    CPATCH2 'CSECT'
                                       -001- 33            NOTE    ****************** PATCH AREA BEGINS AT 000577 ***************
                                                                    *


0114706                                -001- 37 XXX390     PATCHAREA
0114706 04 000577 126127 ------              38            SBN     R5,S(NOSTACC)
0114707                                      39            LMCH    RTNMB
0114707 04 000600 003401 000243        -001- 40            LI      R0,RTNMB
0114711                                -001- 41            CALL    SMCH
0114711 04 000602 073027 ------        -002- 42            BSAI    S%MCH           # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0114712                                      43            ENDP                    # 3E790715
0114712 04 000603 137000 005206 0005206 -001- 44            BL      XXX394
                                       -001- 45            NOTE    ************* LAST PATCH ADDRESS USED IS 000604 **************
                                                                    *
                                       -001- 47            NOTE    ***** NUMBER OF PATCH WORDS USED IS 6 (DECIMAL) ********


COMMON INITIALIZATION                                                                  PR-1C952-50
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   SYSTEM INITIALIZATION                                                                    0:17:53    2/06/81  ****

   MEMORY UPDATE                                                                                      CINIT          W77D

0005206                                    -001- 01 XXX394      OWCONTINUE
0005206                                          02             IF      CF THEN RGBEGIN # SKIP MASMOV IF MCH FAILED
0005206 01 000256 155053 ------ 0005261    -002- 03             BNC     IFS397
0005207 01 000257 022127 ------                  04             ZBN     R5,S(NOSTACC)
0005210                                          05             EOW                     # 3E790715
                                           -001- 06             NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000257
                                                                          **********


0005210 01 000260 012403 ------                  10             UNPK    MCHB
0005211 01 000261 024064 ------                  11             TBN     R3,S(MANKEY)
0005212                                          12             IF      ¬ CF THEN RGBEGIN
0005212 01 000262 054047 ------ 0005261    -002- 13             BC      IFS401
                                                 14 # CHECK MARKER WORD IN OFFLINE STORE TO BE SURE MAS DATA IS IN DATE.
                                                 15 CINIT       OW      0(263)          # 3E790427
                                           -001- 16             NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 000263
                                                                          **********


0005213                                          20             LOS     0(RA1)
0005213 01 000263 076020 ------            -001- 21             STAF    0(RA1)
0005214 01 000264 136160 003405            -001- 22             DATA    B(1011110001110000)
0005215                                          23             IF      R0 = A.MASID THEN RGBEGIN
0005215 01 000265 003405 121334 CBLM       -002- 24             CI      R0,MASID
0005217 01 000267 055042 ------ 0005261    -001- 25             BNC     IFS405
                                                 26 CPATCH2     BGNP    0(527)          # 3E790427
0005220 01 000270 037000 114636 0114636    -001- 27             BL      XXX407
                                           -001- 28             NOTE    CPATCH2 'CSECT'
                                           -001- 29             NOTE    ****************** PATCH AREA BEGINS AT 000527 ***************
                                                                         *


0114636                                    -001- 33 XXX407      PATCHAREA
0114636                                          34             CALL    INITOST
0114636 04 000527 137020 110443 CSYSUB     -001- 35             BSA     INITOST
0114640 04 000531 131420 004743 0004743          36             LAL     R1,CURPMS,RA1
0114642                                          37             CALL    UPD_OTS         # MOVE CURRENT POST-MORTEM DATA TO OMAS
0114642 04 000533 037020 110667 CSYSUB     -001- 38             BSA     UPD_OTS
                                                 39 # THIS MAY HAVE CAUSED AN OMAS ERROR, THEREFORE CLEAR THE ER AGAIN.
0114644                                          40             MIMODE  L ER,NOP
0114644 04 000535 113000 ------            -001- 41             MIS     0
0114645 04 000536 125360 ------            -002- 42              'FD     8,ER'T 8,NOP'F
0114646                                          43             ENDP                    # 3E790427
0114646 04 000537 037000 005222 0005222    -001- 44             BL      XXX413
                                           -001- 45             NOTE    ************ LAST PATCH ADDRESS USED IS 000540 **************
                                                                         *
                                           -001- 47             NOTE    ***** NUMBER OF PATCH WORDS USED IS 10 (DECIMAL) ********


   COMMON INITIALIZATION                                                                          PR-1C952-50

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0005222                                  -001- 01 XXX413    OWCONTINUE
0005222                                        02           EOW          # 3E790427
                                         -001- 03           NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 000271
                                                              **********


                                               07 CINIT     OW      0(272)       # 3E800099
                                         -001- 08           NOTE    ********** THE FIRST ADDRESS OVERWRITTEN IS 000272
                                                              **********


0005222                                        12           CALL    OMASTEST
0005222 01 000272 137020 006554 0006554  -001- 13           BSA     OMASTEST
0005224 01 000274 116120 002200                14           IRM     NOSTACC,RO,ES(NOSTACC,BADST)
0005226                                        15           IF      ¬ BADST THEN RGBEGIN
0005226 01 000276 024132 ------          -004- 16           TBN     BADST,S(BADST)
0005227 01 000277 054032 ------ 0005261  -002- 17           BC      IFS421
                                               18 CINIT     OW      0(300)       # 3E800105
                                         -001- 19           NOTE    ********** THE FIRST ADDRESS OVERWRITTEN IS 000300
                                                              **********


0005230                                        23 MCHUPENT
0005230 01 000300 103340 ------                24           ZR      RA1          # INITIALIZE ADDRESS POINTER
0005231                                        25           EOW                  # 3E800105
                                         -001- 26           NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 000300
                                                              **********


0005231 01 000301 003360 ------                30           ZR      RA1+1
0005232 01 000302 053005 ------ 0005237        31           B       SKIPINC      # DO NOT INCREMENT ADDRESS THIS FIRST TIME

0005233                                        33 MOVMASOLP
0005233                                        34           AIL     RA1,4096
0005233 01 000303 103760 010000          -001- 35           AI      RA1+1,4096
0005235 01 000305 055002 ------ 0005237  -001- 36           BNC     IFS428
0005236 01 000306 004741 ------          -001- 37           AI      RA1,1
0005237                                        38 SKIPINC
0005237                                        39           CALL    RGCHK32
0005237 01 000307 137020 110346 CSYSUB   -001- 40           BSA     RGCHK32
0005241                                        41           EOW          # 3E800099
                                         -001- 42           NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 000310
                                                              **********
```

```
0005241                                          01            IF      ¬ CF THEN RGBEGIN # DO RANGE WHILE ADDRESS IS STILL EQUIPPED
0005241 01 000311 154017 ------ 0005260  -002-  02            BC      IFS433
0005242 01 000312 024001 ------          -002-  03            TBN     R0,1            # IS THIS 4K BLOCK WRITE PROTECTED, IE,
                                                                                        PROGRAM?
0005243 01 000313 054003 ------ 0005246          05            BC      MOVMAS          # BRANCH IF NO--UNWRITE PROTECTED BLOCKS ARE
                                                                                        ALWAYS MOVED
0005244                                          07            IF      ¬ BOOT THEN RGBEGIN # IF SYSTEM DID NOT BOOTSTRAP THE REST
                                                                                        NEEDS TO BE MOVED ALSO. IF THIS IS A
                                                                                        BOOTSTRAP, THE REST WAS JUST LOADED FROM
                                                                                        TAPE.
0005244 01 000314 024125 ------          -004-  11            TBN     BOOT,S(BOOT)
0005245 01 000315 054012 ------ 0005257  -002-  12            BC      IFS435
0005246                                          13 MOVMAS
0005246 01 000316 103441 007777                  14            LI      R2,4096-1       # SET UP TO MOVE A 4K BLOCK
0005250                                          15            CALL    RESETPT         # THIS TAKES A LONG TIME
0005250 01 000320 073042 ------          -001-  16            BSAI    RXESETPT        # SUBROUTINE RESETPT IS IN PROGRAM CBLM
0005251                                          17 MOVMASILP
0005251                                          18            LOSX    R2(RA1)
0005251 01 000321 176062 ------          -001-  19            STAFX   R2(RA1)
0005252 01 000322 136160 ------          -001-  20            DATA    B(1011110001110000)
0005253                                          21            IF      ¬ CF THEN STX R0,R2(RA1) # USE DATA ONLY IF IT IS ERROR FREE
0005253 01 000323 054002 ------ 0005255  -002-  22            BC      IFS441
0005254 01 000324 046402 ------          -002-  23            STX     R0,R2(RA1)      #
0005255                                  -002-  24 IFS441
0005255 01 000325 136040 005251 0005251          25            BX      R2,MOVMASILP
0005257                                          26            RGEND
0005257                                  -001-  27 IFS435
0005257 01 000327 153754 ------ 0005233          28            B       MOVMASOLP
0005260                                          29            RGEND
0005260                                  -001-  30 IFS433
                                                 31 CINIT      OW      0(330)          # 3E790334
                                         -001-  32            NOTE    ********** THE FIRST ADDRESS OVERWRITTEN IS 000330
                                                                        **********


0005260 01 000330 122126 ------                   36            ZBN     OODST,S(OODST)  # At this point store is in date.
0005261                                          37            RGEND
0005261                                  -001-  38 IFS421
0005261                                          39            RGEND
0005261                                  -001-  40 IFS405
0005261                                          41            RGEND
0005261                                  -001-  42 IFS401
0005261                                          43            RGEND
0005261                                  -001-  44 IFS397
0005261                                          45            RGEND
0005261                                  -001-  46 IFS386
                          0000031                47 MCHUPLEN EQU   *-MCHUPENT          # LENGTH FOR MCH UPDATE ROUTINE
```

```
                                        01 # THE OFF-LINE STORE HAS BEEN MOVED TO THE ON-LINE BY OMASTEST
                                        02 # IF IT WAS NECESSARY. THEREFORE, THE CURRENT ON-LINE STORE
                                        03 # IS THE UP-TO-DATE ONE AND IS SO MARKED. IT SHOULD ALREADY
                                        04 # BE MARKED UP-TO-DATE SO THAT THIS EXPLICIT LOAD IS A PRECAUTIONARY MEASURE.
0005261 01 000331 103401 121334 CBLM      05        LI      R0,MASID
0005263 01 000333 035400 043351 CTSD      06        STAL    R0,MASTATE,RA1
                                        07 # THE SYSTEM IS NOT NOW IN THE UPDATE MODE.
                                        08 # CONSEQUENTLY, THE TWO STORES WILL NOT BE THE SAME
                                        09 # AS SOON AS A WRITE IS PERFORMED. THE OFF-LINE STORE
                                        10 # WILL THEN BE OUT-OF-DATE. IT IS IMPORTANT TO MARK IT
                                        11 # OUT-OF-DATE NOW BEFORE THE STORE IS CHANGED. IN PARTICULAR,
                                        12 # IT IS IMPERATIVE THAT IT BE MARKED BAD BEFORE INITL
                                        13 # IN WORD INITLVL IS INCREMENTED.

0005265 01 000335 003000 ------            15        ZR      R0
0005266                                 16        STOS    0(RA1)              # MARK OMAS OUT-OF-DATE
E0005266 01 000336 000420 ------  -001- 17        MSTF    0(RA1)
 0005267 01 000337 136100 031000  -001- 18        DATA    B(1011110001000000)



                                        24 # DETERMINE WHETHER THE COMMON SYSTEM 'CRITICAL' DATA HAS
                                        25 # BAD PARITY.  IF SO, ZERO IT.  THE TEST AND ZEROING IS DONE
                                        26 # ON A PER ENTRY BASIS FOR EACH CRITICAL ENTRY IS CCLRTBL.
                                        27 CINIT  OW      0(340)              # 11733
                                  -001- 28        NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 000340 **********

0005270 01 000340 031000 132263 CTSD          31        LAL     R0,CCLRTBL+L6CLR+L6CLR-2,RA0
0005272                                 32        EOW                         # 11733
                                  -001- 33        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000341 *********
                                                           *

0005272 01 000342 003100 ------ CTSD      37        LN      R4,L7CLR-L6CLR-1
0005273                                 38 BPCHKLP
0005273 01 000343 141342 ------          39        LA      RA1,2(RA0)
0005274 01 000344 040361 ------          40        L       RA1+1,1(RA0)
0005275 01 000345 016456 177760          41        LRM     R2,R14,MSK(12,4)
0005277 01 000347 010444 ------          42        RRN     R2,4
0005300 01 000350 006062 ------          43        LR      R3,R2               # RESERVE R2 FOR MAS_ZERO, SET UP R3 FOR
                                                                                 BPCHKILP
0005301 01 000351 004441 ------          45        AN      R2,1
0005302                                 46 BPCHKILP
0005302                                 47        L_ONLX  R3(RA1)
0005302 01 000352 176063 ------  -001- 48        STAFX   R3(RA1)
0005303 01 000353 136260 ------  -001- 49        DATA    B(1011110010110000)
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0005304                                                  01        IF      CF THEN RGBEGIN     # DO RANGE ON PARITY ERROR
0005304 01 000354 055004 ------ 0005310          -002-  02            BNC     IFS458
0005305                                                  03            CALL    MAS_ZERO        # ZERO ENTIRE BLOCK CONTAINING BAD PARITY
0005305 01 000355 037021 014574 MASACS           -001-  04            BSA     MAS_ZERO
0005307 01 000357 103060 ------                         05            ZR      R3              # TERMINATE BPCHKILP
0005310                                                  06            RGEND
0005310                                          -001-  07 IFS458
0005310 01 000360 136060 005302 0005302                  08        BX      R3,BPCHKILP
0005312 01 000362 036100 005273 0005273                  09        BX      R4,BPCHKLP

0005314                                                  11        CALL    WPST
0005314 01 000364 037020 110451 CSYSUB           -001-  12        BSA     WPST



0005316                                                  16        CALL    WPOST               # INITIALIZE THE OFF-LINE CU (OMAS AND OCC)
0005316 01 000366 137020 110453 CSYSUB           -001-  17        BSA     WPOST

0005320                                                  19        EOW                         # 3E790334
                                                 -001-  20        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000367 *********
                                                                           *



                                                         24 # AN ATTEMPT IS ABOUT TO BE MADE TO GET THE CONTENTS
                                                         25 # OF THE OFF-LINE STORE.  IF IT IS SUCCESSFUL, THE CURRENT
                                                         26 # POST-MORTEM SLOT WOULD BE OVERWRITTEN.  HENCE, AN ATTEMPT
                                                         27 # IS FIRST MADE TO MOVE THE AREAS OF CTSD THAT HAVE
                                                         28 # ALREADY BEEN INITIALIZED OVER TO THE OFF-LINE SO THAT
                                                         29 # THEY CAN THEN BE MOVED BACK.  NO TEST OF THE OFF-LINE
                                                         30 # STORE HAS BEEN PERFORMED AT THIS POINT.  THEREFORE, OMAS
                                                         31 # ERRORS MAY OCCUR. THE IM REGISTER IS STILL SET TO BLOCK
                                                         32 # THE ERROR INTERRUPT AND THUS PREVENT INTERFERENCE.

0005320 01 000370 103401 064000 CBLM                     34        LI      R0,M(SW_IP)+M(RST_IP)+M(SSP_OOS) # SET UP FOR UPDSTATZ FOR CASE
                                                                                                            WHERE RANGE IS NOT PERFORMED
                                                         36 # A SWITCH MEANS THE OUT-OF-SERVICE CU IS NOW ACTIVE.
0005322                                                  37        IF      ¬ ICC THEN LI R0,M(OSA_FALT)+M(SW_IP)+M(RST_IP)+M(SSP_OOS)+M(MAS
                                                                             _OOS)                  # SET UP FOR UPDSTATZ
0005322 01 000372 024120 ------                  -004-  39            TBN     ICC,S(ICC)
0005323 01 000373 054003 ------ 0005326         -002-  40            BC      IFS466
0005324 01 000374 003401 066020 CBLM            -002-  41            LI      R0,M(OSA_FALT)+M(SW_IP)+M(RST_IP)+M(SSP_OOS)+M(MAS_OOS) #
0005326                                          -002-  42 IFS466
                                                         43 # THEREFORE, UPDATE STATE BITS TO REFLECT THIS. IF THE NEWLY
                                                         44 # OFF-LINE IS BAD, IT WILL BE DETECTED LATER AND MARKED
                                                         45 # OUT-OF-SERVICE.
0005326                                                  46        CALL    UPDSTATZ
0005326 01 000376 137020 001723 CBLM             -001-  47        BSA     UPDSTATZ
```

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                                                 01 # THIS COMPLETES THE INITIALIZATION OF THE CC
                                                 02 # WE ARE ABOUT TO BEGIN ANALYSIS AND PERIPHERAL INITIALIZATION.
                                                 03 # THE CC IS PRESUMED GOOD AT THIS
                                                 04 # POINT AND THE HARDWARE CHECKS CAN AND SHOULD BE RELEASED TO
                                                 05 # AGAIN PROVIDE SELF CHECKING.


0005330 01 000400 131340 004756 0004756          09        LAL     RA1,INITLVLX,RA0
0005332 01 000402 040361 ------                 10        L       RA1+1,1(RA0)
0005333                                         11        L_ONL   0(RA1)
0005333 01 000403 076020 ------          -001-  12        STAF    0(RA1)
0005334 01 000404 136260 037000          -001-  13        DATA    B(10111100010110000)
                                                14 CINIT  OW      0(405)              # 3E790474
                                        -001-   15        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000405 **********


                                                18 CPATCH2 BGNP   0(541)              # 3E790474
0005335 01 000405 037000 114650 0114650  -001-  19        BL      XXX474
                                        -001-   20        NOTE    CPATCH2 'CSECT'
                                        -001-   21        NOTE    ****************** PATCH AREA BEGINS AT 000541 ****************


0114650                                 -001-   24 XXX474 PATCHAREA
0114650 04 000541 104401 ------                 25        AN      R0,1                # INCREMENT LEVEL COUNT
                                                26 # INITL MUST BE SAVED IN TWO DIFFERENT REGISTERS HERE.
                                                27 # ONE TO BE USED AS A FLAG TO DETERMINE WHETHER OR NOT
                                                28 # THE POSTMORTEM DATA WILL BE COPIED INTO THE LOWER HALF
                                                29 # OF THE POSTMORT; THE OTHER TO BE STORED IN INITLVL.
                                                30 # SINCE THE LEVEL MAY CHANGE BETWEEN NOW AND THE TIME
                                                31 # THE DECISION TO COPY IS MADE, THERE IS A NEED TO
                                                32 # PRESERVE THE INITIAL ENTRY LEVEL.
0114651 04 000542 006020 ------                 33        LR      R1,R0               # SAVE INITL FOR BOOT TEST
0114652 04 000543 006100 ------                 34        LR      R4,R0               # SAVE INITIAL ENTRY LEVEL FOR COPY

                                                36 # A CHECK IS BEING MADE TO SEE IF THERE WAS A BOOTSTRAP.
                                                37 # IF BOOT BIT IS SET, THERE WAS. THIS MEANS THAT CIPL
                                                38 # MUST BE CLEARED OUT OF THE PAGING BUFFER. THE PAGEMAP
                                                39 # MUST BE CLEARED TOO. THE INITIALIZATION LEVEL MUST BE AT
                                                40 # LEAST 2 TO DO THIS.

0114653 04 000544 024125 ------                 42        TBN     R5,S(BOOT)          # TEST FOR BOOT
0114654                                         43        IF      CF THEN RGBEGIN
0114654 04 000545 055004 ------ 0114660 -002-  44            BNC     IFS477
0114655 04 000546 004036 ------                 45            SN      R1,2            # IS THIS AT LEAST A LEVEL 2 ALREADY?
0114656                                         46            IF      CF = 0 THEN LN R1,2
0114656 04 000547 054002 ------ 0114660 -001-  47            BC      IFS478
0114657 04 000550 003022 ------         -001-  48            LN      R1,2            #
0114660                                 -001-   49 IFS478
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```
0114660                                        01           RGEND
0114660                                 -001-  02 IFS477
0114660 04 000551 102420 000017                03           STM     R1,0(RA1),M(INITL)  # DO NOT DESTROY RECYCLE
0114662                                        04           ENDP                        # 3E790474
0114662 04 000553 037000 005337 0005337 -001-  05           BL      %%%480
                                        -001-  06           NOTE    ************* LAST PATCH ADDRESS USED IS 000554 ****************
                                        -001-  07           NOTE    ***** NUMBER OF PATCH WORDS USED IS 12 (DECIMAL) ********

0005337                                 -001-  10 %%%480 OWCONTINUE
0005337                                        11           EOW                         # 3E790474
                                        -001-  12           NOTE    **************** THE LAST ADDRESS OVERWRITTEN IS 000406 *********
                                                                     *
```

```
01 # THIS IS THE FIRST POINT AT WHICH THE PROCESSOR
02 # COMPLEX IS IN A GOOD STATE AND HENCE THE EARLIEST
03 # POINT AT WHICH AN ENTRY TO THE APPLICATION PROGRAMS
04 # IS POSSIBLE.
05         *
06         *
07         *       1.3 SUMMARY OF INTERFACES
08         *       ------------------------
09         *       1.3.1 APPLICATION ROUTINES
10         *       -------------------------
11         *       1.3.1.1 APPLICATION INITIALIZATION--EARLY ENTRY
12         *       ----------------------------------------------
13         *
14         *       DESCRIPTION:
15         *       BASE LEVEL APPLICATION ROUTINE.  THIS ENTRY IS INTENDED TO
                     PROVIDE THE
17         *       OPPORTUNITY FOR THE APPLICATION TO:
18         *       --SHUT OFF AUTONOMOUS PERIPHERAL CIRCUITS
19         *       --DO ANALYSIS ON TEMPORARY STORE DATA
20         *
21         *       ENTRY POINT:
22         *       INITAE
23         *
24         *       ENTRY CONDITIONS:
25         *       GENERAL--
26         *       ONLY THE CC AND PERMANENT MEMORY HAS BEEN INITIALIZED
27         *       AT THIS POINT. NO INITIALIZATION OF TEMPORARY MEMORY
28         *       OR THE IO CHANNELS HAS BEEN PERFORMED.
29         *       R0 = LEVEL NUMBER
30         *       RA1 = BASE ADDRESS OF CURRENT POSTMORTEM SLOT
31         *       SYSTATE, INITIALIZATION DATA, AND MUCH MORE INFORMATION ABOUT
32         *       THE STATE OF THE SYSTEM AT THE TIME OF INITIALIZATION
33         *       IS AVAILABLE THFRE. SEE LAYOUT OF POSTMORTEM AREA.
34         *
35         *       RETURN POINT:
36         *       INITAER IN CINIT
37         *
38         *       RETURN CONDITIONS:
39         *       NONE
40         *
41         *


    45 CINIT  OW      0(407)              # 3E790474
-001- 46      NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 000407 **********
```

```
0005337                                        01        TAKEOUT 1                 # 3E790474
0005337 01 000407 106000 ------          -001- 02        LR      0,0
0005340                                        03        EOW                       # 3E790474
                                         -001- 04        NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 000407 *********
                                                                  *


0005340 01 000410 031000 043456 CTSD           08        LAL     R0,MINUTES,RA0    # COMBINE LEVEL NO., SECONDS, AND MINUTES IN
                                                                                     R4
0005342                                        10        CALL    BCDXBIN           # CONVERT TO BINARY TO REDUCE TO SIX BITS
0005342 01 000412 073030 ------          -001- 11        BSAI    B%CDXBIN          # SUBROUTINE BCDXBIN IS IN PROGRAM CSYSUB
0005343 01 000413 110406 ------                12        RLN     R0,10
0005344 01 000414 016100 176000                13        IRM     R4,R0,MSK(6,10)
0005346 01 000416 040001 ------                14        L       R0,1(RA0)
0005347                                        15        CALL    BCDXBIN           # CONVERT TO BINARY TO REDUCE DATA TO SIX
                                                                                     BITS
0005347 01 000417 073030 ------          -001- 17        BSAI    B%CDXBIN          # SUBROUTINE BCDXBIN IS IN PROGRAM CSYSUB
0005350 01 000420 110414 ------                18        RLN     R0,4
0005351 01 000421 016100 001760                19        IRM     R4,R0,MSK(6,4)
                                               20 CINIT  OW      0(423)            # 3E790699
                                         -001- 21        NOTE    ********** THE FIRST ADDRESS OVERWRITTEN IS 000423 **********


                                               24 CPATCH2 BGNP   0(613)            # 3E790699
0005353 01 000423 037000 114722 0114722  -001- 25        BL      XXX494
                                         -001- 26        NOTE    CPATCH2 'CSECT'
                                         -001- 27        NOTE    ********** PATCH AREA BEGINS AT 000613 **********


0114722                                  -001- 30 XXX494 PATCHAREA
0114722 04 000613 131400 043352 CTSD           31        LAL     R0,POSTMORT,RA1
0114724 04 000615 002500 177767                32        STM     R4,0(RA1),-M(RCYCLVL)
0114726                                        33        ENDP                      # 3E790699
0114726 04 000617 037000 005355 0005355  -001- 34        BL      XXX496
                                         -001- 35        NOTE    ********** LAST PATCH ADDRESS USED IS 000620 **********
                                         -001- 36        NOTE    ***** NUMBER OF PATCH WORDS USED IS 6 (DECIMAL) ********


0005355                                  -001- 39 XXX496 OWCONTINUE
0005355                                        40        EOW                       # 3E790699
                                         -001- 41        NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 000424 *********
                                                                  *


0005355 01 000425 144523 ------                 45        ST      R5,PMISC(RA1)
0005356 01 000426 003300 ------                46        ZR      RA0
0005357 01 000427 031720 043376 CTSD           47        LAL     RA0+1,POSTMORT+PHG,RA1
0005361 01 000431 041423 ------                48        LA      R1,3(RA1)         # RA1=START OF RETURN ADDRESSES MINUS ONE
0005362 01 000432 003042 ------                49        LN      R2,2              # THREE LOOPS
```

```
0005363 ,                                                  01 RTNADRLP
0005363                                                    02        IF      R13 < A.HGAREA+TBLSIZ(HGAREA) THEN RGBEGIN
0005363 01 000433 106015 ------            -003-           03            LR      R0,R13
0005364 01 000434 003400 135000 LAYOUT     -003-           04            SI      R0,HGAREA+TBLSIZ(HGAREA)
0005366 01 000436 054013 ------ 0005401    -001-           05            BC      IFS500
0005367                                                    06            L_ONL   0(RA0)
0005367 01 000437 076000 ------            -001-           07            STAF    0(RA0)
0005370 01 000440 136260 ------            -001-           08            DATA    B(1011110010110000)
0005371 01 000441 045401 ------                            09            STA     R0,1(RA1)
0005372                                                    10            L_ONL   1(RA0)
0005372 01 000442 076001 ------            -001-           11            STAF    1(RA0)
0005373 01 000443 136260 ------            -001-           12            DATA    B(1011110010110000)
0005374 01 000444 045401 ------                            13            STA     R0,1(RA1)
0005375 01 000445 003720 000020 LAYOUT                     14            AI      RA0+1,ENTRYSIZ(HGAREA) # INCREMENT TO NEXT LEVEL
0005377 01 000447 036040 005363 0005363                    15            BX      R2,RTNADRLP
0005401                                                    16            RGEND
0005401                                           -001-    17 IFS500

                                                           19 # HG REGISTER IS NOW RESET TO ITS BASE VALUE BECAUSE
                                                           20 # NO MORE SUBROUTINES WILL BE CALLED BEFORE INITAE ENTRY
0005401 01 000451 103401 042760 LAYOUT                     21        LI      R0,HGAREA+TBLSIZ(HGAREA)-ENTRYSIZ(HGAREA)
0005403                                                    22        MIMODE  L HG,R0
0005403 01 000453 013000 ------            -001-           23        MIS     0
0005404 01 000454 032523 ------            -002-           24              VFD     8,HG%T 8,R0%F
0005405 01 000455 031420 043352 CTSD                       25        LAL     R1,POSTMORT,RA1
0005407                                                    26        MIMODE  ZER                     # ZERO THE ER
0005407 01 000457 013000 ------            -001-           27        MIS     0
0005410 01 000460 025750 ------            -002-           28              DATA    ZER%

                                                           30 # THE INITIALIZATION OF THE SS REGISTER WITH THE EXCEPTION OF
                                                           31 # BITS ISC1 AND ISC2 IS COMPLETED AT THIS TIME.
0005411 01 000461 003057 ------                            32        LN      R2,MSK(4)
0005412 01 000462 003461 166077                            33        LI      R3,~ES(LOF,LON,ISC1,ISC2,CC)
0005414 01 000464 012360 ------                            34        PACK    SS_R                    # TURN HARDWARE CHECKS ON
0005415 01 000465 003461 177777                            35        LI      R3,MSK(16)
0005417 01 000467 012220 ------                            36        PACK    DB                      # DB=ALL ONES
0005420 01 000470 037001 005771 INITA                      37        BL      INITAE                  # ENTER APPLICATION
0005422                                                    38 INITAER                                 # RETURN FROM APPLICATION
```

```
                                          01 # INITIALIZE ALL EQUIPPED SERIAL CHANNELS
                                          02 # SPECIAL IO INTERFACES WILL BE HANDLED BY THE APPLICATION

 0005422                                  04        EQIOCHANR_PICTURE
EQIOCHANR                           -001- 05 #
00|                                       |               NSTCHN                  |              NCHN                 |
  |                                       |     NUMBER OF STANDARD CHANNELS      |      NUMBER OF IO CHANNELS        |
01|                 IO3X6                 | IOSP |                                |              IOCHAN               |
  |    3-OUT-OF-6 CODE TO ADDRESS CHANNEL |      |             SPARE              |         NUMBER OF CHANNEL         |
  |  15  |  14  |  13  |  12  |  11  |  10 |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |
 0005422 01 000472 131402 020000 TDATA           14          LAL      R0,EQIOCHAN,RA1
 0005424 01 000474 004017 ------                 15          SN       R0,1              # BX NEEDS LOOPS MINUS ONE
 0005425 01 000475 003402 000037                 16          NI       R0,M(NCHN)
 0005427 01 000477 003621 016160                 17          LI       R9,PACK(6,3X6_0 6,3X6_0)
 0005431                                         18 IOINITLP
 0005431 01 000501 141421 ------                 19          LA       IOSP,1(RA1)
 0005432                                         20          IF       ¬ IOSP THEN RGBEGIN
 0005432 01 000502 024031 ------           -004- 21               TBN      IOSP,S(IOSP)
 0005433 01 000503 054004 ------ 0005437   -002- 22               BC       IFS513
 0005434 01 000504 016221 176000                 23               IRM      R9,IO3X6,M(IO3X6)
 0005436 01 000506 023560 ------                 24               ZIO
 0005437                                         25               RGEND
 0005437                                   -001- 26 IFS513
 0005437 01 000507 136000 005431 0005431         27          BX       R0,IOINITLP
```

```
                                                    01 # CHECK FOR INITLVL >= CLRLVL+1

                                                    03 CINIT  OW        0(511)                 # 3E790699
                                             -001-  04                  NOTE      ************** THE FIRST ADDRESS OVERWRITTEN IS 000511 **********

                                                    07 CPATCH2 BGNP     0(555)                 # 3E790699
0005441 01 000511 037000 114664 0114664      -001-  08         BL       %%%520
                                             -001-  09         NOTE     CPATCH2 'CSECT'
                                             -001-  10         NOTE     ****************** PATCH AREA BEGINS AT 000555 *****************

0114664                                      -001-  13 %%%520 PATCHAREA
0114664 04 000555 130400 043025 CTSD                14         LL       RO,INITLVL
0114666 04 000557 003402 000017                     15         NI       RO,M(INITL)            # OBTAIN THE INITIALIZATION LEVEL ONLY
0114670                                             16         ENDP                            # 3E790699
0114670 04 000561 037000 005443 0005443      -001-  17         BL       %%%522
                                             -001-  18         NOTE     ************* LAST PATCH ADDRESS USED IS 000562 ****************
                                             -001-  19         NOTE     ***** NUMBER OF PATCH WORDS USED IS 6 (DECIMAL) ********

0005443                                      -001-  22 %%%522 OWCONTINUE
0005443                                             23         EOW                             # 3E790699
                                             -001-  24         NOTE     **************** THE LAST ADDRESS OVERWRITTEN IS 000512 *********
                                                                         *

0005443 01 000513 103400 177776                     28         SI       RO,CLRLVL+1
0005445 01 000515 055007 ------ 0005454             29         BNC      NOCLR
                                                    30 CINIT   OW       0(516)                 # 11733
                                             -001-  31         NOTE     ************** THE FIRST ADDRESS OVERWRITTEN IS 000516 **********

0005446 01 000516 003421 000011 CTSD                34         LI       R1,L6CLR               # L6CLR NOW EQ 9
0005450                                             35         EOW                             # 11733
                                             -001-  36         NOTE     **************** THE LAST ADDRESS OVERWRITTEN IS 000517 *********
                                                                         *

0005450 01 000520 031400 132242 CTSD                40         LAL      RO,CCLRTBL-1,RA1
0005452                                             41         CALL     ZERO_TS
0005452 01 000522 037020 110675 CSYSUB       -001-  42         BSA      ZERO_TS
0005454                                             43 NOCLR
```

```
                                    01 # ABORT ALL MULTI-SCAN FUNCTIONS ON EVERY INIT
                                    02 # THIS MUST BE DONE AFTER CLEARING STORE SO THAT IT WILL
                                    03 # NOT USE ANY STORE DATA THAT MAY HAVE BAD PARITY.
                                    04 # IF THE STORE WAS ZEROED, THE CALL TO ABORT IS NOT NEEDED.
                                    05 # IT IS CALLED ONLY BECAUSE THIS IS EASIER THAN MAKING A
                                    06 # SPECIAL TEST.
                                    07 RO      =       MSK(16)
0005454 01 000524 103401 177777  -004- 08            LI      RO,MSK(16)
0005456                             09          CALL    MSFABT
0005456 01 000526 073050 ------  -001- 10          BSAI    M%SFABT             # SUBROUTINE MSFABT IS IN PROGRAM CBLM
```

```
                                    01        *       1.3.1.2 APPLICATION INITIALIZATION--MIDDLE ENTRY
                                    02        *       ------------------------------------------------
                                    03        *
                                    04        *       DESCRIPTION:
                                    05        *       BASE LEVEL APPLICATION ROUTINE.  THIS ENTRY IS INTENDED TO
                                                        PROVIDE THE
                                    07        *       OPPORTUNITY FOR THE APPLICATION TO:
                                    08        *       --INITIALIZE ITS TEMPORARY MEMORY
                                    09        *       --CLEAR COMMON SYSTEM CRITICAL MEMORY VIA SUBROUTINE Z_CRITTS
                                    10        *       --INITIALIZE PERIPHERAL CIRCUITS
                                    11        *
                                    12        *       ENTRY POINT:
                                    13        *       INITAM
                                    14        *
                                    15        *       ENTRY CONDITIONS:
                                    16        *       GENERAL--
                                    17        *       ALL COMMON SYSTEM INITIALIZATION HAS OCCURRED
                                    18        *       AT THIS POINT.
                                    19        *       SEE INITAE
                                    20        *
                                    21        *       RETURN POINT:
                                    22        *       INITAMR IN CINIT
                                    23        *
                                    24        *       RETURN CONDITIONS:
                                    25        *       NONE
                                    26        *
                                    27        *


0005457 01 000527 131400 043352 CTSD       31        LAL     R0,POSTMORT,RA1
                                          32 CINIT  OW      0(531)              # 3E790699
                                  -001-   33        NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 000531 **********


                                          36 CPATCH2 BGNP   0(563)              # 3E790699
0005461 01 000531 037000 114672 0114672 -001-   37        BL      XXX539
                                  -001-   38        NOTE    CPATCH2 'CSECT'
                                  -001-   39        NOTE    ****************** PATCH AREA BEGINS AT 000563 *****************


0114672                           -001-   42 XXX539 PATCHAREA
0114672 04 000563 130400 043025 CTSD      43        LL      R0,INITLVL
0114674 04 000565 003402 000017           44        NI      R0,M(INITL)         # OBTAIN THE INITIALIZATION LEVEL ONLY
0114676                                   45        ENDP                        # 3E790699
0114676 04 000567 037000 005463 0005463 -001-   46        BL      XXX541
                                  -001-   47        NOTE    ************* LAST PATCH ADDRESS USED IS 000570 ***************
                                  -001-   48        NOTE    ***** NUMBER OF PATCH WORDS USED IS 6 (DECIMAL) ********
```

```
SYSTEM INITIAL'IZATION                                                    0:17:53   2/06/81  ****

MIDDLE APPLICATION ENTRY                                                              CINIT          W77D

0005463                              -001- 01 XXX541 OWCONTINUE
0005463                                    02        EOW                          # 3E790699
                                     -001- 03        NOTE     ********** THE LAST ADDRESS OVERWRITTEN IS 000532 *********
                                                               *


0005463 01 000533 137001 006246 INITA       07        BL       INITAM             # ENTER APPLICATION
0005465                                    08 INITAMR                             # RETURN FROM APPLICATION
```

```
                                    01 # THE SYSTEM INITIALIZATION HAS BEEN COMPLETED AT THIS POINT
                                    02 # THE FOLLOWING CLEAN UP TASKS REMAIN:
                                    03 # PRINT INIT MESSAGE
                                    04 # RING APPROPRIATE ALARM(S)



                                    08 CINIT  OW      0(535)              # 3E790699
                                -001- 09      NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000535 **********


                                    12 CPATCH2 BGNP   0(571)              # 3E790699
0005465 01 000535 137000 114700 0114700 -001- 13      BL      XXX548
                                -001- 14      NOTE    CPATCH2 'CSECT'
                                -001- 15      NOTE    ****************** PATCH AREA BEGINS AT 000571 *****************


0114700                         -001- 18 XXX548 PATCHAREA
0114700 04 000571 130600 043025 CTSD   19      LL      R8,INITLVL
0114702 04 000573 003602 000017       20      NI      R8,M(INITL)           # OBTAIN THE INITIALIZATION LEVEL ONLY
0114704                               21      ENDP                          # 3E790699
0114704 04 000575 037000 005467 0005467 -001- 22      BL      XXX550
                                -001- 23      NOTE    ************* LAST PATCH ADDRESS USED IS 000576 ****************
                                -001- 24      NOTE    ***** NUMBER OF PATCH WORDS USED IS 6 (DECIMAL) ********


0005467                         -001- 27 XXX550 OWCONTINUE
0005467                               28      EOW                           # 3E790699
                                -001- 29      NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000536 *********
                                                      *


0005467 01 000537 131000 043352 CTSD   33      LAL     R0,POSTMORT,RA0
                                    34 # IF INITL=0,THE APPLICATION ROUTINE HAS ZEROED IT
                                    35 # INDICATING THIS IS THEIR HIGHEST LEVEL. THE
                                    36 # NEXT INITIALIZATION WILL BE A LEVEL 1 TO ALLOW
                                    37 # THE SYSTEM TO RECOVER FROM THE CLUBBING IT JUST TOOK.
                                    38 # THE FACT THAT THE MOST SEVERE AUTOMATIC ACTION HAS BEEN
                                    39 # TAKEN IS FLAGGED BY SETTING THE RECYCLE BIT IN THE
                                    40 # POSTMORTEM AREA. NO ACTION IS TAKEN ON THIS FLAG.
                                    41 # IT IS STRICTLY FOR LATER ANALYSIS.

                                    43 # THE PHILOSOPHY UP TO THIS LEVEL HAS BEEN TO SUCCESSIVELY
                                    44 # INITIALIZE LARGER AND LARGER PORTIONS OF UNPROTECTED MEMORY
                                    45 # IN AN EFFORT TO PURGE THE SYSTEM OF BAD DATA. THIS IS
                                    46 # THE HIGHEST LEVEL AND HENCE ALL MEMORY THAT IS ALLOWED
                                    47 # TO BE CLEARED AUTOMATICALLY HAS BEEN CLEARED. THE PROTECTED
                                    48 # MEMORY, HOWEVER, HAS NOT BEEN INITIALIZED AND SOME PORTION
                                    49 # OF IT MAY BE BAD. THE ONLY THING LEFT TO TRY IS THE
```

```
                                01 # AUDITING OF THIS PORTION OF MEMORY. THE CONTENTS OF MEMORY
                                02 # IS AUDITED AGAINST A SET OF 'CHECK SUMS' MAINTAINED ON TAPE.
                                03 # THE BOOTSTRAP PROGRAM (CIPL) ALWAYS RUNS THIS AUDIT BY
                                04 # CALCULATING THE CHECK SUMS AND COMPARING THE RESULT AGAINST
                                05 # THE TAPE COPY. THE MOST STRAIGHTFORWARD MEANS OF RUNNING
                                06 # THE CHECK SUM AUDIT IS TO INITIATE THE EXECUTION OF
                                07 # THE BOOTSTRAP PROGRAM. THIS CAN BE DONE BY SETTING THE
                                08 # ISC1 AND ISC2 BITS TO ONE AND CAUSING A SYSTEM INITIALIZATION.

                                10 # THE STRATEGY TAKEN HERE IS TO SET BOTH ISC1 AND ISC2 SO THAT
                                11 # AN INITIALIZATION WITHIN THE NEXT 1000 BASE LEVEL LOOPS
                                12 # (ISC1 AND ISC2 ARE CLEARED AT THAT TIME) WILL CAUSE A
                                13 # BOOTSTRAP AND THE ATTENDANT RUNNING OF THE CHECK SUM AUDIT.
                                14 # THIS MEANS THAT THE SYSTEM WILL HAVE ONE LAST CHANCE TO
                                15 # SUCCEED NOW THAT THE MAXIMUM AMOUNT OF UNPROTECTED
                                16 # STORE HAS BEEN CLEARED.

                                18 # ON OTHER THAN THE HIGHEST INITIALIZATION LEVEL, ISC2 IS CLEARED BUT NOT ISC1.
                                19 # THE ISC1 BIT IS NOT ZEROED AT THIS TIME TO COVER CERTAIN SYSTEM
                                20 # FAULTS. THE FIRST INITIALIZATION DOES NOT CAUSE A SWITCH
                                21 # TO THE STANDBY CU. HENCE, IF THE FAULT IS SUCH THAT THE
                                22 # INITIALIZATION CAN BE SUCCESSFULLY EXECUTED BUT THE
                                23 # SYSTEM DOES NOT CYCLE, RECOVERY WILL NOT OCCUR
                                24 # IF THE ISC1 BIT IS ZEROED DURING THE INITIALIZATION.
                                25 # LEAVING ISC1 SET MEANS THE NEXT ERROR WILL CAUSE
                                26 # A SWITCH AND RECOVERY. THE ISC1 BIT IS CLEARED
                                27 # AT THE END OF THE INITIALIZATION INTERVAL AS DETECTED
0005471                         28 # IN CBLM.
                                29
                                30 # THE ISC BITS IN THE OFF-LINE CC ARE ALWAYS ZEROED EXCEPT WHEN
                                31 # THE LEVEL COUNT RECYCLES IN WHICH CASE THEY ARE BOTH SET.
                                32 # SETTING BOTHS BITS GUARANTEES THAT THE CHECK SUM AUDIT WILL BE
                                33 # RUN REGARDLESS OF WHETHER THE NEXT INITIALIZATION CAUSES A SWITCH.
                                34 # THE BITS ARE ZEROED SO THAT INTERMEDIATE INITIALIZATIONS WILL NOT
0005471                         35 # REQUIRE A TIMEOUT TO RECOVER.
                                36
0005471                         37 # THE FOLLOWING TABLE CONTAINS THE ALGORITHM:
                                38
                                39 #     CONDITION                  ON-LINE ACTION    OFF-LINE ACTION
                                40 #     ---------                  --------------    ---------------
0005471                         41
                                42 # LEVEL DID NOT RECYCLE AND        ISC2=0            ISC2=ISC1=0
0005471                         43 #   CU IS NOT LOCKED
                                44
                                45 # LEVEL DID NOT RECYCLE AND        ISC2=ISC1=0       ISC2=ISC1=0
0005471                         46 #   CU IS LOCKED
                                47
0005471                         48 # LEVEL DID RECYCLE                ISC2=ISC1=1       ISC2=ISC1=1
                                49
```

```
SYSTEM INITIALIZATION                                                    0:17:53   2/06/81  ****
COMPLETION OF COMMON SYSTEM INITIALIZATION                                          CINIT          W77D

                                        01 # INITIALIZATION IS A BOOTSTRAP   ISC2=ISC1=0      ISC2=ISC1=0


0005471 01 000541 003761 000300          05       LI      R15,ES(ISC2,ISC1)   # SET UP OFF-LINE CONSTANT
0005473 01 000543 006357 ------          06       LR      R14,R15             # ZERO BITS 19-16 OF OFF-LINE CONSTANT, SET
                                                                               UP ON-LINE CONSTANT
0005474 01 000544 051123 ------          08       TBS     N(PMISC)(RA0),S(BOOT)
0005475                                  09       IF      ¬ CF THEN RGBEGIN
0005475 01 000545 054010 ------ 0005505 -002- 10           BC      IFS555
0005476                                  11               IF      R8 = 0 THEN RGBEGIN # DO RANGE IF LEVEL COUNT RECYCLED
0005476 01 000546 014210 ------         -002- 12           TZ      R8
0005477 01 000547 055003 ------ 0005502 -001- 13           BNC     IFS556
                                         14 CINIT          OW      0(550)              # 3E790699
                                        -001- 15           NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000550
                                                                     **********


                                         19 CPATCH2        BGNP    0(317)              # 3E790699
0005500 01 000550 037000 114426 0114426 -001- 20           BL      XXX560
                                        -001- 21           NOTE    CPATCH2 'CSECT'
                                        -001- 22           NOTE    ****************** PATCH AREA BEGINS AT 000317 ***************
                                                                    *


                                        -001- 26 XXX560    PATCHAREA
0114426                                          27                LAL     R0,INITLVL,RA1  # LOAD ADDRESS FOR RECYCLE
0114426 04 000317 131400 043025 CTSD             28                SBS     N(RECYCLE)(RA1),S(RECYCLE) # FLAG TO INDICATE COUNT RECYCLED
0114430 04 000321 061500 ------                  29                SBS     N(RCYCLVL)(RA0),S(RCYCLVL) # STORE IN POSTMORTEM AREA
0114431 04 000322 061060 ------                  30                LI      R15,E(S(ISC2),S(ISC1)) # RESET OFF-LINE CONSTANT.
0114432 04 000323 003761 000300                  31                LR      R14,R15             # RESET ON-LINE CONSTANT.
0114434 04 000325 006357 ------                  32 DDELETE        NOTE    1
0114435 04 000326 037000 005511 0005511          33                BL      SISCS
                                                 34 DINSERT        NOTE    'B SISCS
0114437                                          35                ENDP    NR                  # 3E790699
                                        -001- 36                   NOTE    ************ LAST PATCH ADDRESS USED IS 000327 **************
                                                                           *
                                        -001- 38                   NOTE    ***** NUMBER OF PATCH WORDS USED IS 9 (DECIMAL) ********


                                                 41                EOW                         # 3F790699
0005502                                 -001- 42                   NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000551
                                                                           **********
```

```
0005502                                          01          RGEND
0005502                                 -001-    02 IFS556
0005502 01 000552 112417 ------                  03          UNPK    SS
0005503 01 000553 024071 ------                  04          TBN     R3,S(LON)       # IS SYSTEM LOCKED?
0005504 01 000554 030346 ------                  05          ICF     R14,S(ISC1)     # IF NO, DO NOT ZERO ISC1 IN ON-LINE
0005505                                          06          RGEND
0005505                                 -001-    07 IFS555
0005505 01 000555 107776 ------                  08          LSR     SS_R,R14        # ZERO ON-LINE ISC BITS
0005506 01 000556 003401 107161                  09          LI      R0,SS_R%T*E(8)+AR%F # SET UP FOR EXCOFLMG--ZERO ISC BITS
0005510 01 000560 053004 ------ 0005514          10          B       DOOFF
0005511                                          11 SISCS
0005511 01 000561 107736 ------                  12          LSR     SS_S,R14        # SET ON-LINE ISC BITS
0005512 01 000562 003401 105561                  13          LI      R0,SS_S%T*E(8)+AR%F # SET UP FOR EXCOFLMG--SET ISC BITS
0005514                                          14 DOOFF
0005514                                          15          CALL    EXCOFLMG        # SET OR ZERO ISC BITS IN OFF-LINE CC
0005514 01 000564 137020 111242 CSYSUB  -001-    16          BSA     EXCOFLMG
0005516 01 000566 140222 ------                  17          L       R9,PSYSTATE(RA0)
0005517 01 000567 040243 ------                  18          L       R10,PMISC(RA0)
0005520                                          19          PRINT   FMT=(WRD(R,C,O,V,R,Y),WRD(C,U),WRD(I,N,I,T),SKP,DEC,L_X,L_X),PAC
                                                              TION=**,PRIOR=3,TIME=YES

                                        -001-    22 #  MESSAGE PROTOTYPE
                                        -001-    23 #  ** mm       RCOVRY CU INIT ddddd xxxx xxxx
0005520 01 000570 073053 ------         -002-    24          BSAI    P%MRY           # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
0005521 01 000571 104360 ------         -002-    25          VFD     1,1 2,0 1,0 3,4 1,0 1,1 1,1 2,3 1,0 3,0
0005522 01 000572 062040 ------         -002-    26          VFD     4,TTYO_L_X 4,TTYO_DEC 4,TTYO_SKP 4,TTYO_WRD
0005523 01 000573 021046 ------         -002-    27          VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_L_X
0005524 01 000574 014340 ------ TTYTBL  -002-    28          VFD     5,3 11,R%COVRY
0005525 01 000575 000077 ------ TTYTBL  -002-    29          VFD     5, 11,C%U
0005526 01 000576 000023 ------ TTYTBL  -002-    30          VFD     5, 11,I%NIT
                                        -001-    31          NOTE    THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
                                                                   CONTAINED IN GENERAL REGISTERS R8,R9,R10,
                                        -001-    33          NOTE    ****THIS MESSAGE WILL RESULT IN A MAJOR ALARM****



                                                 39 # INITIALIZE COMMON SYSTEM SSP KEYS
0005527 01 000577 103040 ------                  40          ZR      R2
0005530 01 000600 003641 170436 CBLM             41          LI      R10,SSPCB0I
0005532                                          42          CALL    CHGSSP
0005532 01 000602 073051 ------         -001-    43          BSAI    C%HGSSP         # SUBROUTINE CHGSSP IS IN PROGRAM CBLM
0005533 01 000603 103641 136072 CBLM             44          LI      R10,SSPCB1I
0005535                                          45          CALL    CHGSSP
0005535 01 000605 073051 ------         -001-    46          BSAI    C%HGSSP         # SUBROUTINE CHGSSP IS IN PROGRAM CBLM
```

```
SYSTEM INITIALIZATION                                                    0:17:53   2/06/81  ****

COMPLETION OF COMMON SYSTEM INITIALIZATION                                        CINIT          W77D

                                        01 # INITIALIZE INTERRUPT COUNT TO INSURE THAT EVEN ON THE FIRST
                                        02 # INITIALIZATION LEVEL AN INTERRUPT WILL NOT IMMEDIATELY
                                        03 # APPEAR TO BE STUCK
0005536 01 000606 103441 177775 CBLM    04        LI      R2,INTMAX
0005540 01 000610 034440 043142 CTSD    05        STL     R2,INTCNT



                                        11 # THE DYNAMIC DISPLAY OF BRANCHES IN THE DB WILL NOW BE RESTORED.
                                        12 # IT HAS BEEN INHIBITED UNTIL NOW TO ALLOW THE INITIALIZATION
                                        13 # COUNTING DISPLAY
0005542 01 000612 003441 000002         14        LI      R2,E(S(DISP)-16)
0005544 01 000614 003060 ------         15        ZR      R3
0005545 01 000615 012320 ------         16        PACK    SS_S                  # SET DISP BIT IN SS



                                        22 # IF THIS IS THE FIRST INITIALIZATION OF A SEQUENCE
                                        23 # SAVE POST-MORTEM DATA IN LOWER HALF OF POSTMORT.
                                        24 CINIT  OW      0(616)                # 3E790474
                                  -001- 25        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000616 **********


0005546 01 000616 040040 ------          28        L       R2,N(ILEVEL)(RA0)
                                        29 CPATCH2 BGNP   0(605)                # 3E790474
0005547 01 000617 037000 114714 0114714 -001- 30        BL      XXX586
                                  -001- 31        NOTE    CPATCH2 'CSECT'
                                  -001- 32        NOTE    ****************** PATCH AREA BEGINS AT 000605 ****************


0114714                           -001- 35 XXX586 PATCHAREA
                                        36 # UPDATE THE INITIALIZATION LEVEL IN THE POSTMORTEM AREA,
                                        37 # SINCE IT MAY HAVE CHANGED FROM IT'S INITIAL ENTRY LEVEL.
                                        38 # THIS SHOULD BE DONE AFTER THE DECISION HAS BEEN MADE WHETHER
                                        39 # OR NOT TO COPY THE LOWER HALF OF THE POETMORTEM AREA.
                                        40 # R8 STILL HAS INITL IN IT AT THIS POINT.

0114714 04 000605 102200 000007         42        STM     R8,0(RA0),M(ILEVEL) # UPDATE ILEVEL WITH INITL
```

```
0114716 04 000607 017440 007401             01         CIRM     R2,1,0,M(RCYCLVL)|M(ILEVEL)
0114720 '                                   02         ENDP                             # 3E790474
0114720 04 000611 037000 005551 0005551  -001- 03      BL       %%%588
                                         -001- 04      NOTE     ************* LAST PATCH ADDRESS USED IS 000612 ****************
                                         -001- 05      NOTE     ***** NUMBER OF PATCH WORDS USED IS 6 (DECIMAL) ********


0005551                                  -001- 08 %%%588 OWCONTINUE
0005551                                        09      IF       CF THEN RGBEGIN
0005551 01 000621 155006 ------ 0005557  -002- 10           BNC      IFS591
0005552 01 000622 031400 043412 CTSD           11           LAL      RO,POSTMORT+ENTRYSIZ(POSTMORT),RA1
0005554 01 000624 003401 000040 CTSD           12           LI       RO,ENTRYSIZ(POSTMORT)
0005556                                        13           CALL     MOVST
0005556 01 000626 073033 ------          -001- 14           BSAI     M%OVST          # SUBROUTINE MOVST IS IN PROGRAM CSYSUB
0005557                                        15           RGEND
0005557                                  -001- 16 IFS591
                                               17 # SET UP CONSTANT TO DETERMINE LENGTH OF CRITICAL INTERVAL
                                               18 # IN NUMBER OF ENTRIES TO STATD IN CBLM.
0005557 01 000627 103401 001750                19      LI       RO,1000
0005561                                        20      EOW                              # 3E790474
                                         -001- 21      NOTE     **************** THE LAST ADDRESS OVERWRITTEN IS 000630 *********
                                                                 *

0005561 01 000631 034400 043341 CTSD           25      STL      RO,INITQCD
0005563                                        26      CALL     IDMPCHK                 # CHECK FOR INITIALIZATION DUMP REQUEST
0005563 01 000633 037020 133261 CUTIL    -001- 27      BSA      IDMPCHK



0005565                                        33      CALL     ITTYFLG                 # INFORM TTY PROGRAM THAT AN INITIALIZATION
                                                                                          TOOK PLACE
0005565 01 000635 137021 125074 TTYAPP   -001- 35      BSA      ITTYFLG



                                               41 # INSURE ALL INTERRUPTS NOT INTENDED BLOCKED ARE ENABLED
0005567 01 000637 130400 043021 CTSD           42      LL       RO,IM_IMAGE
0005571 01 000641 015420 ------                43      COM      R1,RO
0005572                                        44      MIKODE   L IS_R,R1
0005572 01 000642 013000 ------          -001- 45      MIS      0
0005573 01 000643 033125 ------          -002- 46           VFD      8,IS_R%T 8,R1%F
0005574 01 000644 007700 ------                47      LSR      IM,RO
```

```
                                                    01 #*#*#*
0005575                                             02
                                                    03 # DECISION TO PLACE OTHER CC IN OUT-OF-SERVICE/AUTO/FAULT STATE
0005575                                             04
                                                    05 #*#*#*

                                                    07 # IF A SWITCH OCCURRED, IE, THE NOW OFF-LINE CC
                                                    08 # SUFFERED AN ERROR, A DECISION IS MADE ON WHETHER IT
                                                    09 # SHOULD BE AUTOMATICALLY REMOVED FROM SERVICE. THE
                                                    10 # CRITERIA FOR REMOVAL ARE AS FOLLOWS:
                                                    11 #      --IF IT FAILS THE SANITY CHECK
                                                    12 #      --IF IT SUFFERS EXCESS ERRORS
                                                    13 # THE FIRST CRITERIA IS STRAIGHTFORWARD BUT NOT FOOLPROOF, HENCE
                                                    14 # THE SECOND CRITERIA IS A BACKUP TO THE FIRST.
                                                    15 # EXCESS ERRORS IS DEFINED AS TWO INITIALIZATIONS WITHIN
                                                    16 # ANY 18000 BASE LEVEL LOOPS OR APPROXIMATELY 30 MINUTES.

                                                    18 # THE FOLLOWING ALGORITHM IS USED TO DETERMINE EXCESS ERRORS.
                                                    19 # EACH CC HAS A DEDICATED COUNTING WORD (CC0LOOPS AND CC1LOOPS).
                                                    20 # THE STATE DETECTOR (STATD) IN CBLM INCREMENTS THE WORD
                                                    21 # CORRESPONDING TO THE ON-LINE CC EACH TIME IT IS ENTERED, UNLESS
                                                    22 # THE WORD IS ZERO.
                                                    23 # CINIT CHECKS THE WORD CORRESPONDING TO THE NEWLY OFFLINE CC
                                                    24 # (IF THERE WAS A SWITCH).  IF IT IS ZERO, IT IS SET TO
                                                    25 # 65535-18000, IE, A CONSTANT SUCH THAT IT WILL BECOME
                                                    26 # ZERO AFTER 18000 COUNTS.  HENCE, IF IT IS NOW NONZERO,
                                                    27 # 18000 COUNTS HAVE NOT BEEN ACCUMULATED SINCE THE LAST
                                                    28 # INITIALIZATION AND THE CORRESPONDING CU IS REMOVED.

0005575 01 000645 031400 043352 CTSD                32          LAL     R0,POSTMORT,RA1
0005577 01 000647 051403 ------                     33          TBS     PMISC(RA1),$(ICC)   # WAS THERE A SWITCH
0005600                                             34          IF      ¬ CF THEN RGBEGIN
0005600 01 000650 054017 ------ 0005617  -002-      35              BC      IFS602
0005601                                             36              CALL    OSANITY
0005601 01 000651 037020 007237 0007237  -001-      37              BSA     OSANITY
0005603 01 000653 131040 043346 CTSD                38              LAL     R2,CC0LOOPS,RA0 # SELECT WORD CORRESPONDING TO OFFLINE CC
0005605 01 000655 057437 ------                     39              TCC1
0005606                                             40              IF      ¬ CF THEN LA R2,1(RA0)
0005606 01 000656 054002 ------ 0005610  -002-      41              BC      IFS605
0005607 01 000657 041041 ------          -002-      42              LA      R2,1(RA0)       #
0005610                                  -002-      43 IFS605
0005610                                             44              IF      R2 ¬= 0 THEN CALL RMV_CC
0005610 01 000660 114042 ------          -002-      45              TZ      R2
0005611 01 000661 054003 ------ 0005614  -001-      46              BC      IFS606
0005612 01 000662 037020 001251 CBLM     -002-      47              BSA     RMV_CC
0005614                                  -001-      48 IFS606
0005614 01 000664 103441 134657                     49              LI      R2,65535-18000
```

```
0005616 01 000666 044040 ------                  01            ST      R2,0(RA0)       # UPDATE LOOPS WORD
0005617                                          02            RGEND
0005617                                -001- 03 IFS602

                                                 05 CINIT  OW      0(667)              # 3E780054
                                       -001- 06        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000667 **********


                                                 09 CPATCH2 BGNP   0(643)             # 3E780054
0005617 01 000667 137000 114752 0114752 -001- 10        BL      XXX612
                                       -001- 11        NOTE    CPATCH2 'CSECT'
                                       -001- 12        NOTE    ****************** PATCH AREA BEGINS AT 000643 ****************


0114752                                -001- 15 XXX612 PATCHAREA
                                             16 # IF THE MRF WAS CAUSED BY A MY STORE FAST TIME-OUT ERROR
                                             17 # AND WE ARE UP TO A LEVEL 3, THEN THE CAUSE OF THESE
                                             18 # INITIALIZATIONS MAY BE DUE TO THE OFFLINE. THIS BEING
                                             19 # THE CASE WE WILL QUARANTINE AND REMOVE THE OFFLINE CC.
0114752 04 000643 130420 043411 CTSD         20        LL      R1,POSTMORT+N(PER)+1 # GET LOW 16 BITS OF ERR REG
0114754 04 000645 003422 010000              21        NI      R1,ES(MFSTM)         # MY STORE FAST TIME-OUT ERROR?
0114756                                      22        IF      CF = 0 THEN RGBEGIN # YES
0114756 04 000647 054013 ------ 0114771 -001- 23              BC      IFS614
0114757 04 000650 030400 043025 CTSD         24              LL      R0,INITLVL
0114761 04 000652 003402 000017              25              NI      R0,M(INITL)     # OBTAIN THE INITIALIZATION LEVEL ONLY
0114763 04 000654 004015 ------              26              SN      R0,3            # IS THIS A LEVEL 3 OR GREATER MRF?
0114764                                      27              IF      CF = 1 THEN RGBEGIN # YES
0114764 04 000655 055005 ------ 0114771 -001- 28              BNC     IFS615
0114765                                      29              CALL    QOFLCC          # QUARANTINE THE OFFLINE CC
0114765 04 000656 037020 001226 CBLM    -001- 30              BSA     QOFLCC
0114767                                      31              CALL    RMV_CC          # REMOVE CU
0114767 04 000660 137020 001251 CBLM    -001- 32              BSA     RMV_CC
0114771                                      33              RGEND
0114771                                -001- 34 IFS615
0114771                                      35              RGEND
0114771                                -001- 36 IFS614
```

```
                                    01        *       1.3.1.3 APPLICATION INITIALIZATION---FINAL ENTRY
                                    02        *       ------------------------------------------------
                                    03        *
                                    04        *       DESCRIPTION:
                                    05        *       BASE LEVEL APPLICATION ROUTINE.  THIS ENTRY IS INTENDED TO
                                                        PROVIDE
                                    07        *       THE OPPORTUNITY FOR THE APPLICATION TO:
                                    08        *       --RESTART NORMAL PROCESSING
                                    09        *
                                    10        *       ENTRY POINT:
                                    11        *       INITAF
                                    12        *
                                    13        *       ENTRY CONDITIONS:
                                    14        *       GENERAL--
                                    15        *       ALL COMMON SYSTEM INITIALIZATION WORK HAS
                                    16        *       BEEN COMPLETED INCLUDING PRINTOUTS, ALARMS, ETC.
                                    17        *
                                    18        *       RETURN POINT:
                                    19        *       INITAFR IN CINIT
                                    20        *
                                    21        *       RETURN CONDITIONS:
                                    22        *       NONE
                                    23        *
                                    24        *


0114771 04 000662 137001 007103 INITA       28        BL      INITAF              # ENTER APPLICATION
011A771                                     29        ENDP    NR                  # 3E780054
                                -001-       30        NOTE    ************ LAST PATCH ADDRESS USED IS 000663 ***************
                                -001-       31        NOTE    ***** NUMBER OF PATCH WORDS USED IS 17 (DECIMAL) ********


0005621                                     34        EOW                         # 3E780054
                                -001-       35        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000670 *********
                                                              *


0005621                                     39 INITAFR                          # RETURN FROM APPLICATION
0005621 01 000671 137000 001023 CBLM        40        BL      MONSEQ
```

POST MORTEM DATA 0:17:53 2/06/81 ****

DATA COLLECTION THIS CC CINIT W77D

```
                    01 # THERE ARE THREE SEPARATE POST-MORTEM ROUTINES. THE FIRST GATHERS DATA FROM
                    02 # THIS CC, FORMATS IT, AND STORES IT IN THE FIRST HALF OF THE POST-MORTEM AREA.
                    03 # THE SECOND ROUTINE PERFORMS THE SAME FUNCTION FOR THE OTHER CC.
                    04 # THE LAST ROUTINE, REALLY A SUBROUTINE, INITIATES A DUMP OF THE CONTENTS
                    05 # OF THE POST-MORTEM AREA.
0005623             06
                    07 # THERE EXIST EIGHT SLOTS OF EIGHT WORDS EACH IN THE
                    08 # 64 WORD POST_MORTEM AREA CORRESPONDING TO THE 8 LINES
                    09 # OF TTY OUTPUT WHEN THE DATA IS PRINTED. THE FIRST HALF (32 WORDS)
                    10 # IS ALWAYS LOADED DURING AN INITIALIZATION. IF THE INITIALIZATION OCCURRED
                    11 # WHEN THE SYSTEM WAS NOT IN AN INITIALIZATION INTERVAL THIS DATA IS ALSO
                    12 # COPIED INTO THE SECOND 32 WORDS. THUS THE FIRST HALF ALWAYS CORRESPONDS
                    13 # TO THE LAST INITIALIZATION AND THE LAST HALF ALWAYS CORRESPONDS TO THE
                    14 # FIRST INITIALIZATION IN A SEQUENCE.
                    15 # THIS ALGORITHM WAS SELECTED IN AN ATTEMPT TO PROVIDE
                    16 # A MAXIMUM AMOUNT OF DATA IN A LIMITED SPACE. IT WAS FELT
                    17 # THAT THE FIRST AND LAST INITIALIZATIONS IN A SEQUENCE
                    18 # PROVIDE THE MOST SIGNIFICANT DATA. THE FIRST TO DETERMINE
                    19 # HOW THE SYSTEM GOT INTO TROUBLE INITIALLY AND THE LAST
                    20 # TO DETERMINE WHEN AND HOW IT RECOVERED. THE INTERVENING
                    21 # LEVELS TEND TO BE SIMILAR TO ONE OR THE OTHER OF THESE
                    22 # TWO IN THAT THE SAME LATENT BUG RECURS UNTIL WEEDED OUT.

                    24 # THE CONTENTS OF THE POSTMORTEM AREA ARE PRINTED AUTOMATICALLY
                    25 # WHEN THE LEVEL COUNT IS RESET. THEREFORE, ASSUMING THE
                    26 # SYSTEM MAINTAINS SANITY FOR TWO TO THREE MINUTES, A HARD COPY OF THE DATA IS
                    27 # PRODUCED ON THE MAINTENANCE TTY BEFORE THE POST-MORTEM AREA IS REUSED ON THE
                    28 # NEXT INITIALIZATION.
0005623             29  POSTMORT_PICTURE
```

POST MORTEM DATA 0:17:53 2/06/81 ****

DATA COLLECTION THIS CC CINIT W77D

POSTMORT -001- 01 #

00	PMINUTES CONTENTS OF MINUTES	PSECONDS CONTENTS OF SECONDS	RCYCLVL	ILEVEL OLD LEVEL NUMBER
01	PAPPL APPLICATION ORIENTED DATA			
02	PSYSTATE CONTENTS OF SYSTATE			
03	PMISC SEE LAYOUT BELOW			
04	PTI CONTENTS OF TI-SEE LAYOUT BELOW			
05	PIS CONTENTS OF IS			
06	**********	**********		PPA CONTENTS OF PA
07				
08	PR8 CONTENTS OF R8			
09	PR9 CONTENTS OF R9			
10	PR10 CONTENTS OF R10			
11	PR11 CONTENTS OF R11			
12	PSPARE SPARE			
13	PIM CONTENTS OF IM			
14	**********	**********		PDB
15				
16	PR12 CONTENTS OF R12			
17	PR13 CONTENTS OF R13			
18	PR14 CONTENTS OF R14			
19	PR15 CONTENTS OF R15			
20	PHG CONTENTS OF HG			
21	PSPARF SPARE			
22	**********	**********		PSS CONTENTS OF SS
23				

POST MORTEM DATA 0:17:53 2/06/81 ****

DATA COLLECTION THIS CC CINIT W77D

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
24	**********												PHGRETURN			
25																
26	**********												PHGRETURN+16			
27																
28	**********												PHGRETURN+32			
29																
30	**********												PER			
31													NTENTS OF THE ERROR REGISTER			

```
                                        04 # SAVE THE STATE OF THIS CC IN THE FIRST HALF OF THE POST-MORTEM AREA.
                                        05 # BEFORE THE DATA IS SAVED IT MUST BE GUARANTEED TO HAVE GOOD PARITY.  DURING
                                        06 # INITIALIZATION EVERY REGISTER MAY CONTAIN BAD PARITY.
                                        07 # HENCE ANY DATA TO BE SAVED MUST HAVE ITS
                                        08 # PARITY REGENERATED.  FOR THE SPECIAL REGISTERS THIS IS
                                        09 # ACCOMPLISHED BY ALWAYS USING THE UNPK INSTRUCTION WHICH DOES
                                        10 # CORRECT PARITY. FOR THE GENERAL REGISTERS THE REGENATION IS
                                        11 # ACCOMPLISHED WITH A 'NO OP' LOGIC INSTRUCTION. NR WAS CHOSEN
                                        12 # ARBITRARILY. THE DML REGENERATES PARITY ON ANY LOGIC OPERATION.
                                        13 # THE HARDWARE CHECK CIRCUITS MUST BE BLOCKED (BHC=1)  WHENEVER THIS ROUTINE
                                        14 # IS EXECUTED TO PROTECT AGAINST BAD PARITY WHILE IT IS BEING REGENERATED.
                                        15 # IT IS IMPERATIVE THAT PARITY BE FIXED BEFORE THE ER IS INITIALIZED
                                        16 # AND THAT THE ER IS INITIALIZED BEFORE BHC IS RESET.
0005623                                 17 PMD_CC
                                        18 CINIT  OW      O(673)            # 3E790441
                                  -001- 19        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000673 **********


                                        22 CPATCH2 BGNP   O(27)             # 3E790441
0005623 01 000673 137000 114136 0114136 -001- 23 BL  %%%632
                                  -001- 24        NOTE    CPATCH2 'CSECT'
                                  -001- 25        NOTE    ****************** PATCH AREA BEGINS AT 000027 ****************


0114136                           -001- 28 %%%632 PATCHAREA
0114136 04 000027 114000 ------         29        NR      RO,RC
011413.                                 30        MIMODE  L BR,CR         # COPY CR,WHICH CONTAINS SER,INTO BR
0114137 04 000030 013000 ------   -001- 31        MIS     0
0114140 04 000031 070463 ------   -002- 32            VFD      8,BR%T 8,CR%F
0114141 04 000032 034400 043422 CTSD    33        STL     RO,POSTMORT+40  # SAVE RO SINCE IT IS USED BELOW FOR
0114143                                 34                                # TEMPORARY STORAGE.
0114143                                 35        MIMODE  L RO,BR         # SAVE BR IN RO SINCE IT WILL BE
0114143 04 000034 013000 ------   -001- 36        MIS     0
0114144 04 000035 051742 ------   -002- 37            VFD      8,RO%T 8,BR%F
0114145                                 38                                # IN THE NEXT INSTRUCTION.
0114145 04 000036 014000 ------         39        NR      RO,RO
0114146 04 000037 034400 043526 CTSD    40        STL     RO,SAVSER       # SAVE SER IN CTSD FOR LATER INSERTION
0114150                                 41                                # IN THE POSTMORTEM AREA.
0114150 04 000041 030400 043422 CTSD    42        LL      RO,POSTMORT+40  # RESTORE RO
0114152 04 000043 014021 ------         43        NR      R1,R1
0114153 04 000044 014042 ------         44        NR      R2,R2
0114154 04 000045 014063 ------         45        NR      R3,R3
0114155 04 000046 014104 ------         46        NR      R4,R4
0114156 04 000047 014125 ------         47        NR      R5,R5
0114157 04 000050 014146 ------         48        NR      R6,R6
0114160 04 000051 014167 ------         49        NR      R7,R7
```

```
0114161 04 000052 057437 ------               01          TCC1
0114162 04 000053 030130 ------               02          ICF       ICC1,S(ICC1)
0114163                                       03          ENDP                           # 3E790441
0114163 04 000054 037000 005625 0005625 -001- 04          BL        XXX638
                                        -001- 05          NOTE      ************* LAST PATCH ADDRESS USED IS 000055 ****************
                                        -001- 06          NOTE      ***** NUMBER OF PATCH WORDS USED IS 23 (DECIMAL) *********


0005625                                 -001- 09 XXX638   OWCONTINUE
0005625                                       10          EOW                            # 3E790441
                                        -001- 11          NOTE      **************** THE LAST ADDRESS OVERWRITTEN IS 000674 *********
                                                                     *

0005625 01 000675 114210 ------               15          NR        R8,R8                # CORRECT PARITY IN CASE THESE ARE SAVED AT
                                                                                           LEVEL 1
0005626 01 000676 014231 ------               17          NR        R9,R9
0005627 01 000677 014252 ------               18          NR        R10,R10
0005630 01 000700 014273 ------               19          NR        R11,R11
0005631 01 000701 014314 ------               20          NR        R12,R12
0005632 01 000702 014335 ------               21          NR        R13,R13
0005633 01 000703 014356 ------               22          NR        R14,R14
0005634 01 000704 014377 ------               23          NR        R15,R15
0005635 01 000705 006156 ------               24          LR        R6,R14
0005636 01 000706 006177 ------               25          LR        R7,R15
0005637 01 000707 030740 004746 0004746       26          LL        RA1,SYSTATEX
0005641 01 000711 030760 004747 0004747       27          LL        RA1+1,SYSTATEX+1
0005643                                       28          L_ONL     O(RA1),PC=NO         # GET SYSTATE FOR SAVING IN POST-MORTEM
                                                                                           LATER
E0005643 01 000713 000420 ------        -001- 30          MSTF      O(RA1)
0005644 01 000714 136260 ------         -001- 31          DATA      B(1011110010110000)
0005645 01 000715 006060 ------               32          LR        R3,R0
0005646 01 000716 003401 000410 CBLM          33          LI        R0,M(INITQ_IP)+M(OSM_OFL)
0005650 01 000720 044400 ------               34          ST        R0,O(RA1)            # INITIALIZE SYSTATE WITH GOOD PARITY
0005651 01 000721 003020 ------               35          ZR        R1
0005652 01 000722 035420 043352 .TSD          36          STAL      R1,POSTMORT,RA1      # CLEAR POST-MORTEM AREA
                                              37 CINIT    OW        O(724)               # 3E790441
                                        -001- 38          NOTE      ************* THE FIRST ADDRESS OVERWRITTEN IS 000724 **********


0005654 01 000724 003441 000037 CTSD          41          LI        R2,ENTRYSIZ(POSTMORT)-1
0005656                                       42          EOW                            # 3E790441
                                        -001- 43          NOTE      **************** THE LAST ADDRESS OVERWRITTEN IS 000725 *********
                                                                     *
```

```
0005656                                                  CLR_PM
0005656 01 000726 146422 ------                                 STX     R1,R2(RA1)
0005657 01 000727 036040 005656 0005656                         BX      R2,CLR_PM
0005661 01 000731 044462 ------                                 ST      R3,PSYSTATE(RA1)    # SAVE SYSTATE
0005662 01 000732 012400 ------                                 UNPK    TI
0005663 01 000733 045464 ------                                 STA     R3,PTI(RA1)

                                                         # AT THIS POINT ALL GENERAL REGISTERS EXCEPT R0, R1, AND R4
                                                         # HAVE BEEN USED AND THUS CLEANSED OF BAD PARITY.
                                                         # THIS HAS BEEN DONE AS FOLLOWS:
                                                         # R5--USED FOR PMISC
                                                         # R6-R13--BY NR'S ABOVE
                                                         # R2-R3---BY UNPK ABOVE
                                                         # R14-R15 - BY STAL ABOVE
0005664 01 000734 010474 ------                                 RRN     R3,S(1ST_TO)-S(I1ST) # ALIGN TI(15,14) WITH R5(3,2)
0005665 01 000735 016123 000014                                 IRM     I1ST,R3,MSK(2,2)    # SAVE TIMEOUT BITS
0005667 01 000737 012410 ------                                 UNPK    DI                  # OLD IS
0005670 01 000740 045461 ------                                 STA     R3,1(RA1)
0005671 01 000741 012405 ------                                 UNPK    AK                  # OLD PA
0005672 01 000742 045441 ------                                 STA     R2,1(RA1)
0005673 01 000743 045461 ------                                 STA     R3,1(RA1)
0005674 01 000744 045601 ------                                 STA     R8,1(RA1)
0005675 01 000745 045621 ------                                 STA     R9,1(RA1)
                                                         CINIT  OW      0(746)              # 3E790441
                                                  -001-         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000746 **********


                                                         CPATCH BGNP    0(243)              # 3E790441
0005676 01 000746 037000 111675 0111675           -001-         BL      %%%649
                                                  -001-         NOTE    CPATCH 'CSECT'
                                                  -001-         NOTE    ****************** PATCH AREA BEGINS AT 000243 *****************


0111675                                           -001-  %%%649 PATCHAREA
0111675 02 000243 145641 ------                                 STA     R10,1(RA1)
0111676 02 000244 045661 ------                                 STA     R11,1(RA1)
0111677 02 000245 030660 043526 CTSD                            LL      R11,SAVSER          # STORE ERROR REGISTER
0111701 02 000247 045661 ------                                 STA     R11,1(RA1)          # SAVE SER IN POSTMORT
0111702                                                         ENDP                        # 3E790441
0111702 02 000250 037000 005700 0005700           -001-         BL      %%%651
                                                  -001-         NOTE    ************* LAST PATCH ADDRESS USED IS 000251 ****************
                                                  -001-         NOTE    ***** NUMBER OF PATCH WORDS USED IS 7 (DECIMAL) ********


0005700                                           -001-  %%%651 OWCONTINUE
0005700 01 000750 112407 ------                                 UNPK    DK                  # OLD IM
0005701 01 000751 045461 ------                                 STA     R3,1(RA1)
0005702                                                         EOW                         # 3E790441
                                                  -001-         NOTE    **************** THE LAST ADDRESS OVERWRITTEN IS 000751 *********
```

```
                                                     *

0005702 01 000752 012411 ------                04         UNPK    DB
0005703 01 000753 045441 ------                05         STA     R2,1(RA1)
0005704 01 000754 045461 ------                06         STA     R3,1(RA1)
0005705 01 000755 045701 ------                07         STA     R12,1(RA1)
0005706 01 000756 045721 ------                08         STA     R13,1(RA1)
0005707 01 000757 045541 ------                09         STA     R6,1(RA1)            # R14
0005710 01 000760 045561 ------                10         STA     R7,1(RA1)            # R15
                                               11 # USE R4 TO CLEANSE IT OF BAD PARITY
0005711                                        12         MIMODE  L R4,HG
0005711 01 000761 013000 ------          -001- 13         MIS     0
0005712 01 000762 055065 037000          -002- 14             VFD     8,R4%T 8,HG%F
                                               15 CINIT   OW      0(763)               # 3E790441
                                         -001- 16         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000763 **********

                                               19 CPATCH1 BGNP    0(15)                # 3E790441
0005713 01 000763 037000 112577 0112577  -001- 20         BL      %%%659
                                         -001- 21         NOTE    CPATCH1 'CSECT'
                                         -001- 22         NOTE    ****************** PATCH AREA BEGINS AT 000015 ****************

0112577                                  -001- 25 %%%659 PATCHAREA
0112577 03 000015 114104 ------                26         NR      R4,R4                # CORRECT PARITY
0112600 03 000016 045501 ------                27         STA     R4,1(RA1)
0112601 03 000017 012403 ------                28         UNPK    MCHB                 # GET THE SAR REGISTER
0112602 03 000020 010444 ------                29         RLN     R2,12
0112603 03 000021 045461 ------                30         STA     R3,1(RA1)            # SAVE LOW 16 BITS OF SAR
0112604 03 000022 045441 ------                31         STA     R2,1(RA1)            # SAVE HIGH 4 BITS OF SAR
0112605 03 000023 012406 ------                32         UNPK    AI                   # OLD SS
0112606                                        33         ENDP                         # 3E790441
0112606 03 000024 037000 005715 0005715  -001- 34         BL      %%%661
                                         -001- 35         NOTE    ************ LAST PATCH ADDRESS USED IS 000025 ****************
                                         -001- 36         NOTE    ***** NUMBER OF PATCH WORDS USED IS 9 (DECIMAL) ********

0005715                                  -001- 39 %%%661 OWCONTINUE
0005715 01 000765 102440 000017                40         STM     R2,0(RA1),X(000F)    # AS NOT TO DESTROY THE HIGH 4 BITS OF SAR
0005717                                        41         EOW                          # 3E790441
                                         -001- 42         NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000766 *********
                                                     *
```

```
0005717 01 000767 045461 ------            01         STA     R3,1(RA1)
0005720 01'000770 024074 ------            02         TBN     R3,S(CC)
0005721 01 000771 030120 ------            03         ICF     ICC,S(ICC)          # SAVE OLD CC VALUE
0005722 01 000772 012412 ------            04         UNPK    ER
0005723 01 000773 045447 ------            05         STA     R2,7(RA1)
0005724 01 000774 045461 ------            06         STA     R3,1(RA1)
                                           07 CINIT   OW      0(775)              # 3E790441
                                     -001- 08         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000775 ***********


                                           11 CPATCH1 BGNP    0(327)              # 3E790441
0005725 01 000775 037000 113111 0113111 -001- 12      BL      %%%667
                                     -001- 13         NOTE    CPATCH1 'CSECT'
                                     -001- 14         NOTE    ****************** PATCH AREA BEGINS AT 000327 *****************


0113111                              -001- 17 %%%667 PATCHAREA
                                           18 # IF THERE IS BAD PARITY ANYWHERE IN THE SECOND HALF OF THE
                                           19 # POSTMORTEM AREA, IT WILL BE CORRECTED HERE.
0113111 03 000327 131420 043412 CTSD       20         LAL     R1,POSTMORT+ENTRYSIZ(POSTMORT),RA1
0113113 03 000331 003441 000037 CTSD       21         LI      R2,ENTRYSIZ(POSTMORT)-1
0113115                                    22 COR_PM
0113115                                    23         L_ONLX  R2(RA1)
0113115 03 000333 176062 ------      -001- 24         STAFX   R2(RA1)
0113116 03 000334 136260 ------      -001- 25         DATA    B(1011110010110000)
0113117 03 000335 046402 ------            26         STX     R0,R2(RA1)          # THIS WILL CORRECT THE PARITY.
0113120 03 000336 036040 113115 0113115    27         BX      R2,COR_PM
0113122 03 000340 037000 004766 0004766    28         BL      PMD_CC_RTN
0113124                                    29         TAKEOUT 2
0113124 03 000342 006000 ------      -001- 30         LR      0,0
0113125 03 000343 006000 ------      -001- 31         LR      0,0
0113125                                    32         ENDP    NB                  # 3E790441
                                     -001- 33         NOTE    ************* LAST PATCH ADDRESS USED IS 000343 ****************
                                     -001- 34         NOTE    ***** NUMBER OF PATCH WORDS USED IS 13 (DECIMAL) ********


0005727                                    37         EOW                         # 3E790441
                                     -001- 38         NOTE    **************** THE LAST ADDRESS OVERWRITTEN IS 000776 *********
                                                               *
```

```
0005727                                          01 PMD_OCC
                                                 02 # THE ONLY STATE OF THE OFF-LINE CC THAT SHOULD PRECLUDE
                                                 03 # ACCESS TO THE REGISTERS IS NOT STOPPED
                                                 04 # OR MAINTENANCE STATE REGISTER NOT ZERO.
                                                 05 # THEREFORE STOP THE OFF-LINE AND ZERO ITS MS REGISTER
0005727                                          06         LMCH    MSTOP
0005727 01 000777 103401 000321          -001- 07         LI      R0,MSTOP
0005731                                  -001- 08         CALL    SMCH
0005731 01 001001 073027 ------          -002- 09         BSAI    S%MCH                # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0005732                                          10         LMCH    CLMSR
0005732 01 001002 103401 000065          -001- 11         LI      R0,CLMSR
0005734                                  -001- 12         CALL    SMCH
0005734 01 001004 073027 ------          -002- 13         BSAI    S%MCH                # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
                                                 14 # IMPLICIT IN THIS STATEMENT IS THE FACT THAT THE MS REGISTER
                                                 15 # CAN NEVER BE SAVED AS PART OF THE POSTMORTEM DATA.
0005735 01 001005 131400 043355 CTSD             16         LAL     R0,POSTMORT+PTI-1,RA1 # INIT RA1
0005737 01 001007 031000 004727 0777777          17         LAL     R0,REGTBL-1,RA0
                                                 18 R4       =       2*TBLSIZ(REGTBL)-1  # FOR BX LOOP
0005741 01 001011 003501 000025          -004- 19             LI      R4,2*TBLSIZ(REGTBL)-1
0005743 01 001013 003541 114400                  20         LI      R6,MCHBXT*E(8)
0005745                                          21 POSTMORTLP
0005745 01 001015 124100 ------                  22         TBN     R4,0                 # IS INDEX ODD OR EVER
0005746                                          23         IF      CF THEN LA R7,1(RA0) # GET NEXT PAIR OF ORDERS ON ODD LOOPS
0005746 01 001016 055002 ------ 0005750  -002- 24             BNC     IFS685
0005747 01 001017 041161 ------          -002- 25             LA      R7,1(RA0)        #
0005750                                  -002- 26 IFS685
0005750 01 001020 110570 ------                  27         RRN     R7,8
0005751 01 001021 016147 000377                  28         IRM     R6,R7,MSK(8)
0005753 01 001023 007406 ------                  29         LSR     MCHTR,R6
0005754                                          30         LMCH    LDMIRL
0005754                                  -001- 31         CALL    SLDMIRL
0005754 01 001024 037020 111075 CSYSUB   -002- 32         BSA     SLDMIRL
0005756 01 001026 155005 ------ 0005763          33         BNC     MCHFAIL
                                                 34 # THE FAILURE OF THE MCH, IS RECORDED FOR INCLUSION IN THE POST-MORTEM AREA
                                                 35 # WHERE IT WILL SIGNIFY THAT THE DATA CANNOT BE TRUSTED.  NO RETRY IS ATTEMPTED
                                                 36 # BECAUSE THE DATA
                                                 37 # IS FOR PRINTOUT ONLY, IE NO INTERNAL DECISION WILL BE BASED
                                                 38 # ON IT; AND HENCE IT IS WASTEFUL OF TIME AND SPACE TO
                                                 39 # MAKE ANOTHER ATTEMPT TO RETRIEVE IT.
                                                 40 # THE ONLY DATA THAT IS USED IS THE TI REGISTER. IF IT CAN
                                                 41 # BE RETRIEVED IT IS A BENEFIT, BUT IF NOT ANY ARBITRARY CONSTANT
                                                 42 # IS AS GOOD AS ZERO, SO AGAIN A FAILURE DOES NOT MATTER.
0005757                                          43         LMCH    RTNMCHB
0005757 01 001027 003401 000261          -001- 44         LI      R0,RTNMCHB
0005761                                  -001- 45         CALL    SMCH
0005761 01 001031 073027 ------          -002- 46         BSAI    S%MCH                # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0005762                                          47         IF      ¬ CF THEN RGBEGIN
0005762 01 001032 154002 ------ 0005764  -002- 48             BC      IFS691
0005763                                          49 MCHFAIL
```

```
0005763 01 001033 126131 ------                   01            SBN     NOMCH,S(NOMCH)  # FLAG POST-MORTEM THAT DATA MAY BE BAD
0005764                                           02            RGEND
0005764                                     -001- 03 IFS691
0005764 01 001034 112403 ------                   04       UNPK     MCHB
                                                  05 CINIT  OW       0(1035)              # 3E790441
                                            -001- 06       NOTE     ************** THE FIRST ADDRESS OVERWRITTEN IS 001035 ***********


                                                  09 CPATCH2 BGNP   O(104)               # 3E790441
0005765 01 001035 037000 114213 0114213     -001- 10       BL       %%%695
                                            -001- 11       NOTE     CPATCH2 'CSECT'
                                            -001- 12       NOTE     ****************** PATCH AREA BEGINS AT 000104 *****************


0114213                                     -001- 15 %%%695 PATCHAREA
0114213 04 000104 117500 003403                   16       CIRM     R4,3,0,X(0007)       # IS INDEX 19,11, OR 3 CORRESPONDING TO
0114215                                           17                                     # WORDS 1(PA),5(DB), OR 9(SS) OF REGTBL
0114215                                           18       IF       CF THEN RGBEGIN
0114215 04 000106 055007 ------ 0114224     -002- 19            BNC     IFS698
0114216 04 000107 002441 000017                   20            STM     R2,1(RA1),X(000F) # AS NOT TO DESTROY THE HIGH 4 BITS OF SAR
0114220 04 000111 004761 ------                   21            AN      R15,1
0114221                                           22            IF      CF = 1 THEN AN R14,1
0114221 04 000112 055002 ------ 0114223     -001- 23            BNC     IFS699
0114222 04 000113 004741 ------             -001- 24            AN      R14,1              #
0114223                                     -001- 25 IFS699
0114223 04 000114 104117 ------                   26            SN      R4,1
0114224                                           27            RGEND
0114224                                     -001- 28 IFS698
0114224 04 000115 117500 017404                   29       CIRM     R4,4,0,X(1F)         # IS INDEX 4 CORRESPONDING TO
0114226                                           30                                     # THE SAR, WORD 8 OF REGTBL.
0114226                                           31       ENDP                          # 3E790441
0114226 04 000117 037000 005767 0005767     -001- 32       BL       %%%701
                                            -001- 33       NOTE     ************* LAST PATCH ADDRESS USED IS 000120 ****************
                                            -001- 34       NOTE     ***** NUMBER OF PATCH WORDS USED IS 13 (DECIMAL) ********


0005767                                     -001- 37 %%%701 OWCONTINUE
0005767                                           38       IF       CF THEN RGBEGIN
0005767 01 001037 155003 ------ 0005772     -002- 39            BNC     IFS704
0005770 01 001040 010444 ------                   40            RLN     R2,12              # ALIGN HIGH 4 BITS OF SAR FOR
0005771                                           41                                     # INSERTION INTO POSTMORT.
0005771 01 001041 044442 ------                   42            ST      R2,2(RA1)          # SAVE IN HIGH 4 BITS OF POSTMORT+22
0005772                                           43                                     # NOTE THAT RA1 IS NOT UPDATED WITH ST INST.
0005772                                           44            RGEND
0005772                                     -001- 45 IFS704
0005772                                           46       EOW                           # 3E790441
                                            -001- 47       NOTE     **************** THE LAST ADDRESS OVERWRITTEN IS 001041 *********
                                                                    *
```

```
0005772 01 001042 145461 ------               01         STA     R3,1(RA1)
0005773 01 001043 036100 005745 0005745       02         BX      R4,POSTMORTLP
                                              03 # THE ER HAS BEEN STORED IN THE FIRST RETURN ADDRESS SLOT.
                                              04 # THIS IS DONE FOR THE CONSISTENCY OF THE ABOVE LOOP AND
                                              05 # BECAUSE IT DOESN'T MATTER.  IT WILL BE OVERWRITTEN
                                              06 # LATER.  THE ER IS STILL IN R2 AND R3 AND WILL NOW
                                              07 # BE STORED IN ITS PROPER SLOT.
0005775 01 001045 045445 ------               08         STA     R2,5(RA1)
0005776 01 001046 045461 ------               09         STA     R3,1(RA1)
                                              10 CINIT   OW      O(1047)              # 3E790441
                                        -001- 11         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 001047 **********

                                              14 CPATCH2 BGNP    O(347)               # 3E790441
0005777 01 001047 037000 114456 0114456 -001- 15         BL      %%%710
                                        -001- 16         NOTE    CPATCH2 'CSECT'
                                        -001- 17         NOTE    ****************** PATCH AREA BEGINS AT 000347 *****************

0114456                                 -001- 20 %%%710 PATCHAREA
                                              21 # NOW GET THE SER FROM THE OFFLINE CC.
                                              22 # NOTE: IF MAS 0 OF THE OFFLINE CC WAS BEING ACCESSED
                                              23 # AT THE TIME OF THE MRF, AND THIS INITIALIZATION IS A
                                              24 # BOOTSTRAP, THEN THE SER FROM THE OFFLINE IS ALREADY
                                              25 # STORED IN THE POSTMORT, BUT ONLY IF A SWITCH OCCURED
                                              26 # IN THE BOOT.

0114456 04 000347 130440 043400 CTSD          28         LL      R2,POSTMORT+22       # THE HIGH 2 BITS OF SAR ARE IN THE
0114460 04 000351 003442 140000               29         NI      R2,X(C000)           # HIGH 2 BITS OF POSTMORT+22
0114462 04 000353 024125 ------               30         TBN     R5,S(BOOT)           # DID WE BOOT?
0114463 04 000354 055003 ------ 0114466       31         BNC     ST_SER
0114464 04 000355 014042 ------               32         TZ      R2
0114465                                       33         IF      CF = 0 THEN RGBEGIN
0114465 04 000356 054015 ------ 0114502 -001- 34             BC      IFS712
0114466                                       35 ST_SER
0114466 04 000357 110455 ------               36             RRN     R2,13            # ROTATE TO THE LOW END & MULT 2 = ROTATE 13
0114467 04 000360 031201 016447 MASACS        37             LAL     R8,MASCIOSC+1,RA0 # GET STORE CONTROLLER ADDRESS
0114471 04 000362 043222 ------               38             LAX     R9,R2(RA0)       # GET PROPER MAIN & SUB CHANNEL
0114472 04 000363 003641 007100               39             LI      R10,X(E40)       # ORDER TO LOAD STORE ERROR REGISTER
0114474                                       40                                      # INTO SERIAL I/O CHANNEL
0114474                                       41             CALL    SENDMIOS         # ORDER FOR SER
0114474 04 000365 073040 ------         -001- 42             BSAI    sendmIos         # SUBROUTINE SENDMIOS IS IN PROGRAM CSYSUB
0114475                                       43             IF      CF = 0 THEN RGBEGIN
0114475 04 000366 154003 ------ 0114500 -001- 44             BC      IFS714
0114476 04 000367 003661 177362               45             LI      R11,X(FEF2)      # FEF2 SIGNIFIES THE I/O ORDER FAILED
0114500                                       46             RGEND
0114500                                 -001- 47 IFS714
0114500 04 000371 134660 043366 CTSD          48             STL     R11,POSTMORT+12 # SAVE SER IN POSTMORT
0114502                                       49             RGEND
```

```
   POST MORTEM DATA                                                                    0:17:53   2/06/81  ****

   DATA COLLECTION OTHER CC                                                                    CINIT          W77D

0114502                                  -001- 01 IFS712
0114502 04 000373 137000 005173 0005173        02        BL      PMD_OCC_RTN
0114504                                        03        ENDP                    # 3E790441
0114504 04 000375 037000 006001 0006001  -001- 04        BL      XXX717
                                         -001- 05        NOTE    ************ LAST PATCH ADDRESS USED IS 000376 ***************
                                         -001- 06        NOTE    ***** NUMBER OF PATCH WORDS USED IS 24 (DECIMAL) ********


0006001                                  -001- 09 XXX717 OWCONTINUE
0006001                                        10        EOW                     # 3E790441
                                         -001- 11        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 001050 *********
                                                                  *
```

```
                                        01 # DESCRIPTION:
                                        02 # INITIATE THE POSTMORTEM DUMP TTY MESSAGE
0006001                                 03
                                        04 # ENTRY POINT:
                                        05 # OPPOSTMO
0006001                                 06
                                        07 # ENTRY CONDITIONS:
                                        08 # NONE
0006001                                 09
                                        10 # EXIT CONDITIONS:
                                        11 # R0 = RETURN CODE
                                        12 #   TTY_RL--CONTROL BLOCK WAS BUSY.  DUMP HAS NOT BEEN INITIATED.
                                        13 #   TTY_PF--DUMP WILL FOLLOW.


0006001                                 17 OPPOSTMO
0006001                                 18         BEGIN
0006001 01 001051 171420 ------ -002-   19         HA
0006002 01 001052 031000 006007 0006007 20         LAL     R0,PMDBLK,RA0       # POINT TO DUMP SPECIFICATION
0006004                                 21         CALL    FIXDMPST
0006004 01 001054 037020 133215 CUTIL -001- 22     BSA     FIXDMPST
0006006                                 23         RETURN
0006006 01 001056 156420 ------ -001-   24         BTSAG



0006007                                 30 PMDBLK
0006007 01 001057 000160 ------         31         DATA    7*E(4)
0006010 01 001060 000100 ------         32         DATA    64                  # LENGTH OF POSTMORTEM AREA
                                        33         SPELL   MRY,(O,P)
0006011 01 001061 000027 ------ TTYTBL -001- 34    VFD     5, 11,0%P
                                        35         SPELL   MRY,(P,O,S,T,M,O,R,T)
0006012 01 001062 000207 ------ TTYTBL -001- 36    VFD     5, 11,postmOrt
0006013 01 001063 000000 ------         37         DATA    0
0006014 01 001064 000000 043352 CTSD    38         ADDR    POSTMORT
```

```
               # A DETECTION CIRCUIT HAS INDICATED AN ERROR OR FAULT
               # IN A PORTION OF THE MACHINE WHICH DOES NOT AFFECT THE EXECUTION
               # OF PROGRAM.  SUCH ERRORS INCLUDE THOSE AFFECTING THE OTHER STORE,
               # THE IO CHANNELS, THE MAINTENANCE CHANNEL, AND THE OTHER CC.
               # A SINGLE ERROR IS ASSUMED.  THE ACTION OF THIS INTERRUPT IS
               # DETERMINED BY THE ERROR THAT OCCURRED.  MORE PRECISELY, IT IS
               # DETERMINED BY THE LOWEST BIT SET IN THE ER IN BIT 14 OR ABOVE.
               # WRITE PROTECT ERROR TO MY STORE IS ALSO IN THIS CATEGORY (BIT 11
               # OF THE ERROR REGISTER)
0006016
               # THE POSSIBLE ERRORS AND CORRESPONDING ACTION ARE AS FOLLOWS.
               # IO BAD PARITY ERROR-PURGE THE BAD PARITY
               #                    -RECORD SIGNIFICANT DATA FOR ANALYSIS BY OTHER PROGRAMS
               # OTHER STORE ERRORS--TEST THE OTHER STORE AND MARK OUT-OF-SERVICE ON FAILURE
               #                    -FAIL THE MSTF OR MSTFX COMMAND THAT CAUSED THE ERROR
               # ERROR FROM OTHER CC-TEST OTHER CC AND MARK OUT-OF-SERVICE ON FAILURE
               # IO CHANNEL ERROR----STOP AND SWITCH
               # WRITE PROTECT ERROR-CLEAR MY STORE ERROR REGISTER
               #                    -INITIALIZE OTHER STORE

               CLEAR_SER EQU O(43300)


0006016                                        ERR_INT
0006016                                                MIMODE                        # INSURE SDR1 HAS GOOD PARITY BEFORE HA
0006016 01 001066 113400 ------          -001-         MI      0
0006017                                                ZBR
0006017 01 001067 025712 ------          -001-             DATA    ZBR%
0006020                                                L       SDR1,BR
0006020 01 001070 162342 ------          -001-             VFD     8,SDR1%T 8,BR%F
0006021                                                ZMINT
0006021 01 001071 026750 ------          -001-             DATA    ZMINT%
0006022 01 001072 071420 ------                        HA

0006023 01 001073 003441 000040                        LI      R2,ES(ERRI)           # IDENTIFY THIS INTERRUPT FOR INTBEGIN
                                               # THE EXTERNAL VERSION OF THE INTERRUPT BEGIN SUBROUTINE IS USED
                                               # BECAUSE, ALTHOUGH THE INTERRUPT IS INTERNAL, SOME OF THE ERRORS
                                               # THAT GENERATE THE INTERRUPT ARE EXTERNAL, EG, OMAS ERRORS AND
                                               # IO BAD PARITY ERRORS.
0006025                                                CALL    INTBGNX               # HOLD REMAINING DATA, PERFORM BOOKKEEPING
0006025 01 001075 037020 110202 CSYSUB   -001-         BSA     INTBGNX
0006027 01 001077 112412 ------                        UNPK    ER
0006030 01 001100 016062 000017                        IRM     R3,R2,MSK(4)          # CONSOLIDATE INTERRUPT ERROR BITS IN R3
0006032 01 001102 010475 ------                        RLN     R3,3                  # RIGHT ADJUST ER(19-14) IN R3
0006033 01 001103 057412 ------                        TSRPL   ER                    # ADD ER(PL,PH) SINCE THEY ALSO CONTAIN
```

ERROR INFORMATION

```
0006034 01 001104 030067 ------                 02        ICF     R3,7
0006035 01 001105 057432 ------                 03        TSRPH   ER
0006036 01 001106 030070 ------                 04        ICF     R3,8
0006037 01 001107 024076 ------                 05        TBN     R3,14               # INSERT BIT "MRTER" INTO BIT 0 OF R3
0006040 01 001110 030060 ------                 06        ICF     R3,0
                                                07 # WE NOW HAVE ALL THE DATA, SO ZERO THE ER
0006041                                         08        MIMODE  L ER,NOP
0006041 01 001111 013000 ------          -001- 09        MIS     0
0006042 01 001112 125360 ------          -002- 10            VFD     8,ER%T 8,NOP%F
                                                11 # ER MUST BE CLEARED BEFORE THE IS BIT IS RESET.
                                                12 # IF THIS IS NOT DONE, THE IS BIT WILL IMMEDIATELY BECOME
                                                13 # SET AGAIN. THIS HAS HAPPENED. INTBEGIN CLEARED THE IS
                                                14 # BIT BUT IT IS SET AGAIN BECAUSE THE ER WAS NOT CLEARED.
                                                15 # HENCE, THE IS BIT IS NOW CLEARED AGAIN.
0006043                                         16        MIMODE  DATA=S(ERRI) L IS_R,YT
0006043 01 001113 013005 ------          -001- 17        MIS     S(ERRI)
0006044 01 001114 033322 ------          -002- 18            VFD     8,IS_R%T 8,YT%F
0006045 01 001115 003462 000777                 19        NI      R3,MSK(9)           # IGNORE THOSE BITS WE DID NOT INITIALIZE
0006047 01 001117 015463 ------                 20        COM     R3
0006050 01 001120 020467 ------                 21        FLZ     R3,R7               # FIND THE ERROR THAT CAUSED THE INTERRUPT
0006051                                         22                                    # ASSUME ONLY ONE ERROR PRESENT
0006051 01 001121 055114 ------ 0006165         23        BNC     INTRTN
0006052 01 001122 030500 043026 CTSD            24        LL      R4,SYSTATE          # SET UP FOR USE BY INDIVIDUAL ERRORS
0006054 01 001124 056007 ------                 25        BPAX    R7                  # GO TO DEDICATED CODE FOR THIS ERROR
0006055 01 001125 153114 ------ 0006171         26        B       WRITE_PROTECT_MYS   # WRITE INTO PROTECTED MAS AREA
0006056 01 001126 153047 ------ 0006125         27        B       WRITE_PROTECT_OS    # WRITE INTO PROTECTED OMAS AREA
0006057 01 001127 153046 ------ 0006125         28        B       STORE_ERROR_OS      # ERROR DETECTED BY OMAS CONTROLLER
0006060 01 001130 153045 ------ 0006125         29        B       FAST_TIMEOUT_OS     # NO RESPONSE FROM OMAS
0006061 01 001131 153106 ------ 0006167         30        B       IO_MULT             # MULTIPLE IO SELECTS
0006062 01 001132 153063 ------ 0006145         31        B       PT_RESET_ONL        # RECEIVED PT RESET MCH ORDER WITH CC=1
0006063 01 001133 153062 ------ 0006145         32        B       SW_ONL              # RECEIVED SWITCH MCH ORDER WITH CC=1
0006064 01 001134 153103 ------ 0006167         33        B       IO_CHANNEL


0006065                                         37 IO_PARITY
0006065                                         38        IOPARSAV_PICTURE
IOPARSAV_______________________________-001- 39 #_____________________________________________________________
00 |                                                                                              | IOPAR |
   |********************************************************************************************|       |
01 |----------------------------------------------------------------------------------------------------|
   |                                         IOPDATA                                                   |
   |                          DATA CONSTANT RETURNED (WITH PARITY CORRECTED)                           |
   |  15  |  14  |  13  |  12  |  11  |  10  |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0 |
0006065 01 001135 131000 043344 CTSD            48        LAL     R0,IOPARSAV,RA0     # INIT RA0
0006067 01 001137 044261 ------                 49        ST      R11,N(IOPDATA)(RA0) # SAVE DATA FOR ANALYSIS BY MAINTENANCE
                                                                                      PROGRAM
0006070 01 001140 061000 ------                 51        SBS     N(IOPAR)(RA0),S(IOPAR)
0006071                                         52        MIMODE  L R15,HG
```

```
0006071 01 001141 013000 ------          -001- 01        MIS     0
0006072 01'001142 047065 ------          -002- 02              VFD     8,R15%T 8,HG%F
0006073 01 001143 003340 ------                03        ZR      R14
0006074 01 001144 003760 000020 LAYOUT         04        AI      R15,ENTRYSIZ(HGAREA) # INCREMENT TO NEXT HG LEVEL
                                               05 # RETRIEVE IMPORTANT INFORMATION ABOUT I/O PARITY ERROR
0006076 01 001146 040560 ------                06        L       R7,0(RA1)            # PUT ADDRESSES OF FAILURE IN R7 AND R8
0006077 01 001147 040601 ------                07        L       R8,1(RA1)
0006100 01 001150 040631 ------                08        L       R9,9(RA1)            # GET CONTENTS OF R9
0006101 01 001151 040652 ------                09        L       R10,10(RA1)          # GET CONTENTS OF R10
0006102 01 001152 044753 ------                10        ST      R14,11(RA1)          # ZERO R11 IN HGAREA SO R11 EQUALS ZERO ON
                                                                                      EXIT FROM INTERUPT.
0006103 01 001153 003720 000020 LAYOUT         12        AI      R13,ENTRYSIZ(HGAREA) # GET NEXT LEVEL OF HGAREA
0006105 01 001155 040660 ------                13        L       R11,0(RA1)           # GET NEXT RETURN ADDRESS
0006106 01 001156 040701 ------                14        L       R12,1(RA1)
0006107 01 001157 031420 043024 CTSD           15        LAL     R1,ERPRTCTL,RA1      # PRINT CONTROL WORD
0006111 01 001161 024427 ------                16        TBR     R1,ERPINT            # IS ERROR PRINT INHIBITED?
0006112 01 001162 061560 ------                17        SBS     0(RA1),ERPINT        # INHIBIT ERROR PRINT
0006113 01 001163 054010 ------ 0006123        18        BC      NOPRINT
0006114                                        19        PRINT   PRIOR=3,PACTION=**,FMT=(WRD(R,E,P,T),WRD(I,SL,O),WRD(E,R,R),H_C,
                                                                 L_X,L_X,L_X,H_C,L_X)

                                         -001- 22 #  MESSAGE PROTOTYPE
                                         -001- 23 #  ** mm       REPT ISLO ERR xxxxx xxxx xxxx xxxxx
0006114 01 001164 073053 ------          -002- 24        BSAI    P%MRY                # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
0006115 01 001165 104260 ------          -002- 25        VFD     1,1 2,0 1,0 3,4 1,0 1,1 1,0 2,3 1,0 3,0
0006116 01 001166 063120 ------          -002- 26        VFD     4,TTYO_L_X 4,TTYO_L_X 4,TTYO_H_C 4,TTYO_WRD
0006117 01 001167 023126 ------          -002- 27        VFD     4,TTYO_ 4,TTYO_L_X 4,TTYO_H_C 4,TTYO_L_X
0006120 01 001170 014033 ------ TTYTBL   -002- 28        VFD     5,3 11,R%EPT
0006121 01 001171 001121 ------ TTYTBL   -002- 29        VFD     5, 11,IL0
0006122 01 001172 000307 ------ TTYTBL   -002- 30        VFD     5, 11,E%RR
                                         -001- 31        NOTE    THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
                                                                   CONTAINED IN GENERAL REGISTERS R7,R8,R9,R10,R11,R12,
                                         -001- 33        NOTE    ****THIS MESSAGE WILL RESULT IN A MAJOR ALARM****
                                               34 # MUST BE ZEROED BECAUSE SOME PROGRAMS CHECK FOR COMPLETION
                                               35 # BY ONLY CHECKING R11 FOR A KNOWN CONSTANT.  IN SUCH A CASE,
                                               36 # CORRECTING PARITY AND LEAVING DATA IN R11 CAN
                                               37 # CAUSE PARITY ERRORS TO BE MISSED
                                               38 NOPRINT
0006123
0006123 01 001173 172743 ------                39        HN      R14,3                # CAUSE CF TO BE ZERO ON EXIT FROM INTERRUPT
0006124 01 001174 053041 ------ 0006165        40        B       INTRTN
```

```
0006125                                          01 WRITE_PROTECT_OS
0006125                                          02 STORE_ERROR_OS
0006125                                          03 FAST_TIMEOUT_OS
0006125                                          04          CALL    WPOST              # FIRST ATTEMPT TO INITIALIZE OFF-LINE STORE
0006125 01 001175 137020 110453 CSYSUB  -001-    05          BSA     WPOST
0006127                                          06          MIMODE  L ER,NOP           # WPOST ACCESSED THE OMAS AND MAY HAVE
                                                                                          CAUSED MORE ERRORS IF OMAS IS FAULTY
0006127 01 001177 113000 ------         -001-    08          MIS     0
0006130 01 001200 125360 ------         -002-    09              VFD     8,ER%T 8,NOP%F
0006131                                          10          MIMODE  DATA=S(ERRI) L IS_R,YT
0006131 01 001201 013005 ------         -001-    11          MIS     S(ERRI)
0006132 01 001202 033322 ------         -002-    12              VFD     8,IS_R%T 8,YT%F
0006133 01 001203 031000 043017 CTSD             13          LAL     R0,AUMASCTL,RA0
0006135 01 001205 062121 ------ CBLM             14          ZBS     N(DGNUPD)(RA0),S(DGNUPD) #.TERMINATE SPECIAL UPDATE ON FIRST
                                                                                          ERROR
0006136 01 001206 024112 ------ CBLM             16          TBN     R4,S(MAS_OOS)
0006137                                          17          IF      ¬ CF THEN CALL OMASTEST # SKIP OPERATIONAL TEST IF IT FAILED
                                                                                          PREVIOUSLY
0006137 01 001207 054003 ------ 0006142 -002-    19              BC      IFS767
0006140 01 001210 037020 006554 0006554 -003-    20              BSA     OMASTEST
0006142                                  -002-    21 IFS767
0006142 01 001212 103061 ------                  22          LN      R3,1
0006143 01 001213 072463 ------                  23          HN      R3,3               # FORCE CF=1 TO COMMUNICATE FAILURE TO
                                                                                          PROGRAM EXECUTING MSTF INSTRUCTION
0006144 01 001214 053021 ------ 0006165          25          B       INTRTN



0006145                                          31 PT_RESET_ONL
0006145                                          32 SW_ONL
0006145                                          33          CALL    OSANITY            # TEST OTHER CC
0006145 01 001215 137020 007237 0007237 -001-    34          BSA     OSANITY
0006147 01 001217 106200 ------                  35          LR      R8,R0
0006150 01 001220 031420 043024 CTSD             36          LAL     R1,ERPRTCTL,RA1    # PRINT CONTROL WORD
0006152 01 001222 024427 ------                  37          TBR     R1,ERPINT          # IS ERROR PRINT INHIBITED?
0006153 01 001223 061560 ------                  38          SBS     0(RA1),ERPINT      # INHIBIT ERROR PRINT.
0006154 01 001224 054011 ------ 0006165         39          BC      INTRTN
0006155                                          40          PRINT   FMT=(WRD(R,E,P,T),WRD(O,F,L),WRD(S,W),WRD(E,R,R),L_X)

                                         -001-   42 #  MESSAGE PROTOTYPE
                                         -001-   43 #      mm      REPT OFL SW ERR xxxx
0006155 01 001225 073053 ------          -002-   44          BSAI    P%MRY              # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
0006156 01 001226 100200 ------          -002-   45          VFD     1,1 2,0 1,0 3,0 1,0 1,1 1,0 2,0 1,0 3,0
0006157 01 001227 023000 ------          -002-   46          VFD     4,TTYO_ 4,TTYO_L_X 4,TTYO_WRD 4,TTYO_WRD
0006160 01 001230 021042 ------          -002-   47          VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_
0006161 01 001231 020033 ------ TTYTBL   -002-   48          VFD     5,4 11,R%EPT
0006162 01 001232 001175 ------ TTYTBL   -002-   49          VFD     5, 11,0%FL
```

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0006163 01 001233 000043 ------ TTYTBL   -002- 01        VFD     5, 11,S%W
0006164 01 001234 000307 137000 TTYTBL   -002- 02        VFD     5, 11,E%RR
                                         -001- 03        NOTE    THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
                                                                   CONTAINED IN GENERAL REGISTERS R8,
0006165                                        05 INTRTN
0006165 01 001235 137000 110253 CSYSUB         06        BL      INTEND



0006167                                        12 IO_CHANNEL
0006167                                        13 IO_MULT
0006167                                        14        STOP
0006167 01 001237 113000 ------          -002- 15        MIS     0
0006170 01 001240 154312 ------          -003- 16              DATA    STPASW%


0006171                                        21 WRITE_PROTECT_MYS
                                               22 # RETRIEVE IMPORTANT INFORMATION ABOUT WRITE PROTECT ERROR.
0006171 01 001241 131420 043024 CTSD           23        LAL     R1,ERPRTCTL,RA1     # PRINT CONTROL WORD
0006173 01 001243 024427 ------                24        TBR     R1,ERPINT           # IS ERROR PRINT INHIBITED?
0006174 01 001244 061160 ------                25        SBS     0(RA0),ERPINT       # INHIBIT ERROR PRINT OUT
0006175 01 001245 054023 ------ 0006220       26        BC      NOPRNT
0006176                                        27        MIMODE  L R15,HG
0006176 01 001246 013000 ------          -001- 28        MIS     0
0006177 01 001247 047065 ------          -002- 29              VFD     8,R15%T 8,HG%F
0006200 01 001250 003760 000020 LAYOUT         30        AI      R15,ENTRYSIZ(HGAREA) # INCREMENT TO NEXT HOLD GET LEVEL
0006202 01 001252 003340 ------                31        ZR      R14
0006203 01 001253 040560 ------                32        L       R7,0(RA1)           # PUT ADDRESS WHERE ERROR OCCURED IN R7 AND
                                                                                       R8.
0006204 01 001254 040601 ------                34        L       R8,1(RA1)
0006205 01 001255 040634 ------                35        L       R9,12(RA1)          # PUT CONTENTS OF RA0 IN R9 AND R10.
0006206 01 001256 040655 ------                36        L       R10,13(RA1)
0006207 01 001257 040676 ------                37        L       R11,14(RA1)         # PUT CONTENTS OF RA1 ON R9 AND R10.
0006210 01 001260 040717 ------                38        L       R12,15(RA1)
0006211                                        39        PRINT   PRIOR=3,PACTION=**,FMT=(WRD(R,E,P,T),WRD(W,R,I),WRD(E,R,R),H_C,L
                                                                   _X,H_C,L_X,H_C,L_X) # PRINT ERROR MESSAGE.

                                         -001- 42 #  MESSAGE PROTOTYPE
                                         -001- 43 #  ** mm       REPT WRI ERR xxxxx xxxxx xxxxx
0006211 01 001261 073053 ------          -002- 44        BSAI    P%MRY               # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
0006212 01 001262 104260 ------          -002- 45        VFD     1,1 2,0 1,0 3,4 1,0 1,1 1,0 2,3 1,0 3,0
0006213 01 001263 053120 ------          -002- 46        VFD     4,TTYO_H_C 4,TTYO_L_X 4,TTYO_H_C 4,TTYO_WRD
0006214 01 001264 023126 ------          -002- 47        VFD     4,TTYO_ 4,TTYO_L_X 4,TTYO_H_C 4,TTYO_L_X
0006215 01 001265 014033 ------ TTYTBL   -002- 48        VFD     5,3 11,R%EPT
0006216 01 001266 001323 ------ TTYTBL   -002- 49        VFD     5, 11,W%RI
```

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0006217 01 001267 000307 130621 TTYTBL   -002- 01          VFD     5, 11,E%RR
                                         -001- 02          NOTE    THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
                                                             CONTAINED IN GENERAL REGISTERS R7,R8,R9,R10,R11,R12,
                                         -001- 04          NOTE    ****THIS MESSAGE WILL RESULT IN A MAJOR ALARM****
0006220                                        05 NOPRNT
0006220 01 001270 130621 016446 MASACS         06          LL      R9,MASCIOSC          # PUT 3X6 CODE FOR MY STORE 0 IN R9
0006222 01 001272 003641 043300                07          LI      R10,CLEAR_SER
0006224                                        08          CALL    SENDMIO              # CLEAR STORE ERROR REGISTER
0006224 01 001274 037020 111050 CSYSUB   -001- 09          BSA     SENDMIO
0006226 01 001276 155010 ------ 0006236       10          BNC     CLRFL                # IF THE ORDER FAILS, STOP AND SWITCH
0006227 01 001277 003240 ------                11          ZR      R10
0006230                                        12          CALL    SENDMIO              # CLEAR FORCE-SELECT ORDER WHICH WAS SENT TO
                                                                                          THE STORE 0
0006230 01 001300 037020 111050 CSYSUB   -001- 14          BSA     SENDMIO
0006232 01 001302 155004 ------ 0006236       15          BNC     CLRFL                # IF THE ORDER FAILS, STOP AND SWITCH
0006233                                        16          MIMODE  L ER,NOP             # ZERO THE ERROR REGISTER IN THE CC
0006233 01 001303 013000 ------          -001- 17          MIS     0
0006234 01 001304 125360 ------          -002- 18                VFD     8,ER%T 8,NOP%F
0006235 01 001305 053670 ------ 0006125       19          B       WRITE_PROTECT_OS     # NOW INITIALIZE THE OTHER STORE
0006236                                        20 CLRFL
0006236                                        21          MIMODE  STPASW               # SWITCH IF IO ORDERS TO STORE FAIL
0006236 01 001306 113000 ------          -001- 22          MIS     0
0006237 01 001307 154312 ------          -002- 23                DATA    STPASW%
```

```
                 01 # BEFORE THE OTHER CC ISSUED THIS INTERRUPT, IT LOADED THIS
                 02 # CC'S MAS WITH AN INSTRUCTION CODE AND DATA WORD.
                 03 # THE TWO DEDICATED WORDS ARE:
                 04 #      MCHFCN= FUNCTION TO BE PERFORMED
                 05 #      MCHDATA=DATA IF FUNCTION REQUIRES DATA
                 06 #      IS IS ASSUMED THAT THEY ARE ADJACENT AND MCHFCN IS FIRST

                 08 # THE POSSIBLE FUNCTIONS ARE:
                 09 # 0--SPARE
                 10 # 1--STOP
                 11 # 2--NORMAL SWITCH COMPLETION
                 12 # 3--ZERO PROGRAM TIMER


0006240                                          18 MCH_INT
0006240 01 001310 171420 ------                  19        HA
0006241 01 001311 003441 000200                  20        LI     R2,ES(OCCI)
0006243                                          21        CALL   INTBEGIN
0006243 01 001313 037020 110207 CSYSUB    -001-  22        BSA    INTBEGIN
0006245 01 001315 131000 043342 CTSD             23        LAL    R0,MCHFCN,RAD
0006247 01 001317 040021 ------                  24        L      R1,1(RAD)          # MCHDATA
                                                 25 # SET FUNCTION TO NOP FUNCTION TO GUARD AGAINST SPURIOUS INTERRUPTS
0006250 01 001320 003040 ------                  26        ZR     R2
0006251 01 001321 044040 ------                  27        ST     R2,0(RAD)          # FCN=0
                                                 28 CINIT  OW     0(1322)            # 3E790671
                                          -001-  29        NOTE   ************** THE FIRST ADDRESS OVERWRITTEN IS 001322 **********


                                                 32 CPATCH BGNP   0(262)             # 3E790671
0006252 01 001322 037000 111714 0111714   -001-  33        BL     %%%816
                                          -001-  34        NOTE   CPATCH 'CSECT'
                                          -001-  35        NOTE   ***************** PATCH AREA BEGINS AT 000262 ****************


0111714                                   -001-  38 %%%816 PATCHAREA
0111714 02 000262 103402 000003                  39        NI     R0,M(FCN)
0111716 02 000264 026234 ------ TTYTBL           40        SBN    R9,S(UCL)          # Set R9 for SWINIT
0111717                                          41        ENDP                      # 3E790671
0111717 02 000265 037000 006254 0006254   -001-  42        BL     %%%818
                                          -001-  43        NOTE   ************* LAST PATCH ADDRESS USED IS 000266 ****************
                                          -001-  44        NOTE   ***** NUMBER OF PATCH WORDS USED IS 5 (DECIMAL) ********
```

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   OTHER CENTRAL CONTROL INTERRUPT                                                    0:17:53   2/06/81  ****

   OUTPUT MESSAGE                                                                        CINIT          W77D

0006254                                  -001- 01 XXX818 OWCONTINUE
0006254                                        02        EOW                    # 3E790671
                                         -001- 03        NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 001323 **********


0006254 01 001324 156000 ------                  06        BPAX    R0             # SELECT FCN
0006255 01 001325 153006 ------ 0006263         07        B       PWRDOWN
0006256 01 001326 153012 ------ 0006270         08        B       SWINIT
0006257 01 001327 153013 ------ 0006272         09        B       SWCOMPL



0006260                                         13 ZEROPT
0006260                                         14        MIMODE  ZPT
0006260 01 001330 113000 ------          -001- 15        MIS     0
0006261 01 001331 134350 ------          -002- 16              DATA    ZPT%
0006262 01 001332 053004 ------ 0006266         17        B       INTSRTN


0006263                                         21 PWRDOWN
                                                22 # THIS CODE SHOULD NOT OCCUR.  IT USUALLY MEANS AN EXTRANEOUS
                                                23 # OTHER CC INTERRUPT HAS OCCURRED.  THIS IN TURN USUALLY
                                                24 # HAPPENS WHEN THE OTHER CC IS BEING POWERED DOWN.  IF THIS
                                                25 # IS INDEED THE CASE, A FLOOD OF INTERRUPTS IS OCCURRING.  TO
                                                26 # PROTECT THE INTEGRITY OF THIS CC, THIS INTERRUPT IS BLOCKED.
                                                27 # IT WILL BE UNBLOCKED ONCE PER BASE LEVEL LOOP IN THE AUDIT
                                                28 # OF THE IM REGISTER.  IF THIS IS AN ISOLATED EXTRANEOUS INTERRUPT,
                                                29 # BLOCKING IT FOR ONE BASE LEVEL LOOP SHOULD DO NO HARM.
                                                30 # THE IM TO BE RESTORED AT THE END OF THE INTERRUPT IS CURRENTLY
                                                31 # SAVED IN HG SLOT 2.  THIS IS THE IMAGE THAT MUST BE
                                                32 # CHANGED.
0006263 01 001333 172002 ------                  33        GN      R0,2
0006264 01 001334 026007 ------                 34        SBN     R0,S(OCCI)
0006265 01 001335 072402 ------                 35        HN      R0,2
0006266                                         36 INTSRTN
0006266 01 001336 137000 110253 CSYSUB          37        BL      INTEND

   COMMON INITIALIZATION                                                                 PR-1C952-50
     0:17:53   2/06/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CINIT     ISSUE  04      PAGE    83
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0006270                                               01 SWINIT
                                                      02 # THE MESSAGE SW:INIT WILL COPY UNWRITE PROTECTED AREA FROM
                                                      03 # THE ONLINE AND UPDATE THE OFFLINE.
                                                      04 # A STOP AND SWITCH WILL THEN BE PERFORMED.
                                                      05 # IF SW:INIT;UCL IS TYPED IN THE UPDATE WILL BE SKIPPED.
                                                      06 CINIT  OW      O(1340)           # 3E790671
                                                -001- 07        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 001340 **********

                                                      10 CPATCH2 BGNP   O(255)            # 3E790671
0006270 01 001340 137000 114364 0114364         -001- 11        BL      %%%826
                                                -001- 12        NOTE    CPATCH2 'CSECT'
                                                -001- 13        NOTE    ***************** PATCH AREA BEGINS AT 000255 ****************

0114364                                         -001- 16 %%%826 PATCHAREA
0114364                                               17        SBIN                      # BLOCK ALL INTERUPTS WHILE SETTING IM REG
0114364 04 000255 113002 ------                 -001- 18        MIS     2
0114365 04 000256 105722 003401                 -001- 19        DATA    35794
0114366 04 000257 003401 157777                       20        LI      R0,-M(MANI)       # BLOCK ALL INTERUPTS EXCEPT PANEL
0114370 04 000261 007700 ------                       21        LSR     IM,R0
0114371                                               22        ZBIN
0114371 04 000262 013002 ------                 -001- 23        MIS     2
0114372 04 000263 107322 037020                 -001- 24        DATA    36562
0114373                                               25        CALL    TTYINIT           # TO CLR TTY BUF, PREVENTS MULT SW IN 2B
0114373 04 000264 037020 161250 CTTYT           -001- 26        BSA     TTYINIT
0114375 04 000266 124234 ------ TTYTBL                27        TBN     R9,S(UCL)         # DO WE SKIP UPDATE?
0114376 04 000267 054026 ------ 0114424               28        BC      INIT              # YES
0114377 04 000270 003340 ------                       29        ZR      RA1               # INITIALIZE POINTER FOR RANGE CHECK
0114400 04 000271 003360 ------                       30        ZR      RA1+1
0114401                                               31 UPDLOOP
0114401                                               32        CALL    RGCHKADR
0114401 04 000272 173036 ------                 -001- 33        BSAI    rgchkAdr          # SUBROUTINE RGCHKADR IS IN PROGRAM CSYSUB
0114402 04 000273 154022 ------ 0114424               34        BC      INIT              # RA1 IS OUT OF RANGE
0114403 04 000274 003405 000001                       35        CI      R0,1              # IS IT WRITE PROTECTED?
0114405 04 000276 054012 ------ 0114417               36        BC      INCADR            # YES
0114406                                               37        CALL    RESETPT           # CLEAR TIMER
0114406 04 000277 073042 ------                 -001- 38        BSAI    R%ESETPT          # SUBROUTINE RESETPT IS IN PROGRAM CBLM
0114407 04 000300 103441 007777                       39        LI      R2,O(7777)        # SET COUNTER FOR 4K WORDS
0114411                                               40 UPDATE
0114411                                               41        L_ONLX  R2(RA1)           # SAFE READ ONLINE
0114411 04 000302 176062 ------                 -001- 42        STAFX   R2(RA1)
0114412 04 000303 136260 ------                 -001- 43        DATA    B(1011110010110000)
0114413                                               44        STOSX   R2(RA1)           # SAFE WRITE OFFLINE
E0114413 04 000304 000462 ------                -001- 45        MSTFX   R2(RA1)
0114414 04 000305 136100 036040                 -001- 46        DATA    B(1011110001000000)
0114415 04 000306 036040 114411 0114411               47        BX      R2,UPDATE         # IS ALL 4K UPDATED
0114417                                               48 INCADR
0114417                                               49        AIL     RA1,4096          # TRY NEXT 4K
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   OTHER CENTRAL CONTROL INTERRUPT                                                    0:17:53   2/06/81  ****

   OUTPUT MESSAGE                                                                          CINIT          W77D

0114417 04 000310 103760 010000          -001- 01        AI      RA1+1,4096
0114421 04 000312 055002 ------ 0114423  -001- 02        BNC     IFS835
0114422 04 000313 004741 ------          -001- 03        AN      RA1,1
0114423 04 000314 153756 ------ 0114401        04        B       UPDLOOP
0114424                                        05 INIT
0114424                                        06        STOP                          # STOP ONLINE AND SWITCH TO OFFLINE
0114424 04 000315 113000 ------          -002- 07        MIS     0
0114425 04 000316 154312 ------          -003- 08            DATA    STPASW%
0114426                                        09        ENDP    NR                    # 3E790671
                                         -001- 10        NOTE    ************ LAST PATCH ADDRESS USED IS 000316 ***************
                                         -001- 11        NOTE    ***** NUMBER OF PATCH WORDS USED IS 34 (DECIMAL) ********


0006272                                        14        EOW                           # 3E790671
                                         -001- 15        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 001341 *********
                                                          *



0006272                                        22 SWCOMPL                              # THE SWITCH HAS OCCURRED, WE ARE NOW
                                                                                         EXECUTING IN  THE OTHER CC
0006272                                        24        BEGAN   ()
0006272 01 001342 171400 ------                25        GA                            # CORRECT PARITY IN R2-R15
0006273 01 001343 071400 ------                26        GA                            # ADD DELAY TO ALLOW OTHER CU TO GO DORMANT
0006274 01 001344 071400 ------                27        GA
0006275 01 001345 030420 043343 CTSD           28        LL      R1,MCHFCN+1           # RETRIEVE HG LEVEL AND FIX SDR1 WITH GOOD
                                                                                         PARITY
0006277                                        30        MIMODE  L HG,R1               # RESTORE REGISTERS OTHER THAN R2-R15
0006277 01 001347 013000 ------          -001- 31        MIS     0
0006300 01 001350 032525 ------          -002- 32            VFD     8,HG%T 8,R1%F
0006301 01 001351 072007 ------               33        GN      R0,7
0006302                                       34        MIMODE
0006302 01 001352 013400 ------          -001- 35        MI      0
0006303                                       36        L       BR,R0
0006303 01 001353 070523 ------          -001- 37            VFD     8,BR%T 8,R0%F
0006304                                       38        BRXMMS
0006304 01 001354 145312 ------          -001- 39            DATA    BRXMMS%
0006305                                       40        ZMINT
0006305 01 001355 026750 ------          -001- 41            DATA    ZMINT%
0006306                                       42        SBIN                          # GATING TO IM IS CLEAR AND GATE
0006306 01 001356 013002 ------          -001- 43        MIS     2
0006307 01 001357 105722 ------          -001- 44        DATA    35794
0006310                                       45                                      # THIS IS PROTECTION AGAINST A HARDWARE
                                                                                         CLICHE.
0006310 01 001360 072063 ------               47        GN      R3,3
0006311 01 001361 007703 ------               48        LSR     IM,R3
0006312 01 001362 072062 ------               49        GN      R3,2                  # IS

   COMMON INITIALIZATION                                                                          PR-1C952-50
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OUTPUT MESSAGE

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0006313 01 001363 072124 ------                01        GN      R5,4
0006314                                        02        MIMODE                  # INITIALIZE SPECIAL REGISTERS TO ON-LINE
                                                                                   STATE
0006314 01 001364 013400 ------          -001- 04        MI      0
0006315                                        05        L       ER,NOP
0006315 01 001365 125360 ------          -001- 06                VFD     8,ERXT 8,NOPXF
0006316                                        07        L       MS,NOP
0006316 01 001366 106760 ------          -001- 08                VFD     8,MSXT 8,NOPXF
0006317                                        09        L       IS_S,R3
0006317 01 001367 034531 ------          -001- 10                VFD     8,IS_SXT 8,R3XF
0006320                                        11        L       BR,R5
0006320 01 001370 070534 ------          -001- 12                VFD     8,BRXT 8,R5XF
0006321                                        13        BRXTI
0006321 01 001371 154066 ------          -001- 14                DATA    BRXTIX
0006322                                        15        ZMINT
0006322 01 001372 026750 ------          -001- 16                DATA    ZMINTX
0006323 01 001373 072045 ------                17        GN      R2,5
0006324 01 001374 072066 ------                18        GN      R3,6
0006325 01 001375 003462 177756                19        NI      R3,-ES(AME,DME)         # TURN MATCHERS OFF BECAUSE THE AK,AI,DI,
                                                                                           AND DK
                                               21                                        # REGISTERS HAVE NOT BEEN BROUGHT ACROSS
0006327
0006327 01 001377 012320 ------                22        PACK    SS_S
0006330 01 001400 015442 ------                23        COM     R2
0006331 01 001401 015463 ------                24        COM     R3
0006332 01 001402 012360 ------                25        PACK    SS_R
                                               26 # DO NOT RELEASE BIN UNTIL IM AND IS ARE INITIALIZED
0006333 01 001403 003040 ------                27        ZR      R2
0006334 01 001404 007522 ------                28        LSR     AK,R2                   # ZERO AK BECAUSE IT IS USED TO FLAG THE
                                                                                           OCCURRENCE
0006335 01 001405 031440 043026 CTSD           30        LAL     R2,SYSTATE,RA1          # SAVE SYSTATE IN R2
0006337 01 001407 057437 ------                31        TCC1
0006340 01 001410 030031 ------ CBLM           32        ICF     R1,S(ONL_CC)
0006341 01 001411 002420 001000 CBLM           33        STM     R1,0(RA1),M(ONL_CC)
0006343                                        34                                        # OF DSR OPERATIONS
0006343                                        35        RETURN                          # RETURN TO THE SWITCH CC SUBROUTINE
0006343 01 001413 056400 ------          -001- 36        BTSA
```

```
                                                01 # SW:CU IS A REQUEST TO SWITCH THE ACTIVE-STANDBY
                                                02 # STATUS OF THE TWO CU'S.
0006344                                         03
                                                04 # THE ALLOWABLE FORMS FOR THE MESSAGE ARE:
                                                05 # SW:CU!
                                                06 # SW:CU;UCL!
0006344                                         07
                                                08 # FOR THE NORMAL MESSAGE, THE SWITCHCC SUBROUTINE IS CALLED.
                                                09 # IT CAN FAIL, AND HENCE THE MESSAGE CAN FAIL, IF THE
                                                10 # OFF-LINE IS OUT-OF-SERVICE. THE UNCONDITIONAL MESSAGE ALSO
                                                11 # ATTEMPTS A SWITCH VIA SWITCHCC. HOWEVER, IF IT FAILS, A
                                                12 # SECOND ATTEMPT IS MADE BY CALLING UPDXSW. THIS
                                                13 # SUBROUTINE WILL RESULT IN A DELAYED SWITCH (AFTER AN
                                                14 # UPDATE) AND WILL ONLY FAIL IF THE SYSTEM IS LOCKED.
0006344                                         15 SWCU
0006344                                         16 SWSYC
0006344                                         17        BEGIN   ()
0006344                                         18        CALL    SWITCHCC          # ATTEMPT NORMAL SWITCH
0006344 01 001414 137020 006401 0006401 -001- 19        BSA     SWITCHCC
0006346 01 001416 154007 ------ 0006355       20        BC      TTYOK
0006347 01 001417 024174 ------ TTYTBL        21        TBN     R7,S(UCL)         # ON FAILURE TEST IS UNCONDITIONAL SWITCH
                                                                                    WAS REQUESTED
0006350 01 001420 055004 ------ 0006354       23        BNC     TTYRL
0006351                                         24        CALL    UPDXSW            # RETRY
0006351 01 001421 037020 006357 0006357 -001- 25        BSA     UPDXSW
0006353 01 001423 154003 ------ 0006356       26        BC      TTYIP
0006354                                         27 TTYRL  RETURN  TTY_RL
0006354 01 001424 156466 ------ TTYTBL  -001- 28        BTSAN   TTY_RL
0006355                                         29 TTYOK  RETURN  TTY_OK
0006355 01 001425 156464 ------ TTYTBL  -001- 30        BTSAN   TTY_OK
0006356                                         31 TTYIP  RETURN  TTY_IP
0006356 01 001426 156465 ------ TTYTBL  -001- 32        BTSAN   TTY_IP
```

```
                                        01        *       1.3.2 COMMON SYSTEM SUBROUTINES
                                        02        *       ------------------------------
                                        03        *       1.3.2.1 NORMAL SWITCH OF CU
                                        04        *       ---------------------------
                                        05        *
                                        06        *       DESCRIPTION:
                                        07        *       SWITCH THE ON-LINE/OFF-LINE STATUS OF THE TWO CU'S.
                                        08        *
                                        09        *       ENTRY POINTS:
                                        10        *       UPD%SW---SWITCH IF SYSTEM IS IN UPDATE, IF NOT PUT A DELAID
                                                            SWITCH IN PROGRESS
                                        12        *       SWCCUPD--SWITCH ONLY IF SYSTEM IS IN UPDATE
                                        13        *       SWCCACHK--SWITCH ONLY IF APPLICATION CHECKS PASS
                                        14        *       SWITCHCC-SWITCH ONLY IF SYSTEM IS IN STANDBY
                                        15        *
                                        16        *       ENTRY CONDITIONS:
                                        17        *       NONE
                                        18        *
                                        19        *       EXIT CONDITIONS:
                                        20        *       RETURN CODE
                                        21        *       R0 = 0--SWITCH GRANTED
                                        22        *       R0 = 1--SWITCH DENIED
                                        23        *
                                        24        *


0006357                                 28 UPD%SW
0006357                                 29        BEGIN
0006357 01 001427 171420 ------ -002-   30        HA
0006360                                 31        CALL    SWCCUPD             # ATTEMPT AN IMMEDIATE SWITCH
0006360 01 001430 037020 006367 0006367 -001-   32        BSA     SWCCUPD
0006362                                 33        IF      ¬ CF THEN RGBEGIN   # ATTEMPT A DELAID SWITCH IF IMMEDIATE FAILS
0006362 01 001432 154004 ------ 0006366 -002-   34            BC      IFS875
0006363 01 001433 031400 043026 CTSD            35            LAL     R0,SYSTATE,RA1  # RA1=SYSTATE
0006365 01 001435 061740 ------                 36            SBS     0(RA1),S(SW_IP) # THIS WILL CAUSE THE STATE DETECTOR TO
                                                                        REQUEST UPDATE AND WILL CAUSE UPDATE TO
                                                                        REQUEST A SWITCH WHEN IT COMPLETES
0006366                                 39        RGEND
0006366                         -001-   40 IFS875
0006366                                 41        RETURN  0
0006366 01 001436 156440 ------ -001-   42        BTSAGN  0
```

```
SUBROUTINES                                                                    0:17:53   2/06/81  ****

SWITCH CC                                                                                CINIT          W77D

0006367                                        01 SWCCUPD
0006367                                        02        BEGIN
0006367 01 001437 171420 ------        -002-   03        HA
0006370 01 001440 003401 004002 BLMMA          04        LI      R0,MSFOFL
0006372                                        05        CALL    MSFABT              # STOP MULTISCAN FUNCTIONS WHICH ARE USING
                                                                                       THE OFF-LINE CU
0006372 01 001442 073050 ------        -001-   07        BSAI    M%SFABT             # SUBROUTINE MSFABT IS IN PROGRAM CBLM
0006373                                        08        CALL    CK_OST
0006373 01 001443 137020 001750 CBLM   -001-   09        BSA     CK_OST
                                               10 CINIT  OW      0(1445)             # 3E790716
                                       -001-   11        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 001445 **********


                                               14 # CHECK R0 >= 2 IF YES THEN B SWCCUCLA

0006375 01 001445 103400 177776                16        SI      R0,2
0006377 01 001447 054017 ------ 0006416        17        BC      SWCCUCLA
0006400                                        18        EOW                         # 3E790716
                                       -001-   19        NOTE    ***************** THE LAST ADDRESS OVERWRITTEN IS 001447 *********
                                                                                       *


0006400                                        23        RETURN  1
0006400 01 001450 056441 ------        -001-   24        BTSAGN  1


0006401                                        28 SWITCHCC
0006401 01 001451 103020 ------ CBLM           29        LN      R1,S(OFL_STBY)
0006402                                        30        BEGIN   ()
0006402 01 001452 030400 043026 CTSD           31        LL      R0,SYSTATE
0006404 01 001454 024401 ------                32        TBR     R0,R1
0006405                                        33        IF      ¬ CF THEN RETURN 1  # DENY SWITCH IF OFF-LINE CU IS NOT IN
                                                                                       STANDBY
0006405 01 001455 054002 ------ 0006407 -002-  35              BC      IFS892
0006406 01 001456 056461 ------         -003-  36              BTSAN   1
0006407                                 -002-  37 IFS892


0006407                                        41 SWCCACHK
0006407 01 001457 130400 043023 CTSD           42        LL      R0,CCKTSTAT
0006411                                        43        CALL    ASWCHK              # CHECK IF SWITCHING IS OK WITH APPLICATION
0006411 01 001461 037020 147221 BLMMA  -001-   44        BSA     ASWCHK
0006413                                        45        IF      CF THEN RETURN 1    # DENY SWITCH DUE TO APPLICATION OBJECTION
0006413 01 001463 155002 ------ 0006415 -002-  46              BNC     IFS896
0006414 01 001464 056461 ------         -003-  47              BTSAN   1
0006415                                 -002-  48 IFS896
0006415                                        49 SWCCUCL

COMMON INITIALIZATION                                                                    PR-1C952-50

  0:17:53   2/06/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CINIT     ISSUE 04      PAGE    89
```

```
0006415                                          BEGIN
0006415 01 001465 171420 ------          -002-   HA
0006416                                      SWCCUCLA
0006416 01 001466 112417 ------                  UNPK    SS
0006417 01 001467 024071 ------                  TBN     R3,S(LON)
0006420                                          IF      CF THEN RETURN 1    # EVEN THE UNCONDITIONAL SWITCH IS DENIED IF
                                                                               THE SYSTEM IS LOCKED
0006420 01 001470 055002 ------ 0006422  -002-       BNC     IFS902
0006421 01 001471 056441 ------          -003-       BTSAGN  1
0006422                                  -002-   IFS902
0006422                                          CALL    ASWBEGIN            # APPLICATION WORK BEFORE SWITCH
0006422 01 001472 137020 147223 BLMMA    -001-   BSA     ASWBEGIN
0006424                                          CALL    CSWCU               # PERFORM THE SWITCH
0006424 01 001474 137020 006446 0006446  -001-   BSA     CSWCU
0006426                                          CALL    ASWCOMPL            # APPLICATION WORK AFTER SWITCH
0006426 01 001476 137020 147225 BLMMA    -001-   BSA     ASWCOMPL
0006430 01 001500 157437 ------                  TCC1
0006431 01 001501 030031 ------ CBLM             ICF     R1,S(ONL_CC)
0006432 01 001502 017041 001000 CBLM             CRM     R2,R1,M(ONL_CC)     # DID A SWITCH OCCUR
0006434                                          IF      CF THEN RETURN 1    # FAILURE
0006434 01 001504 055002 ------ 0006436  -002-       BNC     IFS908
0006435 01 001505 056441 ------          -003-       BTSAGN  1
0006436                                  -002-   IFS908
                                                 # SWITCH WAS SUCCESSFUL. NOW THE MAS ERROR FLAGS MUST BE SWITCHED.
                                                 # THAT IS: UCORONL <==> UCOROFL AND CORONL <==> COROFL
0006436 01 001506 140421 ------ CBLM             L       R1,N(UCORONL)(RA1)  # GET MAS ERROR FLAGS
0006437 01 001507 010421 ------                  RRN     R1,1
0006440 01 001510 002421 000011 CBLM             STM     R1,N(UCORONL)(RA1),M(UCORONL)+M(CORONL)
0006442 01 001512 010436 ------                  RLN     R1,2
0006443 01 001513 002421 000022 CBLM             STM     R1,N(UCOROFL)(RA1),M(UCOROFL)+M(COROFL)
0006445                                          RETURN  0                   # SUCCESS
0006445 01 001515 056440 ------          -001-   BTSAGN  0


0006446                                      CSWCU
0006446                                          BEGIN   ()
                                                 # PER SUBROUTINE CONVENTION WE WILL NOT SAVE RO OR R1
                                                 # THE RETURN FOR THIS 'SUBROUTINE' IS AT THE CONCLUSION
                                                 # OF THE CODE SEQUENCE STARTING AT SWCOMPL


                                                 # CARE MUST BE EXERCISED IN TRANSPORTING THE 'IS' TO INSURE THAT NO
                                                 # INTERRUPTS ARE LOST.  THE OFF-LINE 'IS' IS NOT NORMALLY CLEARED AND THEREFORE
                                                 # CONTAINS INTERRUPTS THAT HAVE ALREADY BEEN PROCESSED.  THESE MUST
                                                 # BE CLEARED, BUT INTERRUPTS OCCURRING AFTER THIS POINT MUST BE
                                                 # SAVED AND PROCESSED.  THE FOLLOWING SEQUENCE FULFILLS BOTH
                                                 # REQUIREMENTS.  FIRST BIN IS SET SO THAT NO MORE INTERRUPTS ARE PROCESSED.
```

```
                                                    01 # THE OFF-LINE 'IS' IS ZEROED BEFORE THE ON-LINE 'IS' IS SAVED.  INTERRUPTS
                                                    02 # OCCURRING DURING THIS INTERVAL ARE ACCUMULATED IN THE ON-LINE 'IS' AND
                                                    03 # WILL BE TRANSPORTED.  THEN THE ON-LINE 'IS' IS SAVED AND FROM THAT
                                                    04 # POINT ON NEW INTERRUPTS ARE ACCUMULATED IN THE OFF-LINE 'IS'.
                                                    05 # THE SAVED 'IS' AND THE OFF-LINE 'IS' ARE EVENTUALLY OR'ED TOGETHER
                                                    06 # AND THEREFORE ALL INTERRUPTS ARE ACCOUNTED FOR.  NOTE THAT AN INTERVAL
                                                    07 # EXISTS DURING WHICH AN ARRIVING INTERRUPT IS RECORDED IN BOTH THE
                                                    08 # ON-LINE AND OFF-LINE 'IS'.  THIS IS NO PROBLEM SINCE THE TWO GET
                                                    09 # OR'ED TOGETHER INTO A SINGLE INTERRUPT SOURCE BIT.
0006446 01 001516 112417 ------                      10         UNPK    SS                  # SAVE SS BEFORE IT IS MODIFIED BY SBIN
0006447 01 001517 072445 ------                      11         HN      R2,5
0006450 01 001520 072466 ------                      12         HN      R3,6
0006451                                              13         SBIN
0006451 01 001521 013002 ------           -001-      14         MIS     2
0006452 01 001522 105722 ------           -001-      15         DATA    35794
0006453 01 001523 031420 006541 0006541              16         LAL     R1,ENABLE_OCC,RA1
0006455                                              17         CALL    EXCMCH              # ENABLE THE OFF-LINE CC
0006455 01 001525 037020 111216 CSYSUB    -001-      18         BSA     EXCMCH
                                                    19 # THIS ENABLE SEQUENCE LEAVES THE OTHER CC STOPPED AND MUST
                                                    20 # THEREFORE BE EXECUTED PRIOR TO THE INIT_OCC SUBROUTINE WHICH
                                                    21 # PLACES IT INTO THE 'HALT LOOP'.
0006457 01 001527 112415 ------                      22         UNPK    IS
0006460 01 001530 072462 ------                      23         HN      R3,2


                                                    27 # SAVE THE REST OF THE REGISTERS TO BE TRANSPORTED TO THE OTHER CU.
0006461 01 001531 012414 ------                      28         UNPK    IM
0006462 01 001532 072463 ------                      29         HN      R3,3
0006463                                              30         GETTI
0006463 01 001533 112400 ------           -001-      31         UNPK    TI
0006464 01 001534 006103 ------           -001-      32         LR      R4,R3
0006465 01 001535 012400 ------           -001-      33         UNPK    TI
0006466 01 001536 020103 ------           -001-      34         CR      R4,R3
0006467 01 001537 055774 ------ 0006463  -001-      35         BNC     TRY916
0006470 01 001540 072464 ------                      36         HN      R3,4
0006471 01 001541 012404 ------                      37         UNPK    MMSR
0006472 01 001542 072467 ------                      38         HN      R3,7


                                                    42 # SET UP THE CONTROL BLOCK WHICH IS USED BY THE OTHER CC INTERRUPT.  THE
                                                    43 # FUNCTION CODE (SWCCF) INDICATES THE COMPLETION OF A NORMAL SWITCH IS TO BE
                                                    44 # PERFORMED.  THE HG REGISTER CONTENTS ARE PASSED A DATA AND ACT AS A POINTER
                                                    45 # TO THE OTHER REGISTERS THAT ARE SAVED IN THE HG STOCK.
0006473                                              46         MIMODE  L R3,HG
0006473 01 001543 013000 ------           -001-      47         MIS     0
0006474 01 001544 054465 ------           -002-      48                 VFD     8,R3%T 8,HG%F
0006475 01 001545 034460 043343 CTSD                 49         STL     R3,MCHFCN+1         # PASS HG TO OCC
```

```
                                                    04 # A SWITCH IS TAKING PLACE WHICH MEANS THAT THE OFF-LINE CU IS ABOUT TO BECOME
                                                    05 # THE ON-LINE CU.  THE ON-LINE CU BY DEFINITION CANNOT BE MARKED OUT-OF-SERVICE

                                                    07 # CONSEQUENTLY MARK IT BACK IN SERVICE.  THIS IS ONLY NECESSARY IF THIS IS AN
                                                    08 # UNCONDITIONAL SWITCH SINCE AN OUT-OF-SERVICE CU IS GROUNDS FOR DENYING A
                                                    09 # NORMAL SWITCH AND IT COULD NOT HAVE PROCEEDED THIS FAR.
0006477 01 001547 003401 002020 CBLM                 10          LI      RO,M(OSA_FALT)+M(MAS_OOS)
0006501                                             11          CALL    UPDSTATZ
0006501 01 001551 037020 001723 CBLM      -001-     12          BSA     UPDSTATZ



                                                    16 # INITIALIZE SPECIAL REGISTERS TO OFF-LINE STATE
                                                    17 # BIN HAS BEEN SET PREVIOUSLY. IT IS REQUIRED HERE TO
                                                    18 # PROTECT AGAINST PROBLEMS ON THE CLEAR AND GATE TO THE IM.
0006503 01 001553 103401 157577                     19          LI      RO,OFL_IM
0006505 01 001555 007700 ------                     20          LSR     IM,RO
0006506 01 001556 003461 010004                     21          LI      R3,ES(CC,BIN)
0006510 01 001560 007763 ------                     22          LSR     SS_R,R3
0006511                                             23          MIMODE  DATA=S(BHC) L SS_S,YT # TEMPORARY FIX
0006511 01 001561 013001 ------           -001-     24          MIS     S(BHC)
0006512 01 001562 105722 ------           -002-     25                  VFD     8,SS_S%T 8,YT%F
0006513 01 001563 003441 042160 LAYOUT              26          LI      R2,HGAREA+OFL_HG    # CHANGE TO OFF-LINE,HG LEVEL TO AVOID
                                                                                              INTERFERENCE
0006515 01 001565 003461 031660                     28          LI      R3,ES(BDSR1,BDSRO,UPD1,UPDO,REV1,RW1,RWO) # REMOVE ISOLATE
0006517                                             29          MIMODE
0006517 01 001567 013400 ------           -001-     30          MI      0
0006520                                             31          L       BR,R3
0006520 01 001570 070531 ------           -001-     32                  VFD     8,BR%T 8,R3%F
0006521                                             33          BRXMMS
0006521 01 001571 145312 ------           -001-     34                  DATA    BRXMMS%
0006522                                             35          L       HG,R2
0006522 01 001572 032526 ------           -001-     36                  VFD     8,HG%T 8,R2%F
0006523                                             37          ZMINT
0006523 01 001573 026750 ------           -001-     38                  DATA    ZMINT%
0006524 01 001574 031400 006272 0006272             39          LAL     RO,SWCOMPL,RA1      # START OFF-LINE PROGRAM
0006526                                             40          CALL    EXCOFLPG
0006526 01 001576 037020 111235 CSYSUB    -001-     41          BSA     EXCOFLPG
0006530 01 001600 155542 ------ 0006272             42          BNC     SWCOMPL             #   IF THE MCH FAILS HERE COMPLETE THE
                                                                                              SWITCH IN THE OLD CU.

                                                    45 # THE UPDATE MODE IS ABOUT TO BE TURNED OFF. NO MAS WRITES
                                                    46 # ARE PERMITED AFTER UPDATE IS OFF BECAUSE THAT WOULD
                                                    47 # CAUSE THE NEWLY OFF-LINE MAS TO BE DIFFERENT FROM THE
                                                    48 # NEWLY ON-LINE MAS.
0006531 01 001601 003461 030260                     49          LI      R3,ES(BDSR1,BDSRO,REV1,RW1,RWO)
```

```
0006533                                          01        MIMODE                          # TURN UPDATE OFF
0006533 01'001603 013400 ------          -001-   02        MI      0
0006534                                          03        L       BR,R3
0006534 01 001604 070531 ------          -001-   04              VFD     8,BR%T 8,R3%F
0006535                                          05        BRXMMS
0006535 01 001605 145312 ------          -001-   06              DATA    BRXMMS%
0006536                                          07        SDIS                            # DISABLE IO IN CC GOING OFF-LINE
0006536 01 001606 016471 ------          -001-   08              DATA    SDIS%
0006537                                          09        ZMINT
0006537 01 001607 026750 ------          -001-   10              DATA    ZMINT%
0006540 01 001610 056540 ------                  11        HALT



0006541                                          17 ENABLE_OCC                             # USED BY SWITCH CC SUBROUTINE CSWCU
0006541 01 001611 000005 ------                  18        DATA    ENTRIES(ENABLE_OCC)
0006542 01 001612 006420 000000                  19        ADDR    0,MSTOP
0006544 01 001614 000720 035072                  20        ADDR    ENA%,LDMIRL
0006546 01 001616 000720 035071                  21        ADDR    ENB%,LDMIRL
0006550 01 001620 004637 177777                  22        ADDR    -0,LDMCHB
0006552 01 001622 000720 033231                  23        ADDR    IS_R%T*E(8)!MCHB%F,LDMIRL # ZERO IS REGISTER
                                  0000005        24 ENTRIES(ENABLE_OCC) EQU (*-ENABLE_OCC-1)/2
```

```
                                                 01 # DESCRIPTION:
                                                 02 # RUN OPERATIONAL TEST ON OFF-LINE STORE TO DETERMINE IF
                                                 03 # IT CAN BE WRITTEN AND READ WITHOUT AN ERROR AND WHETHER
                                                 04 # EACH NON WRITE PROTECTED BLOCK CAN BE WRITTEN WITHOUT
0006554                                          05 # GENERATING A WRITE PROTECT ERROR.
                                                 06
                                                 07 # ENTRY POINT:
                                                 08 # OMASTEST
0006554                                          09
                                                 10 # ENTRY CONDITIONS:
                                                 11 # NONE
0006554                                          12
                                                 13 # EXIT CONDITIONS:
                                                 14 # R0(S(BADST)) = 0--NO ERROR IN READING OMAS,  1--ERROR OCCURED
                                                 15 # R0(S(NOSTACC)) = 0--NO ERROR IN WRITING EACH 4K BLOCK,  1--ERROR OCCURRED
                                                 16 # ALL OTHER BITS OF R0 ARE ZERO
0006554                                          17
                                                 18 # CF=1 TEST PASSED
                                                 19 # CF=0 TEST FAILED


0006554                                          23 OMASTEST
0006554                                          24         BEGIN
0006554 01 001624 171420 ------          -002-  25         HA
0006555 01 001625 003120 ------                 26         ZR      R5                  # INIT NOSTACC AND BADST FLAGS
0006556 01 001626 003340 ------                 27         ZR      RA1
0006557 01 001627 053007 ------ 0006566        28         B       SKPINC
0006560                                          29 NEXT_32K
0006560 01 001630 103760 100000                 30         AI      RA1+1,E(15)         # INCREMENT RA1 BY 32K
0006562 01 001632 055002 ------ 0006564         31         BNC     NOCARY
0006563 01 001633 004741 ------                 32         AN      RA1,1
0006564                                          33 NOCARY
0006564 01 001634 124344 ------                 34         TBN     RA1,4               # E(20) WRAP AROUND CHECK
0006565 01 001635 054074 ------ 0006661         35         BC      OMASTESTF
                                                 36 CINIT   OW      0(1636)             # 11364
                                         -001-   37         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 001636 **********


0006566                                          40 SKPINC
0006566 01 001636 103762 100000                 41         NI      RA1+1,E(15)         # INSURE EVEN 32K ADDRESS
0006570                                          42         EOW                         # 11364
                                         -001-   43         NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 001637 *********
                                                                     *
```

```
0006570                                                  01        CALL    RGCHKADR          # GET WRITE PROTECT WORD
0006570 01 001640 073036 ------                  -001-   02        BSAI    rgchkAdr          # SUBROUTINE RGCHKADR IS IN PROGRAM CSYSUB
0006571 01 001641 106201 ------                          03        LR      R8,R1             # SAVE BITS TO IDENTIFY UNPROTECTED STORE
                                                                                               AREAS
0006572                                                  05        IF      ¬ CF THEN RGBEGIN # PERFORM IF ADDRESS STILL IN RANGE
0006572 01 001642 054067 ------ 0006661          -002-   06            BC      IFS943
0006573                                                  07            SBIN                  # DO NOT ALLOW ERROR INTERRUPT
0006573 01 001643 013002 ------                  -001-   08            MIS     2
0006574 01 001644 105722 ------                  -001-   09            DATA    35794
0006575                                                  10            LOS     0(RA1)        # INSURE AT LEAST ONE STORE ACCESS FOR EACH
                                                                                               32K
0006575 01 001645 076020 ------                  -001-   12            STAF    0(RA1)
0006576 01 001646 136160 ------                  -001-   13            DATA    B(1011110001110000)
0006577 01 001647 012412 ------                          14            UNPK    ER
0006600 01 001650 016062 000017                          15            IRM     R3,R2,MSK(4)  # MERGE FOR SINGLE TEST
0006602 01 001652 003462 140001                          16            NI      R3,M(OSTRER)+M(OWRTER)+M(OFSTM)/E(16)
0006604                                                  17            IF      ¬ CF THEN SBN R5,S(BADST)
0006604 01 001654 054002 ------ 0006606          -002-   18            BC      IFS947
0006605 01 001655 026132 ------                  -002-   19            SBN     R5,S(BADST)   #
0006606                                          -002-   20 IFS947
                                                         21 CINIT      OW      0(16560)      # 11364
                                                 -001-   22            NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 001656
                                                                                 **********


                                                         26 CPATCH     BGNP    0(170)        # 11364
0006606 01 001656 137000 111622 0111622          -001-   27            BL      XXX950
                                                 -001-   28            NOTE    CPATCH 'CSECT'
                                                 -001-   29            NOTE    ****************** PATCH AREA BEGINS AT 000170 ***************
                                                                                 *


0111622                                          -001-   33 XXX950     PATCHAREA
0111622 02 000170 124377 ------                          34            TBN     RA1+1,15      # IS THIS 32K WRITE PROTECT WORD IN UPPER OR
                                                                                               LOWER 8 BITS ?
0111623 02 000171 055002 ------ 0111625                  36            BNC     LOW8
0111624 02 000172 010610 ------                          37            RRN     R8,8
0111625                                                  38 LOW8
0111625 02 000173 103603 177400                          39            OI      R8,0(177400)
0111627                                                  40            ENDP                  # 11364
0111627 02 000175 037000 006610 0006610          -001-   41            BL      XXX952
                                                 -001-   42            NOTE    ************ LAST PATCH ADDRESS USED IS 000176 ***************
                                                                                 *
                                                 -001-   44            NOTE    ***** NUMBER OF PATCH WORDS USED IS 7 (DECIMAL) ********
```

```
0006610                                  -001- 01 XXX952     OWCONTINUE
0006610 01 001660 153042 ------ 0006652       02            B       CLRERRS
0006611 01 001661 006000 ------               03            NOP
                                              04 DEPATCH    NOTE                  # DELETE ABOVE NOP
0006612                                       05 NEXT_4K
0006612 01 001662 103000 ------               06            ZR      R0
                                              07            EOW                   # 11364
0006613                                  -001- 08            NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 001662
                                                               **********


0006613 01 001663 020600 ------               12            FLZ     R8,R0
0006614 01 001664 055744 ------ 0006560       13            BNC     NEXT_32K
                                              14 CINIT      OW      0(1665)       # 11364
                                         -001- 15            NOTE    ********** THE FIRST ADDRESS OVERWRITTEN IS 001665
                                                               **********


0006615 01 001665 010404 ------               19            RLN     R0,12         # MULTIPLY BY 4K TO CONVERT 4K BLOCK NUMBER
                                                                                      TO AN ADDRESS.
0006616                                       21            EOW                   # 11364
                                         -001- 22            NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 001665
                                                               **********


0006616 01 001666 016360 077777               26            IRM     RA1+1,R0,-E(15)
0006620                                       27            SBIN                  # DO NOT ALLOW ERROR INTERRUPT
0006620 01 001670 013002 ------          -001- 28            MIS     2
0006621 01 001671 105722 ------          -001- 29            DATA    35794
0006622                                       30            LOS     0(RA1)        # READ OFFLINE STORE AND SAVE OLD DATA
0006622 01 001672 076020 ------          -001- 31            STAF    0(RA1)
0006623 01 001673 136160 ------          -001- 32            DATA    B(1011110001110000)
0006624 01 001674 006100 ------               33            LR      R4,R0         # SAVE OLD DATA
                                              34 R0         =       B(0101010101010101) # TEST PATTERN
0006625 01 001675 003401 052525          -004- 35            LI      R0,B(0101010101010101)
0006627                                       36            STOS    0(RA1)
E0006627 01 001677 000420 ------         -001- 37            MSTF    0(RA1)
0006630 01 001700 136100 ------          -001- 38            DATA    B(1011110001000000)
                                              39 R0         =       0             # ZERO PATTERN IN CASE READ IS A NOP
0006631 01 001701 003000 ------          -004- 40            ZR      R0
0006632                                       41            LOS     0(RA1)
0006632 01 001702 076020 ------          -001- 42            STAF    0(RA1)
0006633 01 001703 136160 003405          -001- 43            DATA    B(1011110001110000)
0006634 01 001704 003405 052525               44            CI      R0,B(0101010101010101) # DID TEST WORK
0006636                                       45            IF      ¬ CF THEN SBN R5,S(NOSTACC) # FAIL OPERATIONAL TEST
0006636 01 001706 054002 ------ 0006640  -002- 46            BC      IFS973
0006637 01 001707 026127 ------          -002- 47            SBN     R5,S(NOSTACC)  #
0006640                                  -002- 48 IFS973
                                              49 # ALL OTHER STORE ACCESSES MUST BE COMPLETED BEFORE
```

```
                                                01 # THE ER AND IS ARE REINITIALIZED.
                                                02 # MOVING THE STORE IS AN EXCEPTION BECAUSE STORE ACCESS
                                                03 # HAS BEEN ESTABLISHED BY THAT TIME.
 0006640 01 001710 106004 ------                04            LR      R0,R4
 0006641                                        05            STOS    0(RA1)          # RESTORE OLD DATA
E0006641 01 001711 000420 ------        -001-  06            MSTF    0(RA1)
 0006642 01 001712 136100 ------        -001-  07            DATA    B(1011110001000000)
 0006643 01 001713 012412 ------                08            UNPK    ER
 0006644 01 001714 016062 000017                09            IRM     R3,R2,MSK(4)    # MERGE ER HIGH INTO ER LOW FOR SINGLE TEST
 0006646 01 001716 003462 140001                10            NI      R3,M(OSTRER)+M(OWRTER)+M(OFSTM)/E(16)
 0006650                                        11            IF      ¬ CF THEN SBN R5,S(NOSTACC) # FAIL ERROR CIRCUIT
 0006650 01 001720 054002 ------ 0006652 -002-  12            BC      IFS976
 0006651 01 001721 026127 ------        -002-  13            SBN     R5,S(NOSTACC)   #
 0006652                                -002-  14 IFS976
 0006652                                        15 CLRERRS
 0006652                                        16            MIMODE  DATA=S(ERRI)
 0006652 01 001722 113405 ------        -001-  17            MI      S(ERRI)
 0006653                                        18            L       ER,NOP          # ZERO ERROR BITS WHICH MAY HAVE BEEN
                                                                                        GENERATED
 0006653 01 001723 125360 ------        -001-  20             VFD     8,ERXT 8,NOPXF
 0006654                                        21            L       IS_R,YT         # ZERO ERROR INTERRUPT BIT WHICH MAY HAVE
                                                                                        BEEN SET BY ERRORS
 0006654 01 001724 033322 ------        -001-  23             VFD     8,IS_RXT 8,YTXF
 0006655                                        24            ZMINT
 0006655 01 001725 026750 ------        -001-  25             DATA    ZMINTX
 0006656                                        26            ZBIN                    # NOW THAT CC IS CLEAN AGAIN, ALLOW INTERRUPT
                                                                                        S TO OCCUR
 0006656 01 001726 013002 ------        -001-  28            MIS     2
 0006657 01 001727 107322 ------        -001-  29            DATA    36562
                                                30 CINIT      OW      0(1730)         # 11364
                                        -001-  31            NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 001730
                                                                      **********


 0006660 01 001730 053732 ------ 0006612        35            B       NEXT_4K
 0006661                                        36            EOW                     # 11364
                                        -001-  37            NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 001730
                                                                      **********


 0006661                                        41            RGEND
 0006661                                -001-  42 IFS943
 0006661                                       43 OMASTESTF
 0006661                                       44       IF      R5 ¬= 0 THEN RGBEGIN
 0006661 01 001731 114125 ------        -002-  45            TZ      R5
 0006662 01 001732 054004 ------ 0006666 -001-  46            BC      IFS987
 0006663 01 001733 031400 043026 CTSD           47            LAL     R0,SYSTATE,RA1
 0006665 01 001735 061640 ------ CBLM           48            SBS     N(MAS_OOS)(RA1),S(MAS_OOS)
 0006666                                        49            RGEND
```

```
0006666                          -001- 01 IFS987
0006666 01 001736 106005 ------        02       LR      R0,R5        # SET UP RETURN CODE
0006667                                03       RETURN
0006667 01 001737 056420 ------  -001- 04       BTSAG
```

```
                                        01 # AFTER AN AUDIT, ERRPRTCK IS CALLED TO DETERMINE
                                        02 # WHETHER ON NOT A REPT ERR MESSAGE SHOULD BE PRINTED.
                                        03 # THE MESSAGE IS PRINTED EACH TIME THE AUDIT FAILS
                                        04 # AFTER IT HAS PASSED AT LEAST ONCE
0006670                                 05
                                        06 # ENTRY POINT:
                                        07 # ERRPRTCK
0006670                                 08
                                        09 # ENTRY CONDITIONS:
                                        10 # R0 = IDENTIFICATION OF AUDIT
                                        11 # CF = AUDIT RESULT---0=FAILURE,1=SUCCESS
0006670                                 12
                                        13 # EXIT CONDITIONS:
                                        14 # NONE



0006670                                 18 ERRPRTCK
0006670                                 19         BEGIN
0006670 01 001740 171420 ------ -002-   20         HA
0006671 01 001741 031420 043024 CTSD    21         LAL     R1,ERPRTCTL,RA1
0006673 01 001743 006041 ------         22         LR      R2,R1
0006674 01 001744 026440 ------         23         SBR     R2,R0
0006675                                 24         IF      CF THEN ZBR R2,R0
0006675 01 001745 055002 ------ 0006677 -002- 25             BNC     IFS996
0006676 01 001746 022440 ------ -002-   26             ZBR     R2,R0           #
0006677                                 -002- 27 IFS996
0006677                                 28         IF      R1 = R2 THEN RETURN
0006677 01 001747 120022 ------ -002-   29             CR      R1,R2
0006700 01 001750 055002 ------ 0006702 -001- 30       BNC     IFS997
0006701 01 001751 056420 ------ -002-   31             BTSAG
0006702                                 -001- 32 IFS997
0006702 01 001752 144440 ------         33         ST      R2,0(RA1)
0006703 01 001753 024440 ------         34         TBR     R2,R0
0006704                                 35         IF      CF THEN RGBEGIN
0006704 01 001754 055006 ------ 0006712 -002- 36       BNC     IFS1001
0006705 01 001755 031020 006713 0006713 37             LAL     R1,ERPRTTBL,RA0
0006707 01 001757 042140 ------         38             LX      R6,R0(RA0)
0006710                                 39             CALL    REPT_ERR
0006710 01 001760 037020 111423 CSYSUB  -001- 40       BSA     REPT_ERR
0006712                                 41             RGEND
0006712                                 -001- 42 IFS1001
0006712                                 43         RETURN
0006712 01 001762 156420 ------ -001-   44         BTSAG
```

```
0006713                          0000000

0006713 01 001763 000154 ------ TTYTBL  -001-
                          0000001

0006714 01 001764 000235 ------ TTYTBL  -001-
                          0000002

0006715 01 001765 001102 ------ TTYTBL  -001-
                          0000003

0006716 01 001766 001106 ------ TTYTBL  -001-
                          0000004

0006717 01 001767 001160 ------ TTYTBL  -001-
                          0000005

0006720 01 001770 000343 ------ TTYTBL  -001-
                          0000006

0006721 01 001771 001465 ------ TTYTBL  -001-
                          0000007

0006722 01 001772 001113 ------ TTYTBL  -001-
```

```
01 ERPRTTBL
02 ERPMCH EQU     *-ERPRTTBL
03        PUBLIC  ERPMCH
04        SPELL   MRY,(M,C,H)
05        VFD     5, 11,M%CH
06 ERPSSP EQU     *-ERPRTTBL
07        PUBLIC  ERPSSP
08        SPELL   MRY,(S,S,P)
09        VFD     5, 11,S%SP
10 ERPHG  EQU     *-ERPRTTBL
11        PUBLIC  ERPHG
12        SPELL   MRY,(H,G)
13        VFD     5, 11,H%G
14 ERPIM  EQU     *-ERPRTTBL
15        PUBLIC  ERPIM
16        SPELL   MRY,(I,M)
17        VFD     5, 11,I%M
18 ERPMS  EQU     *-ERPRTTBL
19        PUBLIC  ERPMS
20        SPELL   MRY,(M,S)
21        VFD     5, 11,M%S
22 ERPSS  EQU     *-ERPRTTBL
23        PUBLIC  ERPSS
24        SPELL   MRY,(S,S)
25        VFD     5, 11,S%S
26 ERPKEY EQU     *-ERPRTTBL
27        PUBLIC  ERPKEY
28        SPELL   MRY,(K,E,Y)
29        VFD     5, 11,K%EY
30 ERPINT EQU     *-ERPRTTBL
31        PUBLIC  ERPINT
32        SPELL   MRY,(I,N,T)
33        VFD     5, 11,I%NT
```

```
                                        01        *       1.3.2.2 INCREMENT THE DISPLAY BUFFER BY 1
                                        02        *       ----------------------------------------
                                        03        *
                                        04        *       DESCRIPTION:
                                        05        *       INCREMENTS THE CC PANEL DB AND GATES IT TO THE SSP DB.
                                        06        *       USED DURING INITIALIZATION TO PROVIDE A VISUAL FEEDBACK
                                        07        *       THAT AN INITIALIZATION IS ACTUALLY IN PROGRESS.
                                        08        *       CALLS TO THIS SUBROUTINE SHOULD BE INSERTED INTO
                                        09        *       THE APPLICATION INITIALIZATION ROUTINES AT POINTS
                                        10        *       SELECTED SO THAT SEVERAL CALLS ARE MADE
                                        11        *       PER SECOND.
                                        12        *
                                        13        *       ENTRY POINTS:
                                        14        *       AD1TODB
                                        15        *       AD1TODB_
                                        16        *
                                        17        *       ENTRY CONDITIONS:
                                        18        *       NONE (AD1TODB)
                                        19        *       R0 = CONSTANT TO BE LOADED INTO DB(19-16) (AD1TODB_)
                                        20        *
                                        21        *       EXIT CONDITIONS:
                                        22        *       NONE
                                        23        *
                                        24        *


0006723                                 28 AD1TODB
0006723 01 001773 103017 ------         29         LN      R0,15

0006724                                 31 AD1TODB_
0006724                                 32         BEGIN
0006724 01 001774 171420 ------  -002- 33         HA
0006725 01 001775 012411 ------         34         UNPK    DB
0006726 01 001776 006040 ------         35         LR      R2,R0
0006727 01 001777 004461 ------         36         AN      R3,1
0006730                                 37 LDDB15_0
0006730 01 002000 112220 ------         38         PACK    DB
0006731 01 002001 003621 016160 CBLM    39         LI      R9,SSPIOADR
0006733 01 002003 003641 000215 CBLM    40         LI      R10,SSPDBM
0006735 01 002005 016243 177400         41         IRM     R10,R3,MSK(8,8)
0006737 01 002007 023400 ------         42         SIO                     # GATE TO DB(15,8) IN SSP
0006740 01 002010 003641 000151 CBLM    43         LI      R10,SSPDBL
0006742 01 002012 010470 ------         44         RRN     R3,8
0006743 01 002013 016243 177400         45         IRM     R10,R3,MSK(8,8)
0006745 01 002015 003052 ------         46         LN      R2,10
0006746 01 002016 136040 006746 0006746 47 HERE    BX      R2,HERE
0006750 01 002020 023400 ------         48         SIO                     # GATE TO B(7,0) IN SSP
0006751                                 49         RETURN
```

SUBROUTINES 0:17:53 2/06/81 ****

ADD 1 TO THE DB SUBROUTINE CINIT W77D

0006751 01 002021 056420 ------ -001- 01 BTSAG

```
                                        01        *       1.3.2.5 ZERO COMMON SYSTEM CRITICAL TEMPORARY STORE DATA
                                        02        *       ---------------------------------------------------------
                                        03        *
                                        04        *       DESCRIPTION:
                                        05        *       ZERO THE FOLLOWING CRITICAL DATA IN TEMPORARY STORE:
                                        06        *       SOFTWARE CLOCK
                                        07        *       THE SECOND HALF OF THE POST-MORTEM AREA
                                        08        *
                                        09        *       ENTRY POINT:
                                        10        *       Z_CRITTS
                                        11        *
                                        12        *       ENTRY CONDITIONS
                                        13        *       NONE
                                        14        *
                                        15        *       EXIT CONDITIONS:
                                        16        *       NONE
                                        17        *
                                        18        *


0006752                                 22 Z_CRITTS
0006752                                 23        BEGIN   ()
0006752 01 002022 103021 ------ CTSD    24        LN      R1,L7CLR-L6CLR
                                        25 CINIT  OW      0(2023)             # 11733
                                -001-   26        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 002023 **********

0006753 01 002023 031400 132264 CTSD    29        LAL     R0,CCLRTBL+L6CLR+L6CLR-1,RA1
0006755                                 30        EOW                         # 11733
                                -001-   31        NOTE    ***************** THE LAST ADDRESS OVERWRITTEN IS 002024 *********
                                                           *

0006755                                 35        CALL    ZERO_TS
0006755 01 002025 037020 110675 CSYSUB  -001-  36 BSA     ZERO_TS
0006757                                 37        RETURN
0006757 01 002027 156400 ------         -001-  38 BTSA
```

SANITY TEST 0:17:53 2/06/81 ****

ON-LINE SUBROUTINE CINIT W77D

```
                                    01 # DESCRIPTION:
                                    02 # THIS SUBROUTINE PROVIDES A GENERAL CHECK OF THE CC AND
                                    03 # INSURES THAT IT CAN AT LEAST EXECUTE SOME CODE.
                                    04 # SANITY IS EXECUTED IN THE 'ON-LINE' DURING INITIALIZATION TO INSURE
                                    05 # THAT THE INITIALIZING CC IS REASONABLY SANE BEFORE ALLOWING IT TO  TAKE OVER.
                                    06 # IT IS EXECUTED IN THE OFF-LINE TO DETERMINE
                                    07 # IF THE OFF-LINE CC SHOULD BE REMOVED FROM SERVICE.
0006760                             08
                                    09 # ENTRY POINT:
                                    10 # SANITY
0006760                             11
                                    12 # ENTRY CONDITIONS:
                                    13 # NONE
0006760                             14
                                    15 # EXIT CONDITIONS:
                                    16 # NORMAL RETURN IF CC SEEMS SANE
                                    17 # CC IS STOPPED IF IT IS INSANE


0006760                             21 SANITY
0006760                             22         BEGIN    ()
                                    23 # SANITY CHECK PROGRAM
                                    24 # THE INTENT IS TO EXERCISE AS MUCH OF THE MACHINE TO SEE IF IT IS CAPABLE
                                    25 # OF FUNCTIONING.  IT IS ASSUMED THAT THE SELF-CHECKING IS GENERALLY OPERATING
                                    26 # SO THAT IF MOST PATHS ARE EXERCISED, THE CHECK CIRCUITS WILL FIND MANY OF THE
                                    27 # PROBLEMS.  HOWEVER, VALIDITY CHECKS ARE PERFORMED WHEN FEASIBLE, TO FURTHER
                                    28 # VERIFY THE OPERATION.

                                    30 # THE BASIC TECHNIQUE IS TO USE AS MANY TO, FROM, AND MISC. DECODER CROSSPOINTS
                                    31 # AS POSSIBLE; SEND ONES AND ZEROS THROUGH AS MANY GATING PATHS AS POSSIBLE,
                                    32 # AND USE AS MANY DML FUNCTIONS AS POSSIBLE WHILE USING AS FEW WORDS AND AS
                                    33 # LITTLE MICROINTERPRET AS POSSIBLE WITH THE SHORTEST POSSIBLE EXECUTION TIME.
                                    34 # THROUGHOUT THE TEST R0 ACCUMULATES A PATTERN OF ALTERNATING ONES AND ZEROS


0006760                                     38         MIMODE  ZER                  # ZERO ERRORS BEFORE RESETTING BHC
0006760 01 002030 113000 ------     -001-    39         MIS     0
0006761 01 002031 025750 ------     -002-    40             DATA    ZER%
0006762                                     41         MIMODE  DATA=$(BHC) L SS_R,YT # GUARANTEE CHECKS ARE ON
0006762 01 002032 013001 ------     -001-    42         MIS     $(BHC)
0006763 01 002033 107322 ------     -002-    43             VFD     8,SS_R%T 8,YT%F
0006764                                     44 SANITYDG
0006764 01 002034 103000 ------             45         ZR      R0
0006765 01 002035 004017 ------             46         SN      R0,1                 # SET R0 TO ALL ONES
0006766                                     47         CALL    HGET                 # GET ADDRESS OF HG AREA
0006766 01 002036 037020 007211 0007211 -001- 48       BSA     HGET
0006770 01 002040 144723 ------             49         ST      R13,3(14)            # GUARANTEE GOOD PARITY FOR USE BY FOLLOWING
```

PR-1C952-50

```
                                                                      STVM
0006771 01 002041 063723 ------                      STVM   R13,3(14)     # LOAD TEST LOCATION WITH HG ADDRESS
0006772 01 002042 072223 ------                      GN     R9,3          # READ BACK TEST LOCATION
0006773 01 002043 020331 ------                      CR     R13,R9        # SHOULD MATCH
0006774 01 002044 054003 ------ 0006777              BC     SAN2
0006775                                      SAN1    STOP
0006775 01 002045 113000 ------         -002-        MIS    0
0006776 01 002046 154312 ------         -003-            DATA    STPASW%
0006777 01 002047 161403 ------              SAN2    SBS    3(14),0       # SET TEST BIT
0007000 01 002050 051403 ------                      TBS    3(14),0       # SHOULD BE SET
0007001 01 002051 055774 ------ 0006775              BNC    SAN1
0007002                                              CALL   GETIME        # GET TIMING REGISTER
0007002 01 002052 037020 007223 0007223 -001-        BSA    GETIME
0007004 01 002054 144464 ------                      ST     R3,4(14)      # HOLD FOR LATER CHECK
0007005 01 002055 003621 016160 CBLM                 LI     R9,SSPIOADR   # TEST IO ORDERS BY SENDING TO SSP
0007007 01 002057 003641 000036 CBLM                 LI     R10,SSPCBO    # READ COMMON BUFFER 0
0007011                                              CALL   SIO
0007011 01 002061 037020 111025 CSYSUB  -001-        BSA    SIO
0007013 01 002063 103000 ------                      ZR     R0            # IGNORE RESULTS SO TEST PASSES WITH BAD TDC


0007014 01 002064 003021 ------                      LN     R1,1          # ONE ONE TO ROTATE THROUGH REGISTERS  PL OR
                                                                            PH =0
0007015                                              CALL   REGTEST       # SEND PATTERN THROUGH ALL GENERAL REGISTERS
                                                                           , R0=100
0007015 01 002065 037020 007146 0007146 -001-        BSA    REGTEST
0007017 01 002067 115421 ------                      COM    R1            # ALL ONES BUT ONE
0007020                                              CALL   REGTEST       # CHECK ALL REGISTERS, R0=10100
0007020 01 002070 037020 007146 0007146 -001-        BSA    REGTEST
0007022 01 002072 110430 ------                      RRN    R1,8          # GET OPPOSITE PARITY BIT TO ZERO
0007023                                              CALL   REGTEST       # R0=1010100
0007023 01 002073 037020 007146 0007146 -001-        BSA    REGTEST
                                             # LOAD TEST PATTERN WHICH HAS COMPLEMENTARY BITS ON EACH BIT SLICE BOARD AND
                                             # AND CAN BE POSITIONED UNIQUELY IN EACH REGISTER TO TEST ALL GENERAL REGISTERS

0007025 01 002075 103421 035305                      LI     R1,B(0011101011000101) #PL=PH=1
0007027                                              CALL   REGTEST       # R0=101010100
0007027 01 002077 037020 007146 0007146 -001-        BSA    REGTEST
0007031 01 002101 110430 ------                      RRN    R1,8          # SAME AS COMPEMENTING PATTERN
0007032                                              CALL   REGTEST       # R0=10101010100
0007032 01 002102 037020 007146 0007146 -001-        BSA    REGTEST
```

```
                                                  01 # FROM THIS POINT TO THE RETURN IT IS ASSUMED THAT R8 AND R9
                                                  02 # ARE NOT USED EXCEPT TO HOLD THE DISABLE CONSTANTS
0007034 01' 002104 103601 000245                  03         LI      R8,DISA             # LOAD FIRST DISABLE CONSTANT
                                                  04 # SET UP LOOP TO TEST FLZ AND LOGIC FUNCTIONS
0007036 01  002106 003057 ------                  05         LN      R2,15               # THROUGH LOOP 16 TIMES
0007037 01  002107 003541 115544                  06         LI      R6,B(1001101101100100) # RESULT OF ADDITION TEST USING CONSTANT
                                                                                            ALREADY IN R1
0007041 01  002111 004403 ------                  08         AN      R0,3                # R0=10101010111
0007042 01  002112 120727 ------                  09 SAN3    FLZ     R13,R7              # R13 STARTS ALL ZEROS FROM REGTEST
0007043 01  002113 055732 ------ 0006775         10         BNC     SAN1                # SHOULD ALWAYS FIND A ZERO
0007044 01  002114 001562 ------                  11         AR      R7,R2               # BIT POSITION + LOOP COUNT = 15
0007045 01  002115 003565 000017                  12         CI      R7,15
0007047 01  002117 054003 ------ 0007052         13         BC      SAN5
0007050                                           14 SAN4    STOP
0007050 01  002120 113000 ------          -002-   15         MIS     0
0007051 01  002121 154312 ------          -003-   16                 DATA    STPASW%
0007052 01  002122 122502 ------                  17 SAN5    ZBR     R4,R2               # EXERCISE LOGIC PATHS ONE BIT AT A TIME
0007053 01  002123 024502 ------                  18         TBR     R4,R2
0007054 01  002124 054774 ------ 0007050         19         BC      SAN4
0007055 01  002125 026502 ------                  20         SBR     R4,R2
0007056 01  002126 024502 ------                  21         TBR     R4,R2
0007057 01  002127 055771 ------ 0007050         22         BNC     SAN4
0007060 01  002130 010401 ------                  23         RRN     R0,1                # ROTATE R0 16 TIMES,
0007061 01  002131 006121 ------                  24         LR      R5,R1               # START ADDITION TEST
0007062 01  002132 010433 ------                  25         RLN     R1,5                # POSITION PATTERN TO EXERCISE  ADDER
0007063 01  002133 010553 ------                  26         RLN     R6,5                # POSITION RESULT
0007064 01  002134 001521 ------                  27         AR      R5,R1
0007065 01  002135 055002 ------ 0007067         28         BNC     SAN8
0007066 01  002136 004521 ------                  29         AN      R5,1                # ADD END AROUND CARRY
0007067 01  002137 120126 ------                  30 SAN8    CR      R5,R6               # CONFIRM CORRECT ADDITION
0007070 01  002140 055006 ------ 0007076         31         BNC     SAN6
0007071 01  002141 036040 007042 0007042         32         BX      R2,SAN3             # EXECUTE 16 TIMES
0007073 01  002143 010417 ------                  33         RLN     R0,1                # R0=101010101110
0007074 01  002144 020732 ------                  34         FLZ     R13,R10
0007075 01  002145 055003 ------ 0007100         35         BNC     SAN7
0007076                                           36 SAN6    STOP
0007076 01  002146 113000 ------          -002-   37         MIS     0
0007077 01  002147 154312 ------          -003-   38                 DATA    STPASW%
0007100 01  002150 104721 ------                  39 SAN7    AN      R13,1               # CHECK FOR ALL ONES
0007101 01  002151 055775 ------ 0007076         40         BNC     SAN6
0007102 01  002152 003621 000341                  41         LI      R9,DISB             #  LOAD SECOND DISABLE CONSTANT
0007104 01  002154 012403 ------                  42         UNPK    MCHB                # EXERCISE SOME SPECIAL GATING
0007105 01  002155 012401 ------                  43         UNPK    SAR
0007106 01  002156 006243 ------                  44         LR      R10,R3
0007107 01  002157 012402 ------                  45         UNPK    PA
0007110 01  002160 005072 ------                  46         SR      R3,R10
0007111 01  002161 055765 ------ 0007076         47         BNC     SAN6                # PA SHOULD BE GREATER THAN SAR
0007112 01  002162 012404 ------                  48         UNPK    MMSR
0007113 01  002163 017460 177660                  49         CIRM    R3,B(10110000),0,MSK(8) # SHOULD INDICATE NORMAL READ
```

```
0007115 01 002165 010417 ------                    01        RLN     R0,1              # R0=1010101011100
0007116 01 002166 055760 ------ 0007076           02        BNC     SAN6
0007117 01 002167 012412 ------                    03        UNPK    ER
0007120 01 002170 012417 ------                    04        UNPK    SS
0007121 01 002171 012415 ------                    05        UNPK    IS
0007122 01 002172 012416 ------                    06        UNPK    MS
0007123 01 002173 014463 ------                    07        OR      R3,R3             # MS SHOULD BE ZERO
0007124 01 002174 055752 ------ 0007076           08        BNC     SAN6
0007125                                            09        CALL    GETIME            # GET TIMING REGISTER
0007125 01 002175 037020 007223 0007223  -001-    10        BSA     GETIME
0007127 01 002177 172264 ------                    11        GN      R11,4             # GET TIME SANITY TEST BEGAN
0007130 01 002200 005073 ------                    12        SR      R3,R11
                                                   13 # IF CF=0 THE COUNTER RECYCLED AND THE DIFFERENCE NEEDS TO
                                                   14 # BE INCREMENTED BY THE TIME LOST ON RECYCLE, IE 25MS.
                                                   15 # THE TIME CALCULATED BY GETIME IS IN 307 MICROSECOND INTERVALS.
                                                   16 # THEREFORE, INCREMENT BY 25000 MICROSECONDS/307 MICROSECONDS.
0007131                                            17        IF      CF = 0 THEN AI R3,25000/307
0007131 01 002201 054003 ------ 0007134  -001-    18            BC      IFS1071
0007132 01 002202 003460 000121          -001-    19            AI      R3,25000/307    #
0007134                                  -001-    20 IFS1071
                                                   21 # THE EXPECTED COMPLETION TIME OF SANITY, ALLOWING FOR
                                                   22 # VARIATIONS IN THE APPROXIMATE TIMING ALGORITHM USED, IS BETWEEN
                                                   23 # 2149 AND 4912 MICROSECONDS.
0007134 01 002204 103460 177771                    24        SI      R3,2149/307
0007136 01 002206 055740 ------ 0007076           25        BNC     SAN6              # BRANCH IF ACTUAL WAS LESS THAN 2149 USEC
0007137 01 002207 004067 ------                    26        SN      R3,(4912-2149)/307
0007140 01 002210 054736 ------ 0007076           27        BC      SAN6              # BRANCH IF ACTUAL WAS GREATER THE 4912 USEC
0007141 01 002211 004401 ------                    28        AN      R0,1              # R0=1010101011101
0007142 01 002212 003405 012535                    29        CI      R0,B(1010101011101)
                           0012535                 30 SANITYC EQU    B(1010101011101)  # SET UP CONSTANT FOR EXTERNAL TEST OF
                                                                                          SUCCESSFUL COMPLETION.
0007144 01 002214 055732 ------ 0007076           32        BNC     SAN6
0007145                                            33        RETURN
0007145 01 002215 056400 ------          -001-    34        BTSA
```

```
                                        01 # REGTEST SUBROUTINE
                                        02 # VERIFY ABILITY TO GATE UNIQUELY TO AND FROM THE LAST 14 GENERAL REGISTERS
                                        03 # ASSURING NO MULTIPLE GATING AND PROPER ROTATING



0007146                                 07 REGTEST BEGIN  ()
0007146 01 002216 104401 ------         08        AN      R0,1            # ADVANCE CHECK POINT
0007147 01 002217 006341 ------         09        LR      R14,R1          # SET UP ROTATE CHECK
0007150 01 002220 010741 ------         10        RRN     R14,1
0007151 01 002221 010424 ------         11        RRN     R1,4
0007152 01 002222 010422 ------         12        RRN     R1,2
0007153 01 002223 010432 ------         13        RRN     R1,10
0007154 01 002224 010757 ------         14        RRN     R14,15          # BOTH REGISTERS ROTATED BY A TOTAL OF 16
0007155 01 002225 007341 ------         15        EXR     R14,R1          # CHECK EXCHANGE COMMAND
0007156 01 002226 015341 ------         16        XR      R14,R1          # SHOULD MATCH AND ZERO R14
0007157 01 002227 054004 ------ 0007163 17        BC      REG2
0007160                                 18 REG1   STOP
0007160 01 002230 113000 ------ -002-   19        MIS     0
0007161 01 002231 154312 ------ -003-   20              DATA    STPASW%
0007162 01 002232 171420 ------         21 REG8   HA                      # GET CONTENTS OF ALL GENERAL REGISTERS
0007163 01 002233 110436 ------         22 REG2   RLN     R1,2            # PREPARE TEST CONSTANT
0007164 01 002234 010417 ------         23        RLN     R0,1            # ADVANCE CHECK POINT
0007165                                 24        CALL    HGET            # GET ADDRESS OF HG AREA INTO R15
0007165 01 002235 037020 007211 0007211 -001- 25  BSA     HGET
0007167 01 002237 103335 ------         26        LN      R13,13          # LOOP COUNT
0007170 01 002240 024002 ------         27        TBN     R0,2            # DETERMINE LOAD(0) OR CHECK(1) PASS
0007171 01 002241 026360 ------         28        SBN     R15,0           # POINT AT SLOT 1
0007172 01 002242 154012 ------ 0007204 29 REG3   BC      REG7            # CF=0 FOR LOADING
0007173 01 002243 045421 ------         30        STA     R1,1(14)        # INCREMENT SLOT ADDRESS AND LOAD CONSTANT
0007174 01 002244 110437 ------         31 REG4   RLN     R1,1            # CHANGE CONSTANT TO VERIFY REGISTER
                                                                            INDEPENDENCE
0007175 01 002245 036320 007172 0007172 33        BX      R13,REG3        # LOOP 14 TIMES
0007177 01 002247 054004 ------ 0007203 34        BC      REG5            # CF=1 MEANS FINISHED WITH CHECKING PASS
0007200 01 002250 071400 ------         35        GA                      # LOAD PATTERN IN ALL GENERAL REGISTERS
0007201                                 36        CALL    REG8            # DOWN ANOTHER LEVEL FOR NEW HG AREA
0007201 01 002251 037020 007162 0007162 -001- 37  BSA     REG8
0007203                                 38 REG5   RETURN                  # SAME RETURN USED FOR BOTH LEVELS
0007203 01 002253 156400 ------ -001-   39        BTSA
0007204 01 002254 141701 ------         40 REG7   LA      R12,1(14)       # GET REGISTER VALUE AT INCREMENTED SLOT
                                                                            ADDRESS
0007205 01 002255 020301 ------         42        CR      R12,R1          # VERIFY CONTENTS
0007206 01 002256 054766 ------ 0007174 43        BC      REG4            # GO FOR NEXT SLOT
0007207                                 44        STOP
0007207 01 002257 013000 ------ -002-   45        MIS     0
0007210 01 002260 154312 ------ -003-   46              DATA    STPASW%
```

```
                                    01 # HGET SUBROUTINE
                                    02 # GET THE ADDRESS OF THE HOLD GET AREA ONE LEVEL HIGHER
                                    03 # ADDRESS RETURNED IN R14 & R15
                                    04 # R13 HAS PRESENT HG ADDRESS IN IT


0007211                             08 HGET   BEGIN   ()
0007211 01 002261 103340 ------     09        ZR      R14
0007212                             10        MIMODE                    # CHECK MICRO-INTERPRET PATH AND GET HG
                                                                          ADDRESS
0007212 01 002262 013400 ------ -001- 12      MI      0
0007213                             13        L       AR,HG             # THESE THREE COMMANDS PUT ONES AND ZEROS IN
                                                                          EACH BIT OF THE PATH
0007213 01 002263 130465 ------ -001- 15            VFD     8,AR%T 8,HG%F
0007214                             16        L       R13,ARL16
0007214 01 002264 045661 ------ -001- 17            VFD     8,R13%T 8,ARL16%F
0007215                             18        L       R15,R13
0007215 01 002265 047113 ------ -001- 19            VFD     8,R15%T 8,R13%F
0007216                             20        ZMINT
0007216 01 002266 026750 ------ -001- 21            DATA    ZMINT%
0007217 01 002267 003763 000017     22        OI      R15,MSK(4)        # IGNORE LOW BITS BY SETTING TO ONES
0007221 01 002271 004761 ------     23        AN      R15,1             # ZEROS LOW BITS AND POINTS AT NEXT HIGHER
                                                                          LEVEL
0007222                             25        RETURN
0007222 01 002272 056400 ------ -001- 26        BTSA
```

```
                                                01 # GETIME SUBROUTINE
                                                02 # GETS TIME OUT OF TC REGISTER AND ADJUSTS IT FOR UNUSUAL INCREMENTING
0007223                                         03 GETIME BEGIN   ()
0007223                                         04       GETTI                        # GET THE TC WHEN IT IS STABLE
0007223 01 002273 112400 ------          -001- 05       UNFK     TI
0007224 01 002274 006103 ------          -001- 06       LR       R4,R3
0007225 01 002275 012400 ------          -001- 07       UNPK     TI
0007226 01 002276 020103 ------          -001- 08       CR       R4,R3
0007227 01 002277 055774 ------ 0007223  -001- 09       BNC      TRY1097
                                                10 # THE TI REGISTER CONSISTS OF THREE SECTIONS.
                                                11 # FOR SHORT INTERVAL TIMING, ONLY THE FIRST TWO SECTIONS ARE
                                                12 # OF INTEREST.  FOR PURPOSES OF THIS DISCUSSION DENOTE TI(7-3) BY Y
                                                13 # AND TI(2-0) BY X.  THEN Y COUNTS 1250 MICROSECOND INTERVALS
                                                14 # AND X COUNTS 307.2 MICROSECOND INTERVALS.  THE TIMING NEEDED
                                                15 # IN SANITY DOES NOT HAVE TO BE EXACT.  THUS THE FOLLOWING
                                                16 # APPROXIMATION IS USED: Y=4*X OR 1250=4*307.2=1228.8.
                                                17 # USING THIS APPROXIMATION, THIS SUBROUTINE CALCULATES THE
                                                18 # CURRENT VALUE OF TI(7-0) IN TERMS OF 307.2 MICROSECOND
                                                19 # INTERVALS.  THE FORMULA EMPLOYED IS VALUE=4*Y+X.
0007230 01 002300 016464 000370                 20       LRM      R3,R4,MSK(5,3)       # R3=8*Y
0007232 01 002302 010461 ------                 21       RRN      R3,1                 # R3=4*Y
0007233 01 002303 003502 000007                 22       NI       R4,MSK(3)            # R4=X
0007235 01 002305 001464 ------                 23       AR       R3,R4                # R3=4*Y+X
0007236                                         24       RETURN
0007236 01 002306 056400 ------          -001- 25       BTSA
```

```
                                        01 # DESCRIPTION:
                                        02 # RUN SANITY TEST IN OFF-LINE CC
0007237                                 03
                                        04 # ENTRY POINT:
                                        05 # OSANITY
                                        06 # OSANUCL
0007237                                 07
                                        08 # ENTRY CONDITIONS:
                                        09 # NONE
0007237                                 10
                                        11 # EXIT CONDITIONS:
                                        12 # R0 = RETURN CODE
                                        13 #   0--SANITY TEST PASSED
                                        14 #   1--SANITY TEST FAILED
                                        15 #   2--SANITY TEST WAS NOT RUN, OFF-LINE CU IS ALREADY OUT-OF-SERVICE
                                        16 #         (OSANITY ONLY)


0007237                                 20 OSANITY
0007237 01 002307 130400 043026 CTSD     21         LL      R0,SYSTATE
0007241 01 002311 024004 ------ CBLM     22         TBN     R0,S(OSA_FALT)
0007242                                 23         IF      CF THEN RETURN 2    # SKIP TEST IF CU IS ALREADY OUT-OF-SERVICE
0007242 01 002312 055002 ------ 0007244 -002- 24             BNC     IFS1101
0007243 01 002313 056462 ------         -003- 25             BTSAN   2
0007244                                 -002- 26 IFS1101


0007244                                 30 OSANUCL
0007244                                 31         BEGIN
0007244 01 002314 171420 ------         -002- 32         HA
0007245 01 002315 031400 007274 0007274 33         LAL     R0,OSANITYBEGIN,RA1
0007247                                 34         CALL    EXCOFLPG
0007247 01 002317 037020 111235 CSYSUB  -001- 35         BSA     EXCOFLPG
0007251 01 002321 155016 ------ 0007267 36         BNC     OSANITYFAIL


                                        40 # UPON SUCCESSFUL COMPLETION, SANITY LOADS THE MCHB WITH A KNOWN
                                        41 # CONSTANT THAT IT DERIVES.  THE SUCCESS OF OSANITY IS BASED ON
                                        42 # FINDING THAT CONSTANT IN THE MCHB OF THE OFF-LINE CC.
                                        43 # IF IT NEVER APPEARS, OSANITY TIMES OUT AND FAILS.  THE TIMEOUT
                                        44 # CONSTANT MUST OBVIOUSLY BE LONGER THAN THE EXPECTED EXECUTION
                                        45 # OF THE SANITY TEST.
0007252 01 002322 003501 000101         46         LI      R4,65               # ALLOW 5MS MAXIMUM FOR SANITY TO COMPLETE
0007254                                 47 OSANITYLP
0007254                                 48         LMCH    RTNMCHB             # LOOK FOR SANITY COMPLETION CONSTANT
0007254 01 002324 103401 000261         -001- 49         LI      R0,RTNMCHB
```

```
0007256                                          -001- 01        CALL    SMCH
0007256 01 002326 073027 ------                  -002- 02        BSAI    S%MCH                  # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0007257                                                03        IF      CF THEN RGBEGIN        # USE DATA ONLY IF MCH SUCCEEDS
0007257 01 002327 155006 ------ 0007265          -002- 04            BNC     IFS1110
0007260 01 002330 012403 ------                        05            UNPK    MCHB
0007261                                                06            IF      R3 = SANITYC THEN RETURN 0 # TEST SUCCEEDED
0007261 01 002331 003465 012535                  -002- 07            CI      R3,SANITYC
0007263 01 002333 055002 ------ 0007265          -001- 08            BNC     IFS1111
0007264 01 002334 056440 ------                  -002- 09            BTSAGN  0
0007265                                          -001- 10 IFS1111
0007265                                                11            RGEND
0007265                                          -001- 12 IFS1110
0007265 01 002335 136100 007254 0007254                13        BX      R4,OSANITYLP
0007267                                                14 OSANITYFAIL
0007267                                                15        CALL    INIT_OCC               # REINITIALIZE OTHER CC
0007267 01 002337 137020 111240 CSYSUB           -001- 16        BSA     INIT_OCC
0007271                                                17        CALL    RMV_CC                 # REMOVE OTHER CU BECAUSE IT FAILED THE
                                                                                                  SANITY TEST
0007271 01 002341 137020 001251 CBLM             -001- 19        BSA     RMV_CC
0007273                                                20        RETURN  1
0007273 01 002343 156441 ------                  -001- 21        BTSAGN  1


0007274                                                25 OSANITYBEGIN
0007274                                                26        CALL    SANITY
0007274 01 002344 137020 006760 0006760          -001- 27        BSA     SANITY
0007276 01 002346 107460 ------                        28        LSR     MCHB,RO                # SET UP SANITY CONSTANT FOR EASY ACCESS BY
                                                                                                  ON-LINE
0007277                                                30        MIMODE  DATA=S(CC) L SS_R,YT # INSURE CU IS OFF-LINE BEFORE HALTING
0007277 01 002347 013014 ------                  -001- 31        MIS     S(CC)
0007300 01 002350 107322 ------                  -002- 32            VFD     8,SS_R%T 8,YT%F
0007301 01 002351 056540 ------                        33        HALT
                                                       34        HEADER
```

CINIT INDEX AND WORD COUNTS 0:17:53 2/06/81 ****

OFF-LINE SUBROUTINE CINIT W77D

0007301 01 INDEXGEN

	SECTION TITLE	ADDRESS	WORD COUNT
-001- 05 #			
-001- 06 #	DATA TABLES	000000	24
-001- 07 #	SYSTEM INITIALIZATION	000030	419
-001- 08 #	STATE OF CC AT ENTRY TO CINIT	000030	0
-001- 09 #	INITIALIZE THE CENTRAL CONTROL	000030	36
-001- 10 #	ON-LINE/OFF-LINE DECISION	000074	41
-001- 11 #	CHECK ON-LINE CU SANITY AND DISABLE THE OFF-LINE CU	000145	10
-001- 12 #	CHECK FOR MEMORY RELOAD REQUEST FROM THE SSP	000157	52
-001- 13 #	MEMORY UPDATE	000243	93
-001- 14 #	ADMINISTER LEVEL COUNT	000400	7
-001- 15 #	EARLY APPLICATION ENTRY	000407	51
-001- 16 #	INITIALIZE IO CHANNELS	000472	15
-001- 17 #	INITIALIZE TEMPORARY STORE	000511	14
-001- 18 #	MIDDLE APPLICATION ENTRY	000527	6
-001- 19 #	COMPLETION OF COMMON SYSTEM INITIALIZATION	000535	72
-001- 20 #	DECISION TO REMOVE OTHER CC FROM SERVICE	000000	434
-001- 21 #	FINAL APPLICATION ENTRY	000000	443
-001- 22 #	POST MORTEM DATA	000673	123
-001- 23 #	DATA COLLECTION THIS CC	000673	68
-001- 24 #	DATA COLLECTION OTHER CC	000777	42
-001- 25 #	OUTPUT MESSAGE	001051	13
-001- 26 #	ERROR INTERRUPT	001066	146
-001- 27 #	OTHER CENTRAL CONTROL INTERRUPT	001310	68
-001- 28 #	SUBROUTINES	001414	268
-001- 29 #	SWITCH CU--TTY INPUT SUBROUTINE	001414	11
-001- 30 #	SWITCH CC	001427	125
-001- 31 #	TEST OFFLINE STORE ACCESS	001624	76
-001- 32 #	ERROR PRINT CHECK	001740	27
-001- 33 #	ADD 1 TO THE DB SUBROUTINE	001773	23
-001- 34 #	ZERO COMMON SYSTEM CRITICAL TEMPORARY STORE DATA	002022	6
-001- 35 #	SANITY TEST	002030	210
-001- 36 #	ON-LINE SUBROUTINE	002030	175
-001- 37 #	OFF-LINE SUBROUTINE	002307	35

-001- 41 # THE TOTAL LENGTH OF THIS ASSEMBLY IS 01258

```
                01  MACRO
                02        INITDATADEF
                03  SPACE 1
                04        _$BIT $NO./6/$DEFINITION_
                05        0     $IF 1, NO SWITCH OCCURRED
                06        1     $CAUSE OF INITIALIZATION WAS A #MCH# MESSAGE
                07        2,3   01--$CAUSE OF INITIALIZATION WAS FIRST TIMEOUT
                08              11--$CAUSE OF INITIALIZATION WAS SECOND TIMEOUT
                09        4     #CU# WAS LOCKED OR FORCED ON-LINE
                10        5     $IF 1, INITIALIZATION STARTED BY RELOADING MEMORY
                11 /12/FROM TAPE
                12        6     $THE MAIN STORE WAS OUT-OF-DATE
                13        7     $NO ACCESS EXISTS TO THE OTHER MAIN STORE
                14        8     0--#CU#0 IS INITIALIZING
                15 /13/1--#CU#1 IS INITIALIZING
                16        9     $IF 1, THE MAINTENANCE CHANNEL FAILED WHILE THE
                17 /13/OFF-LINE REGISTERS WERE BEING RETRIEVED FOR
                18 /13/THE POST-MORTEM DUMP.
                19 /7/14/4/$SYSTEM STATUS PANEL MEMORY RELOAD REQUEST
                20 /7/15/4/$SYSTEM STATUS PANEL INITIALIZATION REQUEST
                21  SPACE 1
                22  MEND



                28 OUT IOD CHL=MTC ALM=3 PRI=3 CONVERT=Y
                29  RCOVRY CU INIT  ll ss ii
                30 T"02"
                31 %The CU has just been initialized due to an
                32 error. Some hardware and memory has been
                33 arbitarily put in a known state and normal processing
                34 is being restarted at the beginning of the base level loop.
                35 the severity of the initialization in terms of the amount
                36 of hardware and memory cleared is a function of the
                37 level number. The higher the number the more severe it is.%
                38 T"03"
                39  ll/5/Level number
                40  ss/5/Contents of memory word SYSTATE (system state)
0007301         41        SYSTATEDEF
                42  ii/5/Initialization data
0007301         43        INITDATADEF
                44 T"04"
                45  None
                46 T"05"
                47  Pr-1c952 cinit COMMON INITIALIZATION
                48 .IODEND
```

```
01 OUT IOD CHL=MTC ALM=0 PRI=3 CONVERT=Y
02  OP POSTMORT aa1
         0000003      l15 l16 l17 l18
         0000004      l25 l26 l27 l28
         0000005      l35 l36 l37 l38
         0000006      l45 l46 l47 l48
07  SPACE 1
08  OP POSTMORT aa2
         0000000      f15 f16 f17 f18
         0000010      f25 f26 f27 f28
         0000011      f35 f36 f37 f38
         0000012      f45 f46 f47 f48
13  OP POSTMORT COMPL
14 T"02"
15 %Response to an OP:POSTMORT input message or
16 the system has just left the initialization state.
17 in the latter case,
18 the next initialization will be a level 1 initialization.
19 the post-mortem printout is a record of the last series
20 of initializations.  If the last initialization occurred
21 when the system was not in the initialization state, the
22 first four lines of data, which should be identical to the last
23 four lines of data, represent the state of the CU
24 in which the error occurred at the time of the initialization.
25 if the last initialization occurred while the system was in
26 the initialization state, the first four lines of data
27 represent the
28 state of the CU in which the error occurred at the
29 time of the last initialization and the last four lines
30 represent similar data at the time of the first initialization.
31 the first initialization is defined as the last one to occur
32 when the system was not in the initialization state.%
33 T"03"
34 aa1   MAS address where the first 32 data words are saved
35 aa2   MAS address where the last 32 data words are saved
36 l11   Bits  2-0  contain the initialization level number
37       Bit 3 contains a flag indicating the level number reached
38       its maximum value and recycled before the system left the
39       initialization state.
40       Bits  9-4  contain the seconds past the last minute
41       Bits 15-10 contain the minutes past the last hour
42  space 1
43 l12   Application bits
44  space 1
45 l13   Contents of store word SYSTATE (system state)
46  space 1
0007301  47       SYSTATEDEF
48 l14   Initialization data
49  space 1
```

```
0007301          01        INITDATADEF
                 02 l15    Contents of TI register
                 03 l16    Contents of IS register
                 04 l17    Contents of PA register bits 19-16
                 05 l18    Contents of PA register bits 15-0
                 06 l21    Contents of general register 8
                 07 l22    Contents of general register 9
                 08        NOTE: If there was no switch, content is meaningless.
                 09 l23    Contents of general register 10
                 10        NOTE: If there was no switch, content is meaningless.
                 11 l24    Contents of general register 11
                 12 l25    Spare
                 13 l26    Contents of IM register
                 14 l27    Contents of DB register bits 19-16
                 15 l28    Contents of DB register bits 15-0
                 16 l31    Contents of general register 12
                 17 l32    Contents of general register 13
                 18 l33    Contents of general register 14
                 19 l34    Contents of general register 15
                 20 l35    Contents of HG register
                 21 l36    Spare
                 22 l37    Contents of SS register bits 19-16
                 23 l38    Contents of SS register bits 15-0
                 24 l41    Contents of word 0 of HG slot pointed to by l35
                 25 l42    Contents of word 1 of HG slot pointed to by l35
                 26 l43    Contents of word 0 of HG slot pointed to by l35+16
                 27 l44    Contents of word 1 of HG slot pointed to by l35+16
                 28 l45    Contents of word 0 of HG slot pointed to by l35+32
                 29 l46    Contents of word 1 of HG slot pointed to by l35+32
                 30 l47    Contents of ER register bits 19-16
                 31 l48    Contents of ER register bits 15-0
                 32  space 1
                 33 f11    See l11
                 34 f12    See l12
                 35 f13    See l13
                 36 f14    See l14
                 37 f15    See l15
                 38 f16    See l16
                 39 f17    See l17
                 40 f18    See l18
                 41 f21    See l21
                 42 f22    See l22
                 43 f23    See l23
                 44 f24    See l24
                 45 f25    See l25
                 46 f26    See l26
                 47 f27    See l27
                 48 f28    See l28
                 49 f31    See l31
```

```
01 f32   See l32
02 f33   See l33
03 f34   See l34
04 f35   See l35
05 f36   See l36
06 f37   See l37
07 f38   See l38
08 f41   See l41
09 f42   See l42
10 f43   See l43
11 f44   See l44
12 f45   See l45
13 f46   See l46
14 f47   See l47
15 f48   See l48
16 T"04"
17 %Analyze data in an attempt to determine the cause
18 of the initialization.  If help is requested or
19 a trouble report is completed, this data should be included.%
20 T"05"
21  PR-1C952 CINIT Common Initialization
22 .IODEND
```

```
33 OUT IOD CHL=MTC ALM=0 PRI=0 CONVERT=Y
34  REPT OFL SW ERR aa
35 T"02"
36 %Report occurance of the on-line cu recieving a "STPASW" order
37 or a program timer reset from the off-line cu.%
38 T"03"
39  aa       0--The sanity test passed.  Off-line looks good.
40           1--The sanity test failed.  Off-line is insane.
41           2--The sanity test failed.  Off-line already out
42           of service
43 T"04"
44 %Run cu diagnostics (DGN:CU!).  Follow procedure in TLM 1C900%
45 T"05"
46   PR-1C952 CINIT  Common Initialization
47 .IODEND
```

```
01 OUT IOD CHL=MTC ALM=3 PRI=3 CONVERT=Y
02  REPT WRI ERR aa bb cc
03 T"02"
04 %Report occurance of write protect error to on line main store.  A
05 hardware check has fired which caused an error interupt.  The on-line
06 store error register has been cleared and the off-line store has been
07 initialized.%
08 T"03"
09  aa      The address after point where error occured.
10  bb      The contents of register pair RA0 B(19-0) OF ADDRESS
11           WHERE WRITE MAY HAVE OCCURED.
12  cC      THE CONTENTS OF REGISTER PAIR ra1 B(19-0) of address
13           where write may have occurred.
14 T"04"
15 %The problem should be solved using the variable portions of
16 the message along with PR's at the appropriate address.%
17 T"05"
18  PR-1C952 CINIT Common Initialization
19 .IODEND



25 OUT IOD CHL=MTC ALM=3 PRI=3 CONVERT=Y
26  REPT I/O ERR aa bb cc dd
27 T"02"
28 %Report occurence of an I/O parity error.  A hardware check has
29 fired which caused an interupt.  General register R11 has been
30 zeroed to inform the program using the I/O channel.%
31 T"03"
32  aa      The address after the point were the error occured
33  bb      The contents of R9
34  cc      The contents of R10
35  dd      The return address of the i/o subroutine.
36 T"04"
37 %The problem can be examined using the address and general registers
38 given.  The contents of R11 was stored in IOPARSAV in CTSD.  R11
39 is zeroed to inform program using I/O channel.  If the address in
40 the "aa" field is in an I/O subroutine the call program return
41 address is in the last field of the message.%
42 T"05"
43   PR-1C952 CINIT Common Initialization
44 .IODEND
```

```
01 IN IOD CHL=MTC CONVERT=Y
02  OP:POSTMORT!
03 T"I2"
04 %Used to print the data accumulated the last time the
05 system was in the initialization state.%
06 T"INPUT FIELDS"
07  None
08 T"I3"
09  PF/5/The print-out of the data follows.
10  RL/5/A common print buffer is currently busy and hence
11 /8/the post-mortem data cannot be printed at this time.
12 T"I4"
13 PR-1C952 CINIT Common Initialization
14 .IODEND



20 IN IOD CHL=MTC CONVERT=Y
21  SW:CU;UCL!
22  SW:CU!
23 T"I2"
24 %Used to request a switch of the active/standby status
25 of the two half systems.  If accepted, the switch will take
26 place immediately/or after the off-line main store has
27 been updated.%
28 T"INPUT FIELDS"
29  UCL/5/Do the switch unconditionally.
30 T"I3"
31  OK/5/The switch has been performed.
32  IP/5/An unconditional switch has been requested and
33 /8/the off-line SYC is not in standby.  An update of
34 /8/the off-line main store has been initiated, and the
35 /8/switch will occur at its completion.
36  RL/5/The switch has not been performed because the system
37 /8/is not in an acceptable state.  If an unconditional
38 /8/switch was requested, the system is either locked or
39 /8/forced. Otherwise, the off-line SYC is not in standby.
40 T"I4"
41 PR-1C952 CINIT Common Initialization
42 .IODEND
```

SYMBOL REFERENCE TABLE

0:17:53 2/06/81 ****

CINIT W77D

01 CINIT MAXSIZE 0,2352

```
PATCH HISTORY                                                                    0:17:53   2/06/81  ****
LISTING OF INDIVIDUAL PATCHES                                                      CINIT          W77D

          */*/*/*/011733/*/*/*/*     -002- 01        PBEGIN  PROG=CINIT  CSECT=         ORG=          TRNO=11733  SERNOB=64346
                                            02 # THESE CHANGES ARE REQUIRED DUE TO THE
                                            03 # ADDITION OF ENTRIES IN THE 2B ESS CLEARING
                                            04 # TABLES IN CTSD.
                                            05 # ***** THIS PATCH REQUIRES COORDINATION WITH
                                            06 # PATCH SER. NO. 65407. *****
0007301                                     07        TCEND
                                    -001- 08        NOTE    ************************************************************************



          */*/*/*/011364/*/*/*/*     -002- 15        PBEGIN  PROG=CINIT  CSECT=         ORG=          TRNO=11364  SERNOB=65996
                                            16 # THIS PATCH WILL FIX PROGRAM ERRORS IN OMASTEST.
0007301                                     17        TCEND
                                    -001- 18        NOTE    ************************************************************************



          */*/*/*/012279/*/*/*/*     -002- 25        PBEGIN  PROG=CINIT                                TRNO=12279  SERNOB=63274
                                            26 # USE UNIQUE INIT STORE SUBROUTINE ENTRY POINT ON 2ND BOOTSTRAP.
                                            27 # THIS ENTRY POINT BE INITSTH AND WILL SEND HARD INIT TO
                                            28 # STORE CONTROLLERS 1-3.
                                            29 # THIS PATCH COORDINATES WITH TC 64948 TR 11711
0007301                                     30        TCEND
                                    -001- 31        NOTE    ************************************************************************
```

```
PATCH HISTORY                                                          0:17:53   2/06/81  ****
LISTING OF INDIVIDUAL PATCHES                                                    CINIT          W77D

          */*/*/*/012639/*/*/*/*     -002- 01        PBEGIN  PROG=CINIT                    TRNO=12639  SERNOB=61041
                                            02 # CORRECT LINKAGE TO PUBLIC SYMBOLS CHANGED BY CIPL RELOAD
0007301   '                                 03        TCEND
                                      -001- 04        NOTE    **********************************************************************




          */*/*/*/005877/*/*/*/*     -002- 11        PBEGIN  PROG=CINIT                    TRNO=5877   SERNOB=62895
                                            12 # THIS PATCH FIXES PROBLEM DOCUMENTED IN TFA 6. IT COVERS THE
                                            13 # CASE WHERE BOTH PROCESSORS GO ON LINE OR THE WRONG SIDE
                                            14 # GOES ON LINE AFTER A MRF.
0007301                                     15        TCEND
                                      -001- 16        NOTE    **********************************************************************



0007301                                     23        END
```

PATCH HISTORY 0:17:53 2/06/81 ****

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
30050754	S	.IODEX		
30101634	S	.STOP		
0112205	L	XXX230	23-42	23-37
0005016	L	XXX238	24-36	24-31
0114521	L	XXX244	25-07	25-02
0005020	L	XXX246	25-24	25-19
0114530	L	XXX263	27-45	27-40
0005050	L	XXX283	29-27	29-22
0111774	L	XXX304	31-30	31-25
0005077	L	XXX308	32-06	32-01
0114577	L	XXX321	33-27	33-22
0005124	L	XXX338	34-38	34-33
0114706	L	XXX390	38-37	38-31
0005206	L	XXX394	39-01	38-44
0114636	L	XXX407	39-33	39-27
0005222	L	XXX413	40-01	39-44
0114650	L	XXX474	44-24	44-19
0005337	L	XXX480	45-10	45-05
0114722	L	XXX494	47-30	47-25
0005355	L	XXX496	47-39	47-34
0114664	L	XXX520	50-13	50-08
0005443	L	XXX522	50-22	50-17
0114672	L	XXX539	52-42	52-37
0005463	L	XXX541	53-01	52-46
0114700	L	XXX548	54-18	54-13
0005467	L	XXX550	54-27	54-22
0114426	L	XXX560	56-26	56-20
0114714	L	XXX586	58-35	58-30
0005551	L	XXX588	59-08	59-03
0114752	L	XXX612	61-15	61-10
0114136	L	XXX632	66-28	66-23
0005625	L	XXX638	67-09	67-04
0111675	L	XXX649	68-34	68-29
0005700	L	XXX651	68-45	68-40
0112577	L	XXX659	69-25	69-20
0005715	L	XXX661	69-39	69-34
0113111	L	XXX667	70-17	70-12
0114213	L	XXX695	72-15	72-10
0005767	L	XXX701	72-37	72-32
0114456	L	XXX710	73-20	73-15
0006001	L	XXX717	74-09	74-04
0111714	L	XXX816	82-38	82-33
0006254	L	XXX818	83-01	82-42
0114364	L	XXX826	84-16	84-11
0111622	L	XXX950	95-33	95-27
0006610	L	XXX952	96-01	95-41
0000201	A	%BITCNT		1-08
0000001	A	%BOP		1-08
0000003	A	%CLAS	LIBNUM=13	1-08

```
     VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES

   0000001  A  %MAXWRD               LIBNUM=13       1-08
'CINIT'     T  %NAME%
         0  J  %OW%          1-10
         0  J  %PFT%
'ALL'       T  %SAVREGS
   0000010  A  %TA1%         18-05  23-33, 24-43, 27-13, 30-29, 31-21, 33-18, 36-40, 38-26, 39-16, 40-08, 40-19, 41-32, 42-28,
                                    44-15, 46-46, 47-21, 50-04, 50-31, 52-33, 54-09, 56-15, 58-25, 61-06, 66-19, 67-38, 68-25,
                                    69-16, 70-08, 72-06, 73-11, 82-29, 84-07, 89-11, 94-37, 95-22, 96-15, 97-31,103-26
         0  J  %TCHEAD%       1-10
'PRLINE 1,1,
'   --------
----------
----------
----------
----------
----------
----------
----------
----------
----------'T'T  %US%
TT---------   T  %USING12
''            T  %USING14
   0000001  A  %WRDCNT              LIBNUM=13       1-08
  TTYTBL    X  postmOrt     75-36   75-36
  CTVTAB    V  rgchkAdr             LIBNUM=7        84-33, 95-02
        14  P  rgchkAdr%_%C
               SYSUB               LIBNUM=7
  CTVTAB    V  sendmIos             LIBNUM=7        24-20, 73-42
        14  P  sendmIos%_%C
               SYSUB               LIBNUM=7
   0000001  A  AA%                   1-08
   0006723  L  AD1TODB      101-28    4-02
   0006724  L  AD1TODB_     101-31    4-03
         6  R  AI                   LIBNUM=6        23-44, 69-32
         5  R  AK                   LIBNUM=6        23-43, 68-19, 86-28
        17  R  AME                  W=1  S=0  N=0  CL=1  LIBNUM=6        86-19
   0000161  A  AR%F                 LIBNUM=6        36-05, 57-09, 57-13
   0000261  A  AR%T                 LIBNUM=6       109-15
   0000261  A  ARL16%F              LIBNUM=6       109-17
  BLMMA     V  ASWBEGIN      6-05    90-12
  BLMMA     V  ASWCHK        6-06    89-44
  BLMMA     V  ASWCOMPL      6-07    90-16
  MASACS    V  AUMASBLK      6-29
  CTSD      V  AUMASCTL      8-18    79-13
  CTVTAB    V  B%CDXBIN             LIBNUM=7        47-11, 47-17
        14  P  B%CDXBIN%_%C
               SYSUB               LIBNUM=7
         5  R  BADST        15-18  W=1  S=12  N=0  CL=1        40-14, 40-16, 95-19
```

```
PATCH HISTORY                                                                                  0:17:53    2/06/81  ****

  VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES                                   CINIT          W77D

        0 J BB%                    1-08
CSYSUB    V BCDXBIN         7-36
        4 R BDSR0                W=1  S=14  N=0  CL=1  LIBNUM=6       92-28, 92-49
        4 R BDSR1                W=1  S=15  N=0  CL=1  LIBNUM=6       92-28, 92-49
       17 R BHC                  W=1  S=1  N=0  CL=1  LIBNUM=6        25-40, 92-24,104-42
       17 R BIN                  W=1  S=2  N=0  CL=1  LIBNUM=6        92-21
        5 R BOOT           15-09 W=1  S=5  N=0  CL=1    5-01, 22-04, 22-12, 30-01, 31-31, 35-41, 36-22, 41-11, 44-42, 56-08,
                                  73-30
CIPL      V BOOTLOAD        7-30  36-44
  0005166 L BOOTRT'        37-03   4-04
'X-74292 THR
U X-74298
     IV-C
MAY,1973'  T BOTTTL
  0005302 L BPCHKILP       42-46  43-08
  0005273 L BPCHKLP        42-38  43-09
  0000342 A BR%F                 LIBNUM=6        66-37, 76-33
  0000161 A BR%T                 LIBNUM=6        23-25, 66-32, 85-37, 86-12, 92-32, 93-04
  0145312 A BRXMMS%              LIBNUM=6        85-39, 92-34, 93-06
  0154066 A BRXTI%               LIBNUM=6        23-27, 86-14
        0 U C
CTVTAB    V C%HGSSP              LIBNUM=7        33-07, 57-43, 57-46
       14 P C%HGSSP%_%CB
            LM                   LIBNUM=7
TTYTBL    X C%U            57-29  57-29
       17 R CC                   W=1  S=14  N=0  CL=1  LIBNUM=6      25-40, 30-35, 48-33, 70-02, 92-21,112-31
CTSD      V CCKTSTAT        8-21  89-42
CTSD      V CCLRTBL         8-19  42-31, 50-40,103-29
CTSD      V CCOLOOPS        8-20  60-38
CBLM      V CHGSSP          6-37
  0004730 L CINIT           1-32
  0000000 A CIPLTRK        11-11 S=23     11-12, 31-40
CBLM      V CK_OST          6-38  89-09
  0043300 A CLEAR_SER      76-21  81-07
  0000065 A CLMSR                LIBNUM=6        71-11
  0000003 A CLPTF          17-18   4-05
  0005656 L CLR_PM         68-01  68-03
  0006652 L CLRERRS        97-15  96-02
  0006236 L CLRFL          81-20  81-10, 81-15
  0000001 A CLRLVL         11-06  50-28



   ¢.<(+|&
      !$*);
-/        ;
```

```
VALUE  T  NAME        DEF/REF   ATTRIBUTES AND REFERENCES

,%_>?
  :#@'=" ab
cdefghi n≤(+
† jklmnopqr^
 ¤)±■-~stuvw
xyz+└┌[≥•012
3456789↑┘┐]≠
-{abcdefghi
    }jklmno
pqr      \ s
tuvwxyz
 0123456789
    '        T CONLC                LIBNUM=7
'n

     z ·
  ¢e<hp|x
     v$fgs
¬al       !
1%_>k
 ]o#b'd" ab
cdefghi n≤(+
† jklmnopqr^
 ¤)±■-~stuvw
xyz+└┌[≥•012
3456789↑┘┐]≠
-{ABCDEFGHI
    }JKLMNO
PQR      \ S
TUVWXYZ
 0123456789
    '        T CONSC                LIBNUM=7
    0113115  L COR_PM       70-22    70-27
   CBLM      V COROFL        6-39    90-30
   CBLM      V CORONL        6-40    90-28
    0111432  L CPATCH        1-37    23-37, 31-25, 68-29, 82-33, 95-27
    0112562  L CPATCH1       1-38    69-20, 70-12
    0114107  L CPATCH2       1-39    25-02, 27-40, 33-22, 38-31, 39-27, 44-19, 47-25, 50-08, 52-37, 54-13, 56-20, 58-30, 61-10,
                                     66-23, 72-10, 73-15, 84-11
    0115073  L CPATCH3       1-40
    0121236  L CPATCH7       1-41
    0000063  A CR%F                  LIBNUM=6         18-11, 22-40, 66-32
    0000063  A CR%T                  LIBNUM=6         22-36
    0006446  L CSWCU        90-36    90-14
    0004743  L CURPMS       18-31    TBLSIZ=2         18-32, 18-35, 39-36
         11  R DB                    LIBNUM=6         25-09, 34-23, 34-28, 48-36, 69-04,101-34,101-38
```

E01


```
 VALUE  T NAME        DEF/REF   ATTRIBUTES AND REFERENCES                           CINIT         W77D

0000251 A DB%F                  LIBNUM=6       18-12
0000251 A DB%T                  LIBNUM=6       34-31




 ¢.<(+|&
     !$*);
¬-/        :
,%_>?
  :#@'="
        n≤(+
           ^
†
 ¤)±■-~
   +└┌[≥●012
3456789↑┘┐]≠
-{ABCDEFGHI
    }JKLMNO
PQR       \ S
TUVWXYZ
 0123456789
        T DELLC             LIBNUM=7
 CBLM   V DGNUPD       6-41  79-14, 79-14
     10 R DI                LIBNUM=6       23-30, 68-17
0000245 A DISA              LIBNUM=6      106-03
0000341 A DISB              LIBNUM=6      106-41
     17 R DISP              W=1  S=21  N=0  CL=1  LIBNUM=6      58-14
      7 R DK                LIBNUM=6       23-31, 68-46
     17 R DME               W=1  S=4  N=0  CL=1  LIBNUM=6       86-19
0005514 L DOOFF       57-14  57-10
0112006 L DOSAN       31-48  31-44
      0 U E
TTYTBL  X E%RR        78-30  78-30, 80-02, 81-01
CBLM    V EM_ACT       6-42  33-03, 33-04
0035072 A ENA%              LIBNUM=6       93-20
0006541 L ENABLE_OCC  93-17 ENTRIES=5      91-16, 93-18, 93-24
0035071 A ENB%              LIBNUM=6       93-21
TDATA   V EQIOCHAN     6-16  49-14
      0 R EQIOCHANR   10-01  15-48, 15-49, 15-51, 16-02, 16-03
     12 R ER                LIBNUM=6       34-09, 70-04, 76-46, 76-49, 77-03, 95-14, 97-08,107-03
0000252 A ER%F              LIBNUM=6       18-22
0000252 A ER%T              LIBNUM=6       23-21, 39-42, 77-10, 79-09, 81-18, 86-06, 97-20
0000002 A ERPHG      100-10 100-11
0000003 A ERPIM      100-14 100-15
0000007 A ERPINT     100-30  78-16, 78-17, 79-37, 79-38, 80-24, 80-25,100-31
0000006 A ERPKEY     100-26 100-27
0000000 A ERPMCH     100-02 100-03
```

PATCH HISTORY 0:17:53 2/06/81 ****

```
     VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES                                                    CINIT          W77D

    0000004 A ERPMS        100-18 100-19
   CTSD     V ERPRTCTL       8-22  78-15, 79-36, 80-23, 99-21
    0006713 L ERPRTTBL     100-01  99-37,100-02,100-06,100-10,100-14,100-18,100-22,100-26,100-30
    0000005 A ERPSS        100-22 100-23
    0000001 A ERPSSP       100-06 100-07
    0006016 L ERR_INT       76-27   4-06
         15 R ERRI                 W=1  S=5  N=0  CL=1  LIBNUM=6       76-39, 77-17, 79-11, 97-17
    0006670 L ERRPRTCK      99-18   4-07
          0 J ESS2           1-10
          0 J ESS2B          1-26
          1 J ESS2E          1-09
          0 J ESS3           1-26
   CSYSUB   V EXCMCH         7-37  91-18
   CSYSUB   V EXCOFLMG       7-38  36-07, 57-16
   CSYSUB   V EXCOFLPG       7-39  92-41,111-35
          0 J FACTORY        1-26
    0006125 L FAST_TIMEOUT
                _OS         79-03  77-29
'MCHFCN+0'   T FCN                  W=2  S=0  N=0  CL=2   82-39
          1 J FIELD          1-09
   CUTIL    V FIXDMPST       8-40  75-22
         13 R FORCE         11-14 S=11    11-15, 28-17
   CSYSUB   V GET_OTS        7-40
    0007223 L GETIME       110-03 105-13,107-10
   TTYTBL   X HXG          100-13 100-13
    0006746 L HERE          101-47
    0000065 A HG%F                LIBNUM=6       18-15, 69-14, 78-02, 80-29, 91-48,109-15
    0000065 A HG%T                LIBNUM=6       23-19, 48-24, 85-32, 92-36
   LAYOUT   V HGAREA          6-03  22-46, 48-04, 48-04, 48-14, 48-21, 48-21, 48-21, 78-04, 78-12, 80-30, 92-26
    0007211 L HGET          109-08 104-48,108-25
    0026730 A HMRF%               LIBNUM=6       36-10
   TTYTBL   X I%M           100-17 100-17
   TTYTBL   X I%NIT          57-30  57-30
   TTYTBL   X I%NT          100-33 100-33
   TTYTBL   X IlO            78-29  78-29
          5 R ICC            15-03 W=1  S=0  N=0  CL=1    5-02, 30-01, 37-20, 43-39, 60-33, 70-03
          5 R ICC1           15-14 W=1  S=10  N=0  CL=1          67-02
    0154330 A IDLMCH%             LIBNUM=6       23-15
   CUTIL    V IDMPCHK        8-41  59-27
    0026712 A IDSWQ%              LIBNUM=6       23-17
'ILLEGAL CON
DITIONAL IN
THE IF MACRO'T IFERROR1
'DATA > 0 OR
 DATA < 0 IS
 MEANINGLESS
, USE DATA ¬
= 0'         T IFERROR2
'TWO CONSTAN
```

COMMON INITIALIZATION PR-1C952-50

```
     VALUE  T  NAME       DEF/REF    ATTRIBUTES AND REFERENCES                CINIT          W77D

TS ARE BEING
 COMPARED IN
 IF MACRO'    T IFERROR3
'AN ITEM WAS
 COMPARED TO
 SOMETHING O
THER THAN A
CONSTANT'    T IFERROR4
'DESTINATION
 OF AN = STA
TEMENT IS A
CONSTANT'    T IFERROR5
'ATTEMPTING
TO SET ITEM
= TO SOMETHI
NG OTHER THA
N A CONSTANT'T IFERROR6
'ITEM MAY ON
LY USE THE =
 AND ¬= COND
ITIONALS'    T IFERROR7
     0006712 L IFS1001      99-42  99-36
     0007134 L IFS1071     107-20 107-18
     0007244 L IFS1101     111-26 111-24
     0007265 L IFS1110     112-12 112-04
     0007265 L IFS1111     112-10 112-08
     0112231 L IFS232       24-29  24-13
     0112227 L IFS235       24-26  24-22
     0114571 L IFS266       29-13  27-49
     0114570 L IFS269       29-08  28-16
     0114570 L IFS271       29-06  28-19
     0114570 L IFS274       29-04  28-28
     0114563 L IFS276       28-45  28-37
     0005055 L IFS286       29-39  29-30
     0005071 L IFS295       30-22  30-17
     0005122 L IFS318       33-11  33-09
     0114611 L IFS325       33-43  33-39
     0114325 L IFS329       34-18  34-07
     0114623 L IFS331       34-15  34-11
     0005135 L IFS341       35-20  34-41
     0005135 L IFS344       35-18  35-06
     0005156 L IFS350       36-12  35-43
     0005166 L IFS360       37-02  36-23
     0005164 L IFS368       36-38  36-36
     0005261 L IFS386       41-46  38-14
     0005261 L IFS397       41-44  39-03
     0005261 L IFS401       41-42  39-13
     0005261 L IFS405       41-40  39-25
     0005261 L IFS421       41-38  40-17
```

```
  VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES

0005237 L IFS428        40-38  40-36
0005260 L IFS433        41-30  41-02
0005257 L IFS435        41-27  41-12
0005255 L IFS441        41-24  41-22
0005310 L IFS458        43-07  43-02
0005326 L IFS466        43-42  43-40
0114660 L IFS477        45-02  44-44
0114660 L IFS478        44-49  44-47
0005401 L IFS500        48-17  48-05
0005437 L IFS513        49-26  49-22
0005505 L IFS555        57-07  56-10
0005502 L IFS556        57-02  56-13
0005557 L IFS591        59-16  59-10
0005617 L IFS602        61-03  60-35
0005610 L IFS605        60-43  60-41
0005614 L IFS606        60-48  60-46
0114771 L IFS614        61-36  61-23
0114771 L IFS615        61-34  61-28
0005750 L IFS685        71-26  71-24
0005764 L IFS691        72-03  71-48
0114224 L IFS698        72-28  72-19
0114223 L IFS699        72-25  72-23
0005772 L IFS704        72-45  72-39
0114502 L IFS712        74-01  73-34
0114500 L IFS714        73-47  73-44
0006142 L IFS767        79-21  79-19
0114423 L IFS835        85-04  85-02
0006366 L IFS875        88-40  88-34
0006407 L IFS892        89-37  89-35
0006415 L IFS896        89-48  89-46
0006422 L IFS902        90-10  90-08
0006436 L IFS908        90-23  90-21
0006661 L IFS943        97-42  95-06
0006606 L IFS947        95-20  95-18
0006640 L IFS973        96-48  96-46
0006652 L IFS976        97-14  97-12
0006666 L IFS987        98-01  97-46
0006677 L IFS996        99-27  99-25
0006702 L IFS997        99-32  99-30
0000000 A ILEVEL        12-03 W=3  S=0  N=0  CL=3    5-03, 58-28, 58-42, 59-01
      5 R ILON          15-08 W=1  S=4  N=0  CL=1    5-04, 27-47, 29-11
     14 R IM                 LIBNUM=6        25-17, 59-47, 84-21, 85-48, 91-28, 92-20
0000207 A IM%F               LIBNUM=6        18-11
CTSD    V IM_IMAGE        8-23  59-42
      5 R IMCHI         15-04 W=1  S=1  N=0  CL=1    22-44, 30-01
0114417 L INCADR        84-48  84-36
0000041 A INDEXCNTR     17-19  18-41, 19-46, 21-48, 25-42, 30-43, 32-37, 37-23, 43-48, 45-16, 48-39, 49-28, 51-11, 53-09,
                               59-48, 61-37, 62-41, 63-01, 70-42, 74-15, 75-39, 81-24, 86-37, 87-01, 87-33, 93-25, 98-05,
                               100-34,102-02,103-39,104-01,110-26,113-02
```

PATCH HISTORY 0:17:53 2/06/81 ****

```
     VALUE  T  NAME       DEF/REF    ATTRIBUTES AND REFERENCES                    CINIT          M77D

'DATA TABLES
'               T INDEXTITLE1
'EARLY APPLI
CATION ENTRY'T INDEXTITLE10
'INITIALIZE
IO CHANNELS' T INDEXTITLE11
'INITIALIZE
TEMPORARY ST
ORE'           T INDEXTITLE12
'MIDDLE APPL
ICATION ENTR
Y'             T INDEXTITLE13
'COMPLETION
OF COMMON SY
STEM INITIAL
IZATION'       T INDEXTITLE14
'DECISION TO
 REMOVE OTHE
R CC FROM SE
RVICE'         T INDEXTITLE15
'FINAL APPLI
CATION ENTRY'T INDEXTITLE16
'POST MORTEM
 DATA'         T INDEXTITLE17
'DATA COLLEC
TION THIS CC'T INDEXTITLE18
'DATA COLLEC
TION OTHER C
C'             T INDEXTITLE19
'SYSTEM INIT
IALIZATION'    T INDEXTITLE2
'OUTPUT MESS
AGE'           T INDEXTITLE20
'ERROR INTER
RUPT'          T INDEXTITLE21
'OTHER CENTR
AL CONTROL I
NTERRUPT'      T INDEXTITLE22
'SUBROUTINES
'              T INDEXTITLE23
'SWITCH CU--
TTY INPUT SU
BROUTINE'      T INDEXTITLE24
'SWITCH CC'    T INDEXTITLE25
'TEST OFFLIN
E STORE ACCE
SS'            T INDEXTITLE26
'ERROR PRINT
 CHECK'        T INDEXTITLE27
```

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     VALUE  T  NAME       DEF/REF    ATTRIBUTES AND REFERENCES

'ADD 1 TO TH
E DB SUBROUT
INE'          T INDEXTITLE28
'ZERO COMMON
 SYSTEM CRIT
ICAL TEMPORA
RY STORE DAT
A'.           T INDEXTITLE29
'STATE OF CC
 AT ENTRY TO
 CINIT'       T INDEXTITLE3
'SANITY TEST
'             T INDEXTITLE30
'ON-LINE SUB
ROUTINE'      T INDEXTITLE31
'OFF-LINE SU
BROUTINE'     T INDEXTITLE32
''            T INDEXTITLE33
'INITIALIZE
THE CENTRAL
CONTROL'      T INDEXTITLE4
'ON-LINE/OFF
-LINE DECISI
ON'           T INDEXTITLE5
'CHECK ON-LI
NE CU SANITY
 AND DISABLE
 THE OFF-LIN
E CU'         T INDEXTITLE6
'CHECK FOR M
EMORY RELOAD
 REQUEST FRO
M THE SSP'    T INDEXTITLE7
'MEMORY UPDA
TE'           T INDEXTITLE8
'ADMINISTER
LEVEL COUNT'  T INDEXTITLE9
     0114424  L INIT          85-05  84-28, 84-34
    CSYSUB    V INIT_OCC       7-41 112-16
    INITA     V INITAE         6-10  48-37
     0005422  L INITAER       48-38   4-08
    INITA     V INITAF         6-12  62-28
     0005621  L INITAFR       62-39   4-10
    INITA     V INITAM         6-11  53-07
     0005465  L INITAMR       53-08   4-09
     0004760  L INITBOOT      22-03   4-11
     0000000  A INITF         17-15
     0000000  A INITL         17-03 W=4  S=0  N=0  CL=3    4-15, 45-03, 50-15, 52-44, 54-20, 61-25
    CTSD      V INITLVL        8-25  18-40, 50-14, 52-43, 54-19, 56-27, 61-24
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PATCH HISTORY 0:17:53 2/06/81 ****

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   VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES                                                    CINIT          W77D

 0004756 D INITLVLX      18-40  33-32, 44-09
 0004764 L INITMERGE     22-13  22-05
CSYSUB   V INITOST        7-42  39-35
 0004763 L INITPROG      22-11   4-12
CBLM     V INITQ_IP       6-43  67-33
CTSD     V INITQCD        8-24  59-25
CSYSUB   V INITST         7-43  31-47
CSYSUB   V INITSTH        7-44  31-43
 0121334 A INITTSTC      11-02   4-13, 29-28
CTSD     V INITTST1       8-26  18-38
 0004752 D INITTST1X     18-38  27-17
CTSD     V INITTST2       8-27  18-39
 0004754 D INITTST2X     18-39  27-24
CSYSUB   V INTBEGIN       7-45  82-22
CSYSUB   V INTBGNX        7-46  76-45
CTSD     V INTCNT         8-28  58-05
CSYSUB   V INTEND         7-47  80-06, 83-37
       0 J INTERDATA      1-26
CBLM     V INTMAX         6-44  58-04
 0006165 L INTRTN        80-05  77-23, 78-40, 79-25, 79-39
 0006266 L INTSRTN       83-36  83-17
 0006167 L IO_CHANNEL    80-12  77-33
 0006167 L IO_MULT       80-13  77-30
 0006065 L IO_PARITY     77-37
       1 R IOCHAN        15-51 W=5  S=0  N=1  CL=1
 0005431 L IOINITLP      49-18  49-27
'IOPARSAV+0' T IOPAR             W=1  S=0  N=0  CL=2   77-51
   CTSD   V IOPARSAV      8-29  77-48
'IOPARSAV+1' T IOPDATA           W=20  S=0  N=1  CL=2          77-49
       1 R IOSP          16-02 W=1  S=11  N=1  CL=1          49-19, 49-21
       1 R IO3%6         16-03 W=6  S=12  N=1  CL=1          49-23
      15 R IS                  LIBNUM=6        91-22,107-05
 0000213 A IS%F                LIBNUM=6        18-03
 0000066 A IS_R%T              LIBNUM=6        59-46, 77-18, 79-12, 93-23, 97-23
 0000071 A IS_S%T              LIBNUM=6        86-10
      17 R ISC1                W=1  S=6  N=0  CL=1  LIBNUM=6       25-40, 35-45, 48-33, 56-05, 56-30, 57-05
      17 R ISC2                W=1  S=7  N=0  CL=1  LIBNUM=6       25-40, 35-45, 48-33, 56-05, 56-30
TTYAPP   V ITTYFLG       6-20  59-35
       5 R I1ST          15-06 W=1  S=2  N=0  CL=1   30-01, 68-15, 68-16
       5 R I2ND          15-07 W=1  S=3  N=0  CL=1   30-01
       5 R JAMSTB        15-23 W=1  S=15  N=0  CL=1          5-05, 35-15
TTYTBL   X K%EY          100-29 100-29
       0 J LAB            1-26
 0006730 L LDDB15_0      101-37   4-14
 0000231 A LDMCHB              LIBNUM=6        93-22
 0000035 A LDMIRL              LIBNUM=6        93-20, 93-21, 93-23
 0000000 A LINECNT
TTYAPP   V LINKRDY       6-21
      17 R LOF                 W=1  S=10  N=0  CL=1  LIBNUM=6      25-40, 27-37, 48-33
```

PATCH HISTORY


```
    VALUE  T  NAME          DEF/REF    ATTRIBUTES AND REFERENCES

       17  R  LON                     W=1  S=11  N=0  CL=1  LIBNUM=6      25-40, 27-46, 30-35, 48-33, 57-04, 90-05
'R5'       T  LONAM_BADST
'R5'       T  LONAM_BOOT
'MCHFCN'   T  LONAM_FCN
'R5'       T  LONAM_ICC
'R5'       T  LONAM_ICC1
'POSTMORT' T  LONAM_ILEVEL
'R5'       T  LONAM_ILON
'R5'       T  LONAM_IMCHI
'INITLVL'  T  LONAM_INITL
'EQIOCHANR' T LONAM_IOCHAN
'IOPARSAV' T  LONAM_IOPAR
'IOPARSAV' T  LONAM_IOPDAT
              A
'EQIOCHANR' T LONAM_IOSP
'EQIOCHANR' T LONAM_IO3X6
'R5'       T  LONAM_I1ST
'R5'       T  LONAM_I2ND
'R5'       T  LONAM_JAMSTB
'R5'       T  LONAM_MAN_IN
              IT
'EQIOCHANR' T LONAM_NCHN
'R5'       T  LONAM_NOMCH
'R5'       T  LONAM_NOSTAC
              C
'EQIOCHANR' T LONAM_NSTCHN
'R5'       T  LONAM_OODST
'POSTMORT' T  LONAM_PAPPL
'POSTMORT' T  LONAM_PDB
'POSTMORT' T  LONAM_PER
'POSTMORT' T  LONAM_PHG
'POSTMORT' T  LONAM_PHGRET
              URN
'POSTMORT' T  LONAM_PHGRET
              URN+16
'POSTMORT' T  LONAM_PHGRET
              URN+32
'POSTMORT' T  LONAM_PIM
'POSTMORT' T  LONAM_PIS
'POSTMORT' T  LONAM_PMINUT
              ES
'POSTMORT' T  LONAM_PMISC
'POSTMORT' T  LONAM_PPA
'POSTMORT' T  LONAM_PR10
'POSTMORT' T  LONAM_PR11
'POSTMORT' T  LONAM_PR12
'POSTMORT' T  LONAM_PR13
'POSTMORT' T  LONAM_PR14
'POSTMORT' T  LONAM_PR15
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'POSTMORT'   T LONAM_PR8
'POSTMORT'   T LONAM_PR9
'POSTMORT'   T LONAM_PSECON
               DS
'POSTMORT'   T LONAM_PSPARE
'POSTMORT'   T LONAM_PSPARF
'POSTMORT'   T LONAM_PSS
'POSTMORT'   T LONAM_PSYSTA
               TE
'POSTMORT'   T LONAM_PTI
'POSTMORT'   T LONAM_RCYCLV
               L
'INITLVL'    T LONAM_RECYCL
               E
'R5'         T LONAM_RELOAD
'R5'         T LONAM_RLDXLA
               TE
'TI'         T LONAM_TC
'TI'         T LONAM_1ST_TO
'TI'         T LONAM_2ND_TO
'TI'         T LONAM_25CTR
   0111625 L LOW8          95-38  95-36
  CSYSUB   V L2_13          7-48
  CTSD     V L6CLR          8-30  42-31, 42-31, 42-37, 50-34,103-24,103-29,103-29
  CTSD     V L7CLR          8-31  42-37,103-24
  TTYTBL   X M%CH         100-05 100-05
  CTVTAB   V M%OVST              LIBNUM=7        59-14
        14 P M%OVST%_%CSY
               SUB               LIBNUM=7
  TTYTBL   X M%S          100-21 100-21
  CTVTAB   V M%SFABT             LIBNUM=7        51-10, 89-07
        14 P M%SFABT%_%CB
               LM                LIBNUM=7
         5 R MAN_INIT      15-33 W=1  S=17  N=0  CL=1            5-06, 33-10, 34-13, 35-13, 35-40, 35-41
        15 R MANI                W=1  S=15  N=0  CL=1  LIBNUM=6       11-07, 84-20
         0 R MANKEY              W=1  S=4  N=0  CL=1  LIBNUM=6        39-11
  CBLM     V MAS_OOS        6-46  43-41, 79-16, 92-10, 97-48, 97-48
  MASACS   V MAS_ZERO       6-30  43-04
  MASACS   V MASCIOSC       6-31  24-15, 73-37, 81-06
  CBLM     V MASID          6-45  38-13, 39-24, 42-05
  CTSD     V MASTATE        8-32  18-37, 42-06
   0004750 D MASTATEX      18-37  38-07
   0006240 L MCH_INT       82-18   4-16
         3 R MCHB                LIBNUM=6        25-08, 30-18, 34-24, 39-10, 69-28, 72-04,106-42,112-05,112-28
   0000231 A MCHB%F              LIBNUM=6        34-31, 93-23
   0000231 A MCHB%T              LIBNUM=6        71-20
   0000341 A MCHC%T              LIBNUM=6        23-10
   0005763 L MCHFAIL       71-49  71-33
  CTSD     V MCHFCN         8-33  82-23, 85-28, 91-49
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  VALUE  T  NAME          DEF/REF    ATTRIBUTES AND REFERENCES

       0 R MCHI                     W=1  S=2  N=0  CL=1  LIBNUM=6       22-43
       0 R MCHTR                    LIBNUM=6          71-29
 0000223 A MCHTR%T                  LIBNUM=6          23-23
 0005230 L MCHUPENT       40-23     4-17, 41-47
 0000031 A MCHUPLEN       41-47     4-18
      12 R MFSTM                    W=1  S=14  N=0  CL=1  LIBNUM=6      61-21



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 0123456789
    '        T MICODETR             LIBNUM=6
    CTSD     V MINUTES      8-34    47-08
           4 R MMSR                 LIBNUM=6          91-37,106-48
    CBLM     V MONSEQ       6-47    62-40
     0005246 L MOVMAS      41-13    41-05
     0005251 L MOVMASILP   41-17    41-25
     0005233 L MOVMASOLP   40-33    41-28
    CSYSUB   V MOVST        7-49
'3E790716'   T MRNO
          16 R MS                   LIBNUM=6         107-06
     0000215 A MS%T                 LIBNUM=6          86-08
    CBLM     V MSFABT       6-48
    BLMMA    V MSFOFL       6-08    89-04
    CBLM     V MSFREQN      6-49
     0000321 A MSTOP                LIBNUM=6          71-07, 93-19
           0 R NCHN        15-48  W=5  S=0  N=0  CL=1   49-16
     0006560 L NEXT_32K    94-29    96-13
     0006612 L NEXT_4K     96-05    97-35
     0006564 L NOCARY      94-33    94-31
     0005454 L NOCLR       50-43    50-29
           5 R NOMCH       15-17  W=1  S=11  N=0  CL=1            72-01
     0000360 A NOP%F                LIBNUM=6          22-36, 23-21, 23-23, 39-42, 77-10, 79-09, 81-18, 86-06, 86-08, 97-20
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  VALUE  T NAME        DEF/REF   ATTRIBUTES AND REFERENCES                                            CINIT      W77D

 0006123 L NOPRINT       78-38  78-18
 0006220 L NOPRNT        81-05  80-26
       5 R NOSTACC       15-13 W=1  S=7  N=0  CL=1    5-07, 38-38, 39-04, 40-14, 96-47, 97-13
       0 R NSTCHN        15-49 W=5  S=5  N=0  CL=1
       0 U O
TTYTBL   X O%FL          79-49  79-49
TTYTBL   X O%P           75-34  75-34
      15 R OCCI              W=1  S=7  N=0  CL=1  LIBNUM=6       11-07, 82-20, 83-34
 0005071 L OFFLINE       30-32  27-38, 28-40, 28-48, 29-37
 0000160 A OFL_HG        11-09   4-19, 22-46, 92-26
 7757577 A OFL_IM        11-07   4-20, 92-19
CBLM     V OFL_OOS        7-01
CBLM     V OFL_STBY       7-02  89-29
      12 R OFSTM             W=1  S=20  N=0  CL=1  LIBNUM=6      95-16, 97-10
 0006554 L OMASTEST      94-23   4-21, 40-13, 79-20
 0006661 L OMASTESTF     97-43  94-35
CBLM     V ONL_CC         7-03  86-32, 86-33, 90-18, 90-19
 0005075 L ONLINE        31-01  28-41, 28-49, 30-03, 30-20
       5 R OODST         15-10 W=1  S=6  N=0  CL=1    5-08, 38-15, 41-36
 0006001 L OPPOSTMO      75-17   4-22



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             T OPTR
 0000314 A ORG_000001    18-05
 0001223 A ORG_000015    69-26
 0001170 A ORG_000027    66-29
 0000344 A ORG_000064    23-33
 0000362 A ORG_000066    24-43
 0000403 A ORG_000074    27-13
 0001267 A ORG_000104    72-16
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PATCH HISTORY 0:17:53 2/06/81 ****

CINIT W77D

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
0000451	A	ORG_000141	30-29	
0000456	A	ORG_000145	31-21	
0001668	A	ORG_000170	95-34	
0000477	A	ORG_000172	33-18	
0000567	A	ORG_000234	36-40	
0001211	A	ORG_000243	68-35	
0000604	A	ORG_000254	38-26	
0001472	A	ORG_000255	84-17	
0001460	A	ORG_000262	82-39	
0000622	A	ORG_000263	39-16	
0000641	A	ORG_000272	40-08	
0000650	A	ORG_000300	40-19	
0001060	A	ORG_000317	56-27	
0001233	A	ORG_000327	70-18	
0000674	A	ORG_000330	41-32	
0000704	A	ORG_000340	42-28	
0000460	A	ORG_000342	31-31	
0001306	A	ORG_000347	73-21	
0000730	A	ORG_000405	44-15	
0000745	A	ORG_000407	46-46	
0000364	A	ORG_000412	25-08	
0000407	A	ORG_000421	27-46	
0000754	A	ORG_000423	47-21	
0000501	A	ORG_000470	33-28	
0001006	A	ORG_000511	50-04	
0001016	A	ORG_000516	50-31	
0000627	A	ORG_000527	39-34	
0001031	A	ORG_000531	52-33	
0001042	A	ORG_000535	54-09	
0000732	A	ORG_000541	44-25	
0001056	A	ORG_000550	56-15	
0000346	A	ORG_000553	23-43	
0001010	A	ORG_000555	50-14	
0001033	A	ORG_000563	52-43	
0001044	A	ORG_000571	54-19	
0000606	A	ORG_000577	38-38	
0001112	A	ORG_000605	58-36	
0000756	A	ORG_000613	47-31	
0001110	A	ORG_000616	58-25	
0001144	A	ORG_000643	61-16	
0001142	A	ORG_000667	61-06	
0001166	A	ORG_000673	66-19	
0001203	A	ORG_000724	67-38	
0001207	A	ORG_000746	68-25	
0001221	A	ORG_000763	69-16	
0001231	A	ORG_000775	70-08	
0001265	A	ORG_001035	72-06	
0001304	A	ORG_001047	73-11	
0001456	A	ORG_001322	82-29	

PATCH HISTORY 0:17:53 2/06/81 ****

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  VALUE  T  NAME          DEF/REF     ATTRIBUTES AND REFERENCES                                                    CINIT          W77D

 0001470 A ORG_001340     84-07
 0001563 A ORG_001445     89-11
 0001651 A ORG_001636     94-37
 0001664 A ORG_001656     95-22
 0001674 A ORG_001665     96-15
 0001726 A ORG_001730     97-31
 0002016 A ORG_002023    103-26
CBLM     V OSA_FALT        7-04   43-41, 92-10,111-22
 0007237 L OSANITY        111-20    4-23, 60-37, 79-34
 0007274 L OSANITYBEGIN   112-25  111-33
 0007267 L OSANITYFAIL    112-14  111-36
 0007254 L OSANITYLP      111-47  112-13
 0007244 L OSANUCL        111-30    4-24
CBLM     V OSM_OFL         7-05   67-33
      12 R OSTRER                 W=1  S=17  N=0  CL=1  LIBNUM=6       95-16, 97-10
      12 R OWRTER                 W=1  S=16  N=0  CL=1  LIBNUM=6       95-16, 97-10
CTVTAB   V P%MRY                  LIBNUM=7        57-24, 78-24, 79-44, 80-44
      14 P P%MRY%_%TTYA
         PP                       LIBNUM=7
       2 R PA                     LIBNUM=6       106-45
 0000226 A PA%F                   LIBNUM=6        18-08
 0000001 A PAGECNT
 0000062 A PAGL           2-11
 0000001 A PAPPL          12-07  W=20  S=0  N=1  CL=3           4-44
 0000016 A PDB            12-19  W=4   S=0  N=16 CL=3
 0000036 A PER            12-30  W=4   S=0  N=36 CL=3          61-20
 0000024 A PHG            12-24  W=20  S=0  N=24  CL=3         4-45, 47-47
 0000030 A PHGRETURN      12-27  W=4   S=0  N=30 CL=3
 0000032 A PHGRETURN+16   12-28  W=4   S=0  N=32 CL=3
 0000034 A PHGRETURN+32   12-29  W=4   S=0  N=34 CL=3
 0000015 A PIM            12-18  W=20  S=0  N=15  CL=3         4-25
 0000005 A PIS            12-11  W=20  S=0  N=5   CL=3         4-46
 0005623 L PMD_CC         66-17   22-20
 0004766 L PMD_CC_RTN     22-21   70-28
 0005727 L PMD_OCC        71-01   37-21
 0005173 L PMD_OCC_RTN    37-22   74-02
 0006007 L PMDBLK         75-30   75-20
 0000000 A PMINUTES       12-06  W=6   S=12 N=0  CL=3
 0000003 A PMISC          12-09  W=20  S=0  N=3   CL=3         4-48, 32-07, 33-01, 35-23, 37-04, 47-45, 56-08, 57-18, 60-33
TTYAPP   V PMRY           57-24   78-24, 79-44, 80-44
CTSD     V POSTMORT        8-35   18-33, 18-33, 24-08, 24-27, 32-07, 33-01, 33-40, 35-23, 37-04, 47-31, 47-47, 48-25, 52-31,
                                  54-33, 59-11, 59-11, 59-12, 60-32, 61-20, 66-33, 66-42, 67-36, 67-41, 70-20, 70-20, 70-21,
                                  71-16, 73-28, 73-48, 75-38
 0005745 L POSTMORTLP     71-21   73-02
 0000006 A PPA            12-12  W=4   S=0  N=6  CL=3
 0000012 A PR10           12-15  W=20  S=0  N=12  CL=3
 0000013 A PR11           12-16  W=20  S=0  N=13  CL=3
 0000020 A PR12           12-20  W=20  S=0  N=20  CL=3
 0000021 A PR13           12-21  W=20  S=0  N=21  CL=3         4-47
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PATCH HISTORY 0:17:53 2/06/81 ****

CINIT M77D

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  VALUE  T  NAME          DEF/REF    ATTRIBUTES AND REFERENCES

 0000022 A PR14           12-22 W=20  S=0  N=22  CL=3
 0000023 A PR15           12-23 W=20  S=0  N=23  CL=3
 0000010 A PR8            12-13 W=20  S=0  N=10  CL=3
 0000011 A PR9            12-14 W=20  S=0  N=11  CL=3
 0000000 A PSECONDS       12-05 W=6   S=4  N=0   CL=3
 0000014 A PSPARE         12-17 W=20  S=0  N=14  CL=3
 0000025 A PSPARF         12-25 W=20  S=0  N=25  CL=3
 0000026 A PSS            12-26 W=4   S=0  N=26  CL=3
 0000002 A PSYSTATE       12-08 W=20  S=0  N=2   CL=3          57-17, 68-04
 0006145 L PT_RESET_ONL   79-31  77-31
 0000004 A PTI            12-10 W=20  S=0  N=4   CL=3          68-06, 71-16
 0006263 L PWRDOWN        83-21  83-07
CBLM     V QOFLCC          7-06  61-30
       0 U R
TTYTBL   X RXCOVRY        57-28  57-28
TTYTBL   X RXEPT          78-28  78-28, 79-48, 80-48
CTVTAB   V RXESETPT              LIBNUM=7       41-16, 84-38
      14 P RXESETPT%_%C
           BLM                   LIBNUM=7
      14 P RA0                   LIBNUM=3       24-15, 24-16, 27-17, 27-18, 27-20, 27-23, 27-24, 27-25, 27-27, 27-30, 33-32,
                                  33-33, 33-40, 33-41, 36-07, 38-08, 42-31, 42-39, 42-40, 44-09, 44-10, 47-08, 47-14, 47-46,
                                  47-47, 48-07, 48-11, 48-14, 54-33, 56-08, 56-29, 57-17, 57-18, 58-28, 58-42, 60-38, 60-42,
                                  61-01, 71-17, 71-25, 73-37, 73-38, 75-20, 77-48, 77-49, 77-51, 79-13, 79-14, 80-25, 82-23,
                                  82-24, 82-27, 99-37, 99-38
      16 P RA1                   LIBNUM=3       27-17, 27-18, 27-24, 27-25, 33-32, 33-33, 33-35, 35-02, 38-07, 38-08, 38-10,
                                  39-21, 39-36, 40-24, 40-30, 40-35, 40-37, 41-19, 41-23, 42-06, 42-17, 42-39, 42-40, 42-48,
                                  44-09, 44-10, 44-12, 45-03, 47-31, 47-32, 47-45, 47-47, 47-48, 48-09, 48-13, 48-25, 49-14,
                                  49-19, 50-40, 52-31, 56-27, 56-28, 59-11, 60-32, 60-33, 67-26, 67-27, 67-30, 67-34, 67-36,
                                  68-02, 68-04, 68-06, 68-18, 68-20, 68-21, 68-22, 68-23, 68-35, 68-36, 68-38, 68-47, 69-05,
                                  69-06, 69-07, 69-08, 69-09, 69-10, 69-27, 69-30, 69-31, 69-40, 70-01, 70-05, 70-06, 70-20,
                                  70-24, 70-26, 71-16, 72-20, 72-42, 73-01, 73-08, 73-09, 78-06, 78-07, 78-08, 78-09, 78-10,
                                  78-13, 78-14, 78-15, 78-17, 79-36, 79-38, 80-23, 80-32, 80-34, 80-35, 80-36, 80-37, 80-38,
                                  84-29, 84-30, 84-42, 84-45, 85-01, 85-03, 86-30, 86-33, 88-35, 88-36, 90-26, 90-28, 90-30,
                                  91-16, 92-39, 94-27, 94-30, 94-32, 94-34, 94-41, 95-12, 95-34, 96-26, 96-31, 96-37, 96-42,
                                  97-06, 97-47, 97-48, 99-21, 99-33,103-29,111-33
 0000000 A RCYCLVL        12-04 W=1   S=3  N=0   CL=3    33-41, 47-32, 56-29, 59-01
 0000000 A RECYCLE        17-04 W=1   S=4  N=0   CL=3    33-37, 35-04, 56-28
 0004730 L REGTBL         18-02 TBLSIZ=13        18-23, 71-17, 71-19
 0007146 L REGTEST       108-07 105-27,105-30,105-33,105-39,105-42
 0007160 L REG1          108-18
 0007163 L REG2          108-22 108-17
 0007172 L REG3          108-29 108-33
 0007174 L REG4          108-31 108-43
 0007203 L REG5          108-38 108-34
 0007204 L REG7          108-40 108-29
 0007162 L REG8          108-21 108-37
       5 R RELOAD         15-24 W=1   S=16 N=0   CL=1          5-09, 34-08, 34-13, 35-14, 35-40, 35-41, 36-35
CSYSUB   V REPT_ERR        8-01  99-40
CBLM     V REQ_UPD         7-07
```

```
  VALUE  T NAME       DEF/REF   ATTRIBUTES AND REFERENCES                    CINIT      W77D

CBLM     V RESETPT       7-08
       4 R REV1              W=1  S=7  N=0  CL=1  LIBNUM=6       92-28, 92-49
CSYSUB   V RGCHKADR      8-02
CSYSUB   V RGCHK32       8-03  40-40
       5 R RLDXLATE     15-20 W=1  S=13  N=0  CL=1          5-10
' NO ACCESS
TO OTHER STO
RE'        T RMK_BADST
' BOOT=1==>B
OOTSTRAP(IPL
) TOOK PLACE'T RMK_BOOT
'FCN CODE OF
 MESSAGE'    T RMK_FCN
' OLD CC'    T RMK_ICC
' IDENTITY O
F THE CC WHI
CH IS INITIA
LIZING'      T RMK_ICC1
' OLD LEVEL
NUMBER'      T RMK_ILEVEL
' LOCK ON-LI
NE BIT'      T RMK_ILON
' HISTORY FL
AG IN MCH'   T RMK_IMCHI
' INITIALIZA
TION LEVEL'  T RMK_INITL
'NUMBER OF C
HANNEL'      T RMK_IOCHAN
' FLAG INDIC
ATES IO BAD
PARITY INTER
RUPT OCCURRE
D'           T RMK_IOPAR
' DATA CONST
ANT RETURNED
 (WITH PARIT
Y CORRECTED)'T RMK_IOPDATA
'SPECIAL IO
CHANNEL (NOT
 SERIAL)'    T RMK_IOSP
'3-OUT-OF-6
CODE TO ADDR
ESS CHANNEL' T RMK_IO3%6
' 1-ST TIMEO
UT BIT,TI(14
)'           T RMK_I1ST
' 2-ND TIMEO
UT BIT,TI(15
)'           T RMK_I2ND
```

PATCH HISTORY 0:17:53 2/06/81 ****

VALUE T NAME DEF/REF ATTRIBUTES AND REFERENCES CINIT M77D

```
' IF JAMSTB=
1 A STABLE C
LEAR IS JAME
D'              T RMK_JAMSTB
' INIT WAS F
ROM SSP'        T RMK_MAN_INIT
' NUMBER OF
IO CHANNELS'    T RMK_NCHN
' IF NOMCH=1
, THE MCH FA
ILED WHILE A
TTEMPTING TO
 RETRIEVE OF
F-LINE REGIS
TERS FOR POS
T-MORTEM'       T RMK_NOMCH
' NO ACCESS
TO OTHER STO
RE, CANNOT M
OVE MEMORY A
CROSS'          T RMK_NOSTACC
' NUMBER OF
STANDARD CHA
NNELS'          T RMK_NSTCHN
' MAS WAS IN
ITIALLY OUT-
OF-DATE'        T RMK_OODST
' APPLICATIO
N ORIENTED D
ATA'            T RMK_PAPPL
' CONTENTS O
F DB = PA AT
 LAST B IF D
ISP=1'          T RMK_PDB
' CONTENTS O
F THE ERROR
REGISTER'       T RMK_PER
' CONTENTS O
F HG'           T RMK_PHG
' RETURN ADD
R OF THE CUR
R HG SLOT'      T RMK_PHGRETUR
                  N
' RETURN ADD
R OF THE CUR
R HG SLOT +1
6'              T RMK_PHGRETUR
                  N+16
' RETURN ADD
```

```
     VALUE  T  NAME       DEF/REF    ATTRIBUTES AND REFERENCES                    CINIT          W77D

R OF THE CUR
R HG SLOT,+3
2'           T RMK_PHGRETUR
               N+32
' CONTENTS O
F IM'        T RMK_PIM
' CONTENTS O
F IS'        T RMK_PIS
' CONTENTS O
F MINUTES'   T RMK_PMINUTES
' SEE LAYOUT
 BELOW'      T RMK_PMISC
' CONTENTS O
F PA'        T RMK_PPA
' CONTENTS O
F R10'       T RMK_PR10
' CONTENTS O
F R11'       T RMK_PR11
' CONTENTS O
F R12'       T RMK_PR12
' CONTENTS O
F R13'       T RMK_PR13
' CONTENTS O
F R14'       T RMK_PR14
' CONTENTS O
F R15'       T RMK_PR15
' CONTENTS O
F R8'        T RMK_PR8
' CONTENTS O
F R9'        T RMK_PR9
' CONTENTS O
F SECONDS'   T RMK_PSECONDS
' SPARE'     T RMK_PSPARE
' SPARE'     T RMK_PSPARF
' CONTENTS O
F SS'        T RMK_PSS
' CONTENTS O
F SYSTATE'   T RMK_PSYSTATE
' CONTENTS O
F TI-SEE LAY
OUT BELOW'   T RMK_PTI
' LEVEL COUN
T RECYCLED T
O ZERO'      T RMK_RCYCLVL
' COUNT HAS
RECYCLED'    T RMK_RECYCLE
' REQUEST TO
 BOOTSTRAP F
ROM SSP'     T RMK_RELOAD
```

```
     VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES                                                    CINIT          W77D

' SOME PORTI
ON OF TRANSL
ATION HAS BE
EN RELOADED
DURING BOOTS
TRAP'          T RMK_RLDXLATE
'TIMING COUN
TER'           T RMK_TC
'FIRST CC TI
MEOUT'         T RMK_1ST_TO
'SECOND CC T
IMEOUT'        T RMK_2ND_TO
'25MS COUNTE
R'             T RMK_25CTR
     CBLM      V RMV_CC          7-09  60-47, 61-32,112-19
     CBLM      V RMV_MAS         7-10
     CBLM      V RST_IP          7-11  43-34, 43-41
      0005363  L RTNADRLP       48-01  48-15
      0000243  A RTNMB                  LIBNUM=6        38-40
      0000261  A RTNMCHB                LIBNUM=6        71-44,111-49
      0000223  A RTNSS                  LIBNUM=6        30-13
            4  R RW0                    W=1  S=4  N=0  CL=1  LIBNUM=6        92-28, 92-49
            4  R RW1                    W=1  S=5  N=0  CL=1  LIBNUM=6        92-28, 92-49
            0  R R0                     LIBNUM=3        10-01, 22-45, 23-30, 23-31, 23-43, 23-44, 25-08, 25-09, 25-16, 25-17, 27-22,
                                         27-29, 28-06, 28-08, 28-09, 30-13, 30-35, 30-41, 32-28, 32-31, 33-37, 33-40, 35-04, 35-40,
                                         35-41, 36-05, 36-33, 36-37, 38-13, 38-40, 39-24, 40-14, 41-03, 41-23, 42-05, 42-06, 42-15,
                                         42-31, 43-34, 43-41, 44-25, 44-33, 44-34, 47-08, 47-12, 47-13, 47-14, 47-18, 47-19, 47-31,
                                         48-03, 48-04, 48-09, 48-13, 48-21, 49-14, 49-15, 49-16, 49-27, 50-14, 50-15, 50-28, 50-40,
                                         51-08, 52-31, 52-43, 52-44, 54-33, 56-27, 57-09, 57-13, 59-11, 59-12, 59-19, 59-25, 59-42,
                                         59-43, 59-47, 60-32, 61-24, 61-25, 61-26, 66-29, 66-33, 66-39, 66-40, 66-42, 67-32, 67-33,
                                         67-34, 70-26, 71-07, 71-11, 71-16, 71-17, 71-44, 75-20, 77-48, 79-13, 79-35, 82-23, 82-39,
                                         83-06, 83-33, 83-34, 83-35, 84-20, 84-21, 84-35, 85-33, 88-35, 89-04, 89-16, 89-31, 89-32,
                                         89-42, 92-10, 92-19, 92-20, 92-39, 96-06, 96-12, 96-19, 96-26, 96-33, 96-35, 96-40, 96-44,
                                         97-04, 97-47, 98-02, 99-23, 99-26, 99-34, 99-38,101-29,101-35,103-29,104-45,104-46,105-19,
                                        106-08,106-23,106-33,107-01,107-28,107-29,108-08,108-23,108-27,111-21,111-22,111-33,111-49,
                                        112-28
      0000123  A R0%F                  LIBNUM=6        23-10, 23-25, 48-24, 85-37
      0000123  A R0%T                  LIBNUM=6        66-37
            1  R R1                     LIBNUM=3        22-43, 22-46, 27-16, 27-23, 27-30, 39-36, 44-33, 44-45, 44-48, 45-03, 47-48,
                                         48-25, 50-34, 59-43, 61-20, 61-21, 66-43, 67-35, 67-36, 68-02, 70-20, 78-15, 78-16, 79-36,
                                         79-37, 80-23, 80-24, 82-24, 85-28, 86-32, 86-33, 89-29, 89-32, 90-18, 90-19, 90-26, 90-27,
                                         90-28, 90-29, 90-30, 91-16, 95-03, 99-21, 99-22, 99-29, 99-37,103-24,105-23,105-28,105-31,
                                        105-37,105-40,106-24,106-25,106-27,108-09,108-11,108-12,108-13,108-15,108-16,108-22,108-30,
                                        108-31,108-42
      0000125  A R1%F                  LIBNUM=6        23-19, 59-46, 85-32
      0000125  A R1%T                  LIBNUM=6        22-40
           12  R R10                    LIBNUM=3        24-17, 28-12, 28-24, 33-03, 34-03, 57-18, 57-41, 57-44, 67-18, 68-35, 73-39,
                                         78-09, 80-36, 81-07, 81-11,101-40,101-41,101-43,101-45,105-16,106-34,106-44,106-46
      0000152  A R10%F                 LIBNUM=6        18-10
```

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   VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES                                            CINIT          W77D
      13 R R11                      LIBNUM=3        24-23, 24-27, 28-17, 28-38, 28-46, 33-10, 34-08, 67-19, 68-36, 68-37, 68-38,
                                     73-45, 73-48, 77-49, 78-13, 80-37,107-11,107-12
 0000154 A R11%F                    LIBNUM=6        18-10
      14 R R12                      LIBNUM=3        67-20, 69-07, 78-14, 80-38,108-40,108-42
 0000107 A R12%F                    LIBNUM=6        18-13
      15 R R13                      LIBNUM=3        48-03, 67-21, 69-08, 78-12,104-49,105-02,105-04,106-09,106-34,106-39,108-26,
                                    108-33
 0000113 A R13%F                    LIBNUM=6        18-13,109-19
 0000113 A R13%T                    LIBNUM=6       109-17
      16 R R14                      LIBNUM=3        36-03, 42-41, 56-06, 56-31, 57-05, 57-08, 57-12, 67-22, 67-24, 72-24, 78-03,
                                     78-10, 78-39, 80-31,108-09,108-10,108-14,108-15,108-16,109-09
 0000115 A R14%F                    LIBNUM=6        18-14
      17 R R15                      LIBNUM=3        35-45, 35-46, 56-05, 56-06, 56-30, 56-31, 67-23, 67-25, 72-21, 78-04, 80-30,
                                    108-28,109-22,109-23
 0000116 A R15%F                    LIBNUM=6        18-14
 0000116 A R15%T                    LIBNUM=6        78-02, 80-29,109-19
       2 R R2                       LIBNUM=3        24-08, 24-09, 24-10, 24-14, 24-16, 25-38, 31-40, 33-04, 41-14, 41-19, 41-23,
                                     41-25, 42-41, 42-42, 42-43, 42-45, 47-49, 48-15, 48-32, 57-40, 58-04, 58-05, 58-14, 58-28,
                                     59-01, 60-38, 60-42, 60-45, 60-49, 61-01, 66-44, 67-41, 68-02, 68-03, 68-20, 69-05, 69-29,
                                     69-31, 69-40, 70-05, 70-21, 70-24, 70-26, 70-27, 72-20, 72-40, 72-42, 73-08, 73-28, 73-29,
                                     73-32, 73-36, 73-38, 76-39, 76-47, 82-20, 82-26, 82-27, 84-39, 84-42, 84-45, 84-47, 86-17,
                                     86-23, 86-27, 86-28, 86-30, 90-19, 91-11, 92-26, 95-15, 97-09, 99-22, 99-23, 99-26, 99-29,
                                     99-33, 99-34,101-35,101-46,101-47,106-05,106-11,106-17,106-18,106-20,106-21,106-32
 0000126 A R2%F                     LIBNUM=6        92-36
       3 R R3                       LIBNUM=3        25-40, 27-37, 27-46, 30-19, 34-39, 39-11, 42-43, 42-48, 43-05, 43-08, 48-33,
                                     48-35, 57-04, 58-15, 66-45, 67-32, 68-04, 68-06, 68-15, 68-16, 68-18, 68-21, 68-47, 69-06,
                                     69-30, 70-01, 70-02, 70-06, 73-01, 73-09, 76-47, 76-48, 77-02, 77-04, 77-05, 77-06, 77-19,
                                     77-20, 77-21, 79-22, 79-23, 85-47, 85-48, 85-49, 86-18, 86-19, 86-24, 90-05, 91-12, 91-23,
                                     91-29, 91-32, 91-34, 91-36, 91-38, 91-49, 92-21, 92-22, 92-28, 92-49, 95-15, 95-16, 97-09,
                                     97-10,101-36,101-41,101-44,101-45,105-14,106-44,106-46,106-49,107-07,107-12,107-19,107-24,
                                    107-26,110-06,110-08,110-20,110-21,110-23,112-07
 0000131 A R3%F                     LIBNUM=6        86-10, 92-32, 93-04
 0000131 A R3%T                     LIBNUM=6        91-48
       4 R R4                       LIBNUM=3        27-22, 29-31, 42-37, 43-09, 44-34, 47-13, 47-19, 47-32, 66-46, 69-26, 69-27,
                                     71-19, 71-22, 72-16, 72-26, 72-29, 73-02, 77-24, 79-16, 91-32, 91-34, 96-33, 97-04,106-17,
                                    106-18,106-20,106-21,110-06,110-08,110-20,110-22,110-23,111-46,112-13
 0000132 A R4%T                     LIBNUM=6        69-14
       5 R R5                       LIBNUM=3        15-03, 15-04, 15-06, 15-07, 15-08, 15-09, 15-10, 15-13, 15-14, 15-17, 15-18,
                                     15-20, 15-23, 15-24, 15-33, 27-47, 29-11, 30-01, 32-07, 33-01, 34-08, 34-13, 35-13, 35-14,
                                     35-15, 35-23, 35-41, 37-04, 38-38, 39-04, 44-42, 47-45, 66-47, 73-30, 86-01, 94-26, 95-19,
                                     96-47, 97-13, 97-45, 98-02,106-24,106-27,106-29,106-30
 0000134 A R5%F                     LIBNUM=6        86-12
       6 R R6                       LIBNUM=3        27-29, 29-28, 29-31, 66-48, 67-24, 69-09, 71-20, 71-28, 71-29, 99-38,106-06,
                                    106-26,106-30
       7 R R7                       LIBNUM=3        66-49, 67-25, 69-10, 71-25, 71-27, 71-28, 77-21, 77-25, 78-06, 80-32, 87-21,
                                    106-09,106-11,106-12
      10 R R8                       LIBNUM=3        24-15, 32-28, 54-19, 54-20, 56-12, 58-42, 67-15, 68-22, 73-37, 78-07, 79-35,
                                     80-34, 95-03, 95-37, 95-39, 96-12,106-03
 0000146 A R8%F                     LIBNUM=6        18-09
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PATCH HISTORY 0:17:53 2/06/81 ****

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CINIT	W77D
11	R	R9		LIBNUM=3 24-16, 28-11, 32-31, 33-02, 49-17, 49-23, 57-17, 67-17, 68-23, 73-38, 78-08, 80-35, 81-06, 82-40, 84-27,101-39,105-03,105-04,105-15,106-41		
0000151	A	R9%F		LIBNUM=6 18-09		
0	U	S				
CTVTAB	V	S%ENDIO		LIBNUM=7 28-14, 28-26, 34-05		
14	P	S%ENDIO%_%CSYSUB		LIBNUM=7		
CTVTAB	V	S%MCH		LIBNUM=7 30-15, 32-30, 32-33, 38-42, 71-09, 71-13, 71-46,112-02		
14	P	S%MCH%_%CSYSUB		LIBNUM=7		
TTYTBL	X	S%S	100-25	100-25		
TTYTBL	X	S%SP	100-09	100-09		
TTYTBL	X	S%W	80-01	80-01		
0006760	L	SANITY	104-21	4-26, 32-15,112-27		
0012535	A	SANITYC	107-30	4-27,112-07		
0006764	L	SANITYDG	104-44	4-28		
0006775	L	SAN1	105-06	105-11,106-10		
0006777	L	SAN2	105-09	105-05		
0007042	L	SAN3	106-09	106-32		
0007050	L	SAN4	106-14	106-19,106-22		
0007052	L	SAN5	106-17	106-13		
0007076	L	SAN6	106-36	106-31,106-40,106-47,107-02,107-08,107-25,107-27,107-32		
0007100	L	SAN7	106-39	106-35		
0007067	L	SAN8	106-30	106-28		
1	R	SAR		LIBNUM=6 106-43		
0000225	A	SAR%F		LIBNUM=6 18-15		
CTSD	V	SAVSER	8-36	66-40, 68-37		
0016471	A	SDIS%		LIBNUM=6 93-08		
0000344	A	SDR1%T		LIBNUM=6 76-33		
13	R	SELCU0	11-18	S=2 11-19, 28-46		
13	R	SELCU1	11-16	S=3 11-17, 28-38		
0114536	L	SELF	28-09			
CSYSUB	V	SENDIO	8-05			
CSYSUB	V	SENDMIO	8-06	81-09, 81-14		
CSYSUB	V	SENDMIOS	8-07			
0002164	A	SERNO_061041	122-02			
0002170	A	SERNO_062895	122-12			
0002160	A	SERNO_063274	121-26			
0002150	A	SERNO_064346	121-02			
0002154	A	SERNO_065996	121-16			
CSYSUB	V	SIO	8-04	105-18		
0005511	L	SISCS	57-11	56-33		
0026466	A	SIS1XDB%		LIBNUM=6 34-27		
0005237	L	SKIPINC	40-38	40-31		
0006566	L	SKPINC	94-40	94-28		
CSYSUB	V	SLDMCHB	30-10	30-11		
CSYSUB	V	SLDMIRL	71-31	71-32		
CSYSUB	V	SMCH	30-14	38-41, 71-08, 71-12, 71-45,112-01		
0112004	L	SOFTINIT	31-45	31-32, 31-41		

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    VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES                                          CINIT          W77D

'I%NT'      T SPWORD
       17   R SS                     LIBNUM=6        27-36, 31-39, 57-03, 90-04, 91-10,107-04
  0000216   A SS%F                   LIBNUM=6        18-16
       17   R SS_R                   LIBNUM=6        25-41, 30-41, 48-34, 57-08, 86-25, 92-22
  0000216   A SS_R%T                 LIBNUM=6        57-09,104-43,112-32
       15   R SS_S                   LIBNUM=6        35-46, 57-12, 58-16, 86-22
  0000213   A SS_S%T                 LIBNUM=6        36-05, 57-13, 92-25
 CBLM       V SSP_OOS        7-12  43-34, 43-41
 CBLM       V SSPCBO         7-13  28-24, 34-03,105-16
 CBLM       V SSPCBOI        7-14  57-41
 CBLM       V SSPCB1         7-15  28-12, 33-03
 CBLM       V SSPCB1I        7-16  57-44
 CBLM       V SSPDBL         7-18 101-43
 CBLM       V SSPDBM         7-17 101-40
 CBLM       V SSPIOADR       7-19  28-11, 33-02,101-39,105-15
  0114466   L ST_SER        73-35  73-31
  0000001   A STOPF         17-16
  0006125   L STORE_ERROR_
              OS            79-02  77-28
       17   R STP                W=1  S=16  N=0  CL=1  LIBNUM=6      30-19
  0154312   A STPASW%                LIBNUM=6        80-16, 81-23, 85-08,105-08,106-16,106-38,108-20,108-46
  0005135   L STPMISC       35-16  34-16
 CSYSUB     V STPSTUPD       8-08
 TDATA      V STRLIM         6-17
  0000000   A SV_REG
 CBLM       V SW_IP          7-20  43-34, 43-41, 88-36
  0006145   L SW_ONL        79-32  77-32
  0006407   L SWCCACHK      89-41   4-29
  0000002   A SWCCF         17-17
  0006415   L SWCCUCL       89-49   4-30
  0006416   L SWCCUCLA      90-03  89-17
  0006367   L SWCCUPD       89-01   4-31, 88-32
  0006272   L SWCOMPL       85-22  83-09, 92-39, 92-42
  0006344   L SWCU          87-15   4-32
  0006270   L SWINIT        84-01   4-33, 83-08
  0006401   L SWITCHCC      89-28   4-34, 87-19
  0006344   L SWSYC         87-16   4-35
 CTSD       V SYSTATE        8-37  18-34, 77-24, 86-30, 88-35, 89-31, 97-47,111-21
  0004746   D SYSTATEX      18-34  67-26, 67-27
        0   R TC            14-38 W=10  S=0  N=0  CL=1
        0   R TI                     LIBNUM=6        14-38, 14-39, 14-40, 14-44, 68-05, 91-31, 91-33,110-05,110-07
  0000223   A TI%F                   LIBNUM=6        18-03
  0016730   A TMCH%                  LIBNUM=6        22-38
        0   R TMRSW                  W=1  S=7  N=0  CL=1  LIBNUM=6      11-20, 34-39
'3A-CC COMMO
N SYSTEM INT
ERFACES'    T TOPTTL
  0600000   L TPATCH         1-43
  0002170   A TR_005877    122-12
```

PATCH HISTORY

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
0002154	A	TR_011364	121-16	
0002150	A	TR_011733	121-02	
0002160	A	TR_012279	121-26	
0002164	A	TR_012639	122-02	
0000451	A	TR_05877	30-29	
0001726	A	TR_11364	94-37	95-22, 95-34, 96-15, 97-31
0002016	A	TR_11733	42-28	50-31,103-26
0000460	A	TR_12279	31-21	31-31
0000567	A	TR_12639	36-40	
0001144	A	TR_3E780054	61-06	61-16
0000674	A	TR_3E790334	41-32	
0000627	A	TR_3E790427	39-16	39-34
0001306	A	TR_3E790441	18-05	23-33, 23-43, 66-19, 66-29, 67-38, 68-25, 68-35, 69-16, 69-26, 70-08, 70-18, 72-06, 72-16, 73-11, 73-21
0001112	A	TR_3E790474	44-15	44-25, 46-46, 58-25, 58-36
0001472	A	TR_3E790671	82-29	82-39, 84-07, 84-17
0001060	A	TR_3E790699	33-18	33-28, 47-21, 47-31, 50-04, 50-14, 52-33, 52-43, 54-09, 54-19, 56-15, 56-27
0000606	A	TR_3E790715	38-26	38-38
0001563	A	TR_3E790716	89-11	
0000364	A	TR_3E800006	24-43	25-08
0000407	A	TR_3E800056	27-13	27-46
0000641	A	TR_3E800099	40-08	
0000650	A	TR_3E800105	40-19	
MASACS	V	TRBLMSG	6-14	
0006753	L	TRORG	18-05	23-33, 24-43, 27-13, 30-29, 31-21, 33-18, 36-40, 38-26, 39-16, 40-08, 40-19, 41-32, 42-28, 44-15, 46-46, 47-21, 50-04, 50-31, 52-33, 54-09, 56-15, 58-25, 61-06, 66-19, 67-38, 68-25, 69-16, 70-08, 72-06, 73-11, 82-29, 84-07, 89-11, 94-37, 95-22, 96-15, 97-31,103-26
0007223	L	TRY1097	110-05	110-09
0006463	L	TRY916	91-31	91-35
TTYTBL	V	TTY_IP	6-23	87-32
TTYTBL	V	TTY_NG	9-01	
TTYTBL	V	TTY_OK	6-24	87-30
TTYTBL	V	TTY_PF	6-25	
TTYTBL	V	TTY_RL	6-26	87-28
	D U	TTYAPP		
CTTYT	V	TTYINIT	8-44	84-26
0006356	L	TTYIP	87-31	87-26
0000002	A	TTYO_		LIBNUM=13 57-27, 78-27, 79-46, 79-47, 80-47
0000004	A	TTYO_DEC		LIBNUM=13 57-26
0000005	A	TTYO_H_C		LIBNUM=13 78-26, 78-27, 80-46, 80-47
0000006	A	TTYO_L_X		LIBNUM=13 57-26, 57-27, 78-26, 78-27, 79-46, 80-46, 80-47
0000002	A	TTYO_SKP		LIBNUM=13 57-26
0000000	A	TTYO_WRD		LIBNUM=13 57-26, 78-26, 79-46, 80-46
0000003	A	TTYOCNT	57-28	78-28, 79-48, 80-48
0006355	L	TTYOK	87-29	87-20
0006354	L	TTYRL	87-27	87-23
	D U	TTYTBL		
TTYTBL	V	UCL	6-27	82-40, 84-27, 87-21
CBLM	V	UCOROFL	7-21	90-30, 90-30

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  VALUE  T  NAME        DEF/REF   ATTRIBUTES AND REFERENCES                                    CINIT          W77D

CBLM      V UCORONL        7-22  90-26, 90-28, 90-28
 0006357 L UPD%SW        88-28   4-36, 87-25
CSYSUB    V UPD_OTS        8-09  39-38
 0114411 L UPDATE        84-40  84-47
CBLM      V UPDCKEYS       7-23
 0114401 L UPDLOOP       84-31  85-04
CBLM      V UPDSTATZ       7-24  43-47, 92-12
       4 R UPD0                 W=1  S=10  N=0  CL=1  LIBNUM=6      92-28
       4 R UPD1                 W=1  S=11  N=0  CL=1  LIBNUM=6      92-28
       0 U W
TTYTBL    X W%RI          80-49  80-49
TDATA     V WDSTR          6-18
CSYSUB    V WPOST          8-11  43-17, 79-05
CSYSUB    V WPST           8-10  43-12
 0006171 L WRITE_PROTEC
            T_MYS         80-21  77-26
 0006125 L WRITE_PROTEC
            T_OS          79-01  77-27, 81-19
 0000322 A YT%F                 LIBNUM=6        77-18, 79-12, 92-25, 97-23,104-43,112-32
 0006752 L Z_CRITTS     103-22   4-37
 0025712 A ZBR%                 LIBNUM=6        76-31
 0025750 A ZER%                 LIBNUM=6        48-28,104-40
CSYSUB    V ZERO_TS        8-12  50-42,103-36
 0006260 L ZEROPT        83-13
 0026750 A ZMINT%               LIBNUM=6        22-42, 23-29, 76-35, 85-41, 86-16, 92-38, 93-10, 97-25,109-21
 0134350 A ZPT%                 LIBNUM=6        83-16
       0 R 1ST_TO        14-40 W=1   S=16  N=0  CL=1          68-15
       0 R 2ND_TO        14-44 W=1   S=17  N=0  CL=1
       0 R 25CTR         14-39 W=6   S=10  N=0  CL=1
       1 J 3ACC           1-09
 0000007 A 3X6_0                LIBNUM=3        49-17
```

PATCH HISTORY 0:17:53 2/06/81 ****

COUNT	FLAG	PAGE-LINE OF FLAG
7	E	27-20, 27-27, 42-17, 67-30, 84-45, 96-37, 97-06

CINIT W77D

7 FLAG(S) FOUND IN THIS ASSEMBLY