BELL TELEPHONE LABORATORIES, INCORPORATED

4-241

COMMON SYSTEMS
FOR USE WITH NO. 3 ESS
ARRANGED WITH 2-WIRE FEATURES
COMMON BASE LEVEL MONITOR
(CBLM)

ISSUE 7
02/05/81

AT&TCO
SPCS

PR-1C950-50
241 PAGES

PRINTED IN U.S.A.

SECTION DICTIONARY

NUMBER	NAME	MAXIMUM	ORIGIN	TYP	ADDRESS-MODIFICATION
01	CBLM	0003355		C	
02	CBLM1	0000176		C	
03	ENTAB	0000000		C	
04	CPATCH	0000670		C	
05	CPATCH1	0000420		C	
06	CPATCH2	0000756		C	
07	CPATCH3	0000120		C	
08	CPATCH4	0000213		C	
09	CPATCH5	0000137		C	
0A	CPATCH6	0000332		C	
0B	CPATCH7	0000000		C	
0C	TFAPCH2	0000000		C	
0D	TPATCH	0000000		C	

```
                                01        DBNAM   N033E3I3.OFF.DATABASE
                                02        RELNAM  NO3ESS
                                03        GETLIB  LIBRARY,MEMBER=MOPTBL
                                04        GETLIB  LIBRARY,MEMBER=SYSMAC
                                05        GETLIB  LIBRARY,MEMBER=SYSSYM
                                06        GETLIB  LIBRARY,MEMBER=PATCH2
0001000                         07        FIRSTOPTSS
0001000                         08        VERSION 3ACC,FIELD,ESS2E
0001000                         09        PATCHINIT
                                10 NO33E3I3.OFF.OPMS(0) DECK
                                11        DSQUAL  NO33E3I3
                                12        LISTING N,CRUNCH=Y,SYSOUT=N
                                13 ##################
                                14 ##
                                15 ## UNIX ID = NO3PAG
                                16 ##
                                17 ##################
                                18 ################################################
                                19 ###
                                20 ####  pid  date     time   rel
                                21 ###
                                22 #### cblm 1/20/81 19:59:58 7.1.1.1
                                23 ###
                                24 ################################################
                                25        NAME    CBLM
                                26        OREF    ON,ON('MACHOP','MACRO')


                                30 ## The following is a list of the valid csects for program CBLM
0001000                         31 CBLM   CSECT
0004355                         32 CBLM1  CSECT
                                33 DDELETE NOTE   1
0000000                         34 ENTAB  CSECT


                                37 ## The following csects are necessary for patching
0111432                         38 CPATCH CSECT
0112562                         39 CPATCH1 CSECT
0114107                         40 CPATCH2 CSECT
0115073                         41 CPATCH3 CSECT
0116057                         42 CPATCH4 CSECT
0116272                         43 CPATCH5 CSECT
0116442                         44 CPATCH6 CSECT
0121236                         45 CPATCH7 CSECT
                                46 DDELETE NOTE   1
0116774                         47 TFAPCH2 CSECT
0600000                         48 TPATCH CSECT
```

```
                01          GETLIB  MEMBER=GPMAC        # MUST GET GPMAC HERE SO THAT UT3MAC WILL
                                                          TAKE PRECEDENCE IF LOADED
                03          GETLIB  MEMBER=CCSYM
                04          GETLIB  MEMBER=TTYMAC
                05          GETLIB  MEMBER=TTYSYM
                06          GETLIB  MEMBER=SPMAC
                07          GETLIB  MEMBER=BSAIMAC
                08          GETLIB  MEMBER=CTVTAB
                09 TOPTTL   TEXT    '3A-CC COMMON SYSTEM INTERFACES'
                10 BOTTTL   TEXT    'X-74292 THRU X-74298          IV-C MAY,1973'
                11 PRINT    MEMOINIT DELETE=NO
                12 COLS     OPRSW   16
                13 *        OPRSW   1+2+8

0001000         17 CBLM     CSECT
```

```
01 # CBLM IS THE FOCAL POINT OF THE BASE LEVEL SYSTEM BY VIRTUE OF THE FACT
02 # THAT IT DETERMINES THE SEQUENCING OF ALL THE PROGRAMS.  THE SEQUENCE IS A
03 # SIMPLE LOOP.  SEE THE SECTION ENTITLED 'BASE LEVEL SEQUENCE' FOR THE
04 # ORDERING OF PROGRAMS.  THIS SECTION IS INTENDED TO SERVE AS A HIGH
05 # LEVEL FUNCTIONAL FLOW DIAGRAM OF THE OVERALL SYSTEM.
06
07 # FOUR OF THE COMMON SYSTEM MONITORS IN THE BASE LEVEL LOOP ARE
08 # CONTAINED IN THE REMAINING SECTIONS OF CBLM: SYSTEM STATE DETECTOR (SSD),
09 # SYSTEM STATUS PANEL CONTROLLER (SSPC),MULTISCAN FUNCTION CONTROLLER (MSFC), AND TIME MONITOR (TIMEM).
10 # THE REMAINING MONITORS ARE INDEPENDENT COMMON SYSTEM PROGRAMS:
11 # TAPE HANDLER (CTAPH), TELETYPEWRITER (TTY) HANDLER (CTTYH), AND UTILITIES (CUTIL).
12
13 # CBLM IS THUS DIVIDED IN FIVE SECTIONS, THE BASE LEVEL SEQUENCE
14 # PLUS THE FOUR MONITORS.  EACH SECTION IS SELF-CONTAINED AND
15 # INCLUDES SUBROUTINES AND IO ROUTINES DIRECTLY RELATED TO THE MONITOR
16 # IN ADDITION TO THE MONITOR ITSELF.  EACH SECTION BEGINS WITH AN OVERVIEW
17 # WHICH DEFINES THE MONITOR, EXPLAINS ITS OPERATION AND ITS CLIENT INTERFACES.
18 # THE FIRST TWO INGREDIENTS OF THE OVERVIEW ARE SELF-EXPLANATORY.
19 # THE CLIENT INTERFACES ARE GROUPED UNDER THE TITLE
20 # 'APPLICATION ROUTINES' AND DEFINE PRECISELY ALL ROUTINES,
21 # SUBROUTINES, TABLES, AND SYMBOLS ASSUMED TO EXIST
22 # BY THAT PARTICULAR MONITOR.
23 # THE MSFC SECTION ALSO CONTAINS TWO MULTISCAN FUNCTIONS CONTROLLED
24 # BY THE MSFC:  MANUAL MSF (MANMSF) AND MAIN STORE UPDATE (MASUPD).
25
26 # THE RECOMMENDED PROCEDURE FOR READING CBLM IS TO START WITH THE
27 # SEQUENCING SECTION AND THEN PROCEED TO WHICHEVER SECTION OR PROGRAM
28 # MAY BE OF INTEREST.
```

SSPC PG 70

MSFC PG 84

TIMEM PG 146

```
01        PUBLIC  AB
02        PUBLIC  ACTMSF
03        PUBLIC  ALWMASAU
04        PUBLIC  ALWMSF
05        PUBLIC  ALWMSFPG
06        PUBLIC  AUMAS
07        PUBLIC  AUUPDMAS
08        PUBLIC  AU_IP              # AUMASBLK
09        PUBLIC  BGNPSAU
10        PUBLIC  CHGSSP
11        PUBLIC  CK_OST
12        PUBLIC  CLRRPT
13        PUBLIC  COROFL             # SYSTATE
14        PUBLIC  CORONL             # SYSTATE
15        PUBLIC  CTAPHRTN
16        PUBLIC  CTTYBRTN
17        PUBLIC  CURABT
18        PUBLIC  CURMSF
19        PUBLIC  CUTILRTN
20        PUBLIC  DAYNAMES
21        PUBLIC  DGNUPD             # AUMASBLK
22        PUBLIC  EM_ACT
23        PUBLIC  EXSSP
24        PUBLIC  INHMASAU
25        PUBLIC  INHMSF
26        PUBLIC  INHMSFPG
27        PUBLIC  INITQ_IP           # SYSTATE
28        PUBLIC  INTMAX
29        PUBLIC  MAN_ONL            # SYSTATE
30        PUBLIC  MASID
31        PUBLIC  MAS_OOS            # SYSTATE
32        PUBLIC  MCH_OOS            # SYSTATE
33        PUBLIC  MONRTN
34        PUBLIC  MONSEQ
35        PUBLIC  MSFABT
36        PUBLIC  MSFANLZ
37        PUBLIC  MSFC
38        PUBLIC  MSFCHK
39        PUBLIC  MSFCRTN
40        PUBLIC  MSFDATA
41        PUBLIC  MSFGO
42        PUBLIC  MSFRXSCK
43        PUBLIC  MSFREQ
44        PUBLIC  MSFREQN
45        PUBLIC  MSFRTNWT
46        PUBLIC  NPUCOR             # AUMASBLK
47        PUBLIC  OFL_AU             # AUMASBLK
48        PUBLIC  OFL_OOS            # SYSTATE
49        PUBLIC  OFL_STBY           # SYSTATE
```

PUBLICS 22:40:42 2/05/81 ****

CBLM W77D

```
01        PUBLIC  OFL_UAV          # SYSTATE
02        PUBLIC  OMASUPD
03        PUBLIC  ONL_CC           # SYSTATE
04        PUBLIC  OPCLK
05        PUBLIC  OPCU
06        PUBLIC  OSA_FALT         # SYSTATE
07        PUBLIC  OSA_TBLA         # SYSTATE
08        PUBLIC  OSA_PGM          # SYSTATE
09        PUBLIC  OSM_OFL          # SYSTATE
10        PUBLIC  OTSUPD
11        PUBLIC  PKEY             # SYSTATE
12        PUBLIC  PKEYM            # AUMASBLK
13        PUBLIC  PWR_ONL          # SYSTATE
14        PUBLIC  QOFLCC
15        PUBLIC  RXSBPUSH
16        PUBLIC  RXS_REQ
17        PUBLIC  REQ_UPD
18        PUBLIC  RESETPT
19        PUBLIC  RMVCU
20        PUBLIC  RMV_CC
21        PUBLIC  RMV_MAS
22        PUBLIC  RMV_SSP
23        PUBLIC  RSTCU
24        PUBLIC  RSTCUPF
25        PUBLIC  RST_IP           # SYSTATE
26        PUBLIC  RST_SSP
27        PUBLIC  SETCLK
28        PUBLIC  SSPAB0
29        PUBLIC  SSPAB1
30        PUBLIC  SSPCB0
31        PUBLIC  SSPCB0I
32        PUBLIC  SSPCB1
33        PUBLIC  SSPCB1I
34        PUBLIC  SSPDBH
35        PUBLIC  SSPDBL
36        PUBLIC  SSPDBM
37        PUBLIC  SSPEX
38        PUBLIC  SSPIOADR
39        PUBLIC  SSPRMV
40        PUBLIC  SSPRST
41        PUBLIC  SSPSB0
42        PUBLIC  SSPSB1
43        PUBLIC  SSPSB2
44        PUBLIC  SSPSB3
45        PUBLIC  SSPSB4
46        PUBLIC  SSPTIMER
47        PUBLIC  SSP_OOS          # SYSTATE
48        PUBLIC  STOPEX
49        PUBLIC  STOPPSAU
```

PUBLICS

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CBLM W77D

```
01        PUBLIC  STPSAUON
02        PUBLIC  SW_IP                 # SYSTATE
03        PUBLIC  TIMSYNC
04        PUBLIC  TST                   # SYSTATE
05        PUBLIC  TST_ONL               # SYSTATE
06        PUBLIC  UCORDSR               # SYSTATE
07        PUBLIC  UCOROFL               # SYSTATE
08        PUBLIC  UCORONL               # SYSTATE
09        PUBLIC  UPDAKEYS
10        PUBLIC  UPDCKEYS
11        PUBLIC  UPDOMAS
12        PUBLIC  UPDSTATS
13        PUBLIC  UPDSTATZ
14        PUBLIC  UPD_IP                # AUMASBLK
15        PUBLIC  UPD_DON               # SYSTATE
16        PUBLIC  UQOFLCC
17        PUBLIC  WAIT
```

```
01 BLMMA  EXTERN  CLKCHGD      # SOFTWARE CLOCK IS BEING CHANGED (SUBR)
02 BLMMA  EXTERN  DGNCUMM      # MSF NUMBER OF CU DIAGNOSTICS (SYMBOL)
03 BLMMA  EXTERN  HRTBL        # DEFINITION OF TIME MONITOR HOUR FCNS
                                 (TABLE)
05 BLMMA  EXTERN  INITQEND     # INITIALIZATION INTERVAL JUST ENDED (SUBR)
06 BLMMA  EXTERN  MINTBL       # DEFINITION OF TIME MONITOR MINUTE FCNS
                                 (TABLE)
08 BLMMA  EXTERN  MONTBL       # DEFINITION OF MAJOR APPLICATION MONITORS
                                 (TABLE)
10 BLMMA  EXTERN  MSFAPCTL     # APPLICATION MSF SEQUENCE CONTROL (SUBR)
11 BLMMA  EXTERN  MSFMSK       # DEFINED MSFS (SYMBOL)
12 BLMMA  EXTERN  MSFOFL       # MSFS THAT AFFECT OFF-LINE CU (SYMBOL)
13 BLMMA  EXTERN  MSFTBL       # DEFINITION OF MSFS (TABLE)
14 BLMMA  EXTERN  PTRESET      # CONSTANT USED TO PRESET PT (SYMBOL)
15 BLMMA  EXTERN  SECTBL       # DEFINITION OF TIME MONITOR SECOND FCNS
                                 (TABLE)
17 BLMMA  EXTERN  UPD_OMAS     # MSF NUMBER OF OMAS UPDATE FCN (SYMBOL)
                                 (TABLE)
19 CINIT  EXTERN  BOOT
20 CINIT  EXTERN  CLPTF
21 CINIT  EXTERN  ERPHG
22 CINIT  EXTERN  ERPIM
23 CINIT  EXTERN  ERPKEY
24 CINIT  EXTERN  ERPMCH
25 CINIT  EXTERN  ERPMS
26 CINIT  EXTERN  ERPSS
27 CINIT  EXTERN  ERPSSP
28 CINIT  EXTERN  ERRPRTCK
29 CINIT  EXTERN  MCHUPENT
30 CINIT  EXTERN  MCHUPLEN
31 CINIT  EXTERN  OFL_HG
32 CINIT  EXTERN  OMASTEST
33 CINIT  EXTERN  OPPOSTMO
34 CINIT  EXTERN  OSANITY
35 CINIT  EXTERN  OSANUCL
36 CINIT  EXTERN  SANITY
37 CINIT  EXTERN  SWCCACHK
38 CINIT  EXTERN  SWCCUCL
39 CINIT  EXTERN  SWITCHCC
40 CSYSUB EXTERN  ADD16
41 CSYSUB EXTERN  BCDXBIN
42 CSYSUB EXTERN  CLR_WRDS
43 CSYSUB EXTERN  CSYSUB
44 CSYSUB EXTERN  EXCOFLMG
45 CSYSUB EXTERN  EXCOFLPG
46 CSYSUB EXTERN  INIT_OCC
47 CSYSUB EXTERN  INITOST
48 CSYSUB EXTERN  INITST
49 CSYSUB EXTERN  MOVST
```

```
01 CSYSUB EXTERN  REPT_ERR
02 CSYSUB EXTERN  RGCHKADR
03 CSYSUB EXTERN  SBUMCH
04 CSYSUB EXTERN  SENDIO
05 CSYSUB EXTERN  SIO
06 CSYSUB EXTERN  ST2_13
07 CSYSUB EXTERN  ST2_5
08 CSYSUB EXTERN  ST2_6
09 CSYSUB EXTERN  STPSTUPD
10 CSYSUB EXTERN  SUB16
11 CSYSUB EXTERN  TENZERO
12 CSYSUB EXTERN  TIMOUTX
13 CSYSUB EXTERN  UNWPOST
14 CSYSUB EXTERN  WPOST
15 CTAPH  EXTERN  CTAPH
16 CTSD   EXTERN  AUMASCTL      # CONTROL WORDS FOR MAS AUDIT
17 CTSD   EXTERN  CCOLOOPS
18 CTSD   EXTERN  CCLRTBL
19 CTSD   EXTERN  COUNT
20 CTSD   EXTERN  CTSD
21 CTSD   EXTERN  CURFCN        # CONTAINS IDENTITY OF THE LAST ACTIVE TIME
                                  FUNCTION
23 CTSD   EXTERN  CURMON        # CONTAINS IDENTITY OF THE LAST ACTIVE
                                  APPLICATION MONITOR
25 CTSD   EXTERN  DAYOWEEK
26 CTSD   EXTERN  DAYS
27 CTSD   EXTERN  DGREQ
28 CTSD   EXTERN  ERPRTCTL
29 CTSD   EXTERN  HG_IMAGE
30 CTSD   EXTERN  HOURS
31 CTSD   EXTERN  IM_IMAGE
32 CTSD   EXTERN  INITLVL       # CURRENT INITIALIZATION LEVEL NUMBER AND
                                  RECYCLE BIT
34 CTSD   EXTERN  INITQCD       # INITIALIZATION COUNT DOWN WHILE IN
35 CTSD   EXTERN  INTCNT        # NUMBER OF INTERRUPTS WHICH HAVE OCCURRED
                                  SINCE LAST ENTRY TO STATD. USED TO DETECT
                                  STUCK INTERRUPTS.
38 CTSD   EXTERN  MASERCNT
39 CTSD   EXTERN  MASTATE
40 CTSD   EXTERN  MCHFCN        # INTER-CC COMMUNICATION
41 CTSD   EXTERN  MINUTES
42 CTSD   EXTERN  MONTHS
43 CTSD   EXTERN  MSFMTX
44 CTSD   EXTERN  MSFPROG
45 CTSD   EXTERN  RXSCTL
46 CTSD   EXTERN  SECONDS
47 CTSD   EXTERN  SSPMAP
48 CTSD   EXTERN  SYSTATE       # CONTAINS SYSTEM STATE INFORMATION
49 CTSD   EXTERN  SYSTIM
```

EXTERNS

22:40:42 2/05/81 ****

CBLM W77D

```
01 CTSD    EXTERN  YEARS
02 CTTYH   EXTERN  CTTYB
03 CTTYT   EXTERN  TTYINIT          # INITIALIZE ALL TTYCS AND MEMORY (SUBR)
04 CUTIL   EXTERN  CUTILBAS
05 CUTIL   EXTERN  FIXDMPST
06 LAYOUT  EXTERN  HGAREA           # BASE OF HOLD-GET AREA
07 LAYOUT  EXTERN  TTY_MFA
08 MASACS  EXTERN  AUMASBLK         # AUDIT MAS VS. OMAS (SUBR)
09 MASACS  EXTERN  MASCIOSC
10 MASACS  EXTERN  MASONFOP
11 MASACS  EXTERN  MASONOFF         # MOVE CONTENTS OF MAS TO OMAS (SUBR)
12 MASACS  EXTERN  WOPS             # WRITE OMAS (SUBR)
13 MASACS  EXTERN  WPS              # WRITE OMAS (SUBR)
14 TDATA   EXTERN  STRLIM
15 TDATA   EXTERN  WPTBL
16 TTYAPP  EXTERN  LINKRDY
17 TTYAPP  EXTERN  MFAD             # PRINT OUTPUT MSG OUT OF MFA (SUBR)
18 TTYTBL  EXTERN  COMP
19 TTYTBL  EXTERN  OXFL
20 TTYTBL  EXTERN  TTY_IP           # TTY INPUT MESSAGE RESPONSE (SYMBOL)
21 TTYTBL  EXTERN  TTY_NG           # TTY INPUT MESSAGE RESPONSE (SYMBOL)
22 TTYTBL  EXTERN  TTY_OK           # TTY INPUT MESSAGE RESPONSE (SYMBOL)
23 TTYTBL  EXTERN  TTY_PF           # TTY INPUT MESSAGE RESPONSE (SYMBOL)
24 TTYTBL  EXTERN  TTY_RL           # TTY INPUT MESSAGE RESPONSE (SYMBOL)
25 TTYTBL  EXTERN  UCL              # UNCONDITIONAL ACTION OPTION FLAG (SYMBOL)
26 DPATCH  NOTE    REMOVE EXTERNS TO NEXT DPATCH NOTE
27 BLMMA   EXTERN  P_MSFRCR
28 BLMMA   EXTERN  P_MSFRWT
29 BLMMA   EXTERN  TV_DSPCH
30 BLMMA   EXTERN  TV_MSFC
31 BLMMA   EXTERN  TV_MSFCR
32 DPATCH  NOTE    REMOVE EXTERNS TO HERE
```

```
                        01 # STATE DETECTOR
0000004                 02 SYSTATER EQUR  4

                        04 # SYSTEM STATUS PANEL CONTROLLER
0000006                 05 SSPCKEYS EQUR  6

                        07 # TIME MONITOR
0000007                 08 SYSTIMR EQUR   R7
0000010                 09 COUNTR EQUR    R8

                        11 # SUBROUTINE MSFANLZ
0000011                 12 ACMSFCODE EQUR R9

                        14 # SUBROUTINE MSFR%SCK
0000002                 15 R%SCTLR EQUR   R2

                        17 # SUBROUTINE TIMINC
0000005                 18 DAY    EQUR    R5
0000006                 19 MONTH  EQUR    R6

                        21 # MSF_UPD_OMAS
0000006                 22 AUMASCTLR EQUR R6

                        24 # ERPRTCTL BIT LAYOUT
0000010                 25 OFL_ERR EQU    8

                        27 # MISC.
0000060                 28 RWMSK  EQU     0(60)
0134203                 29 WWPR   EQU     0(134203)
0130200                 30 NWRITE EQU     0(130200)
```

```
                                  01 # SYSTEM STATUS PANEL CONTROLLER
0016160                           02 SSPIOADR EQU   PACK(6,3X6_0 6,3X6_0) # SSP IO ADDRESS
0000002                           03 SSPRD  EQU     B(10)                 # SSP READ OPCODE
0000001                           04 SSPWRI EQU     B(01)                 # SSP WRITE OPCODE
0000036                           05 SSPCB0 EQU     3X6_0*E(2)|SSPRD      # SSP COMMON SYSTEM BUFFER 0
0000072                           06 SSPCB1 EQU     3X6_3*E(2)|SSPRD      # SSP COMMON SYSTEM BUFFER 1
0000132                           07 SSPAB0 EQU     3X6_6*E(2)|SSPRD      # SSP APPLICATION BUFFER 0
0000162                           08 SSPAB1 EQU     3X6_9*E(2)|SSPRD      # SSP APPLICATION BUFFER 1
0000312                           09 SSPTIMER EQU   3X6_17*E(2)|SSPRD     # SSP TIMER RESET
0000056                           10 SSPSB0 EQU     3X6_1*E(2)|SSPRD      # SSP STATUS BUFFER 0
0000066                           11 SSPSB1 EQU     3X6_2*E(2)|SSPRD      # SSP STATUS BUFFER 0
0000116                           12 SSPSB2 EQU     3X6_4*E(2)|SSPRD      # SSP STATUS BUFFER 0
0000126                           13 SSPSB3 EQU     3X6_5*E(2)|SSPRD      # SSP STATUS BUFFER 0
0000146                           14 SSPSB4 EQU     3X6_7*E(2)|SSPRD      # SSP STATUS BUFFER 0
0000151                           15 SSPDBL EQU     3X6_8*E(2)|SSPWRI     # SSP BUFFER ADDRESS FOR DB(7,0)
0000215                           16 SSPDBM EQU     3X6_10*E(2)|SSPWRI    # SSP BUFFER ADDRESS FOR DB(15,8)
0000225                           17 SSPDBH EQU     3X6_11*E(2)|SSPWRI    # SSP BUFFER ADDRESS FOR DB(23,16)
                                  18 SSPMAPADRS LAYOUT 6,CLASS=PERBLK     # 3X6 ADDRESSES FOR SSP STATUS BUFFERS
0001000                  -001-    19 SSPMAPADRS
                                  20         ITEM    8,3X6_0*E(2)|SSPWRI # KEY BUFFER 0 (COMMON SYSTEM)
                                  21         ITEM    8,3X6_3*E(2)|SSPWRI # KEY BUFFER 1 (COMMON SYSTEM)
                                  22         ITEM    8,3X6_6*E(2)|SSPWRI # KEY BUFFER 2 (APPLICATION)
                                  23         ITEM    8,3X6_9*E(2)|SSPWRI # KEY BUFFER 3 (APPLICATION)
                                  24         ITEM    8,3X6_1*E(2)|SSPWRI # STATUS BUFFER 0 (CU STATUS)
                                  25         ITEM    8,3X6_2*E(2)|SSPWRI # STATUS BUFFER 1 (MISC)
                                  26         ITEM    8,3X6_4*E(2)|SSPWRI # STATUS BUFFER 2 (PERIPHERY)
                                  27         ITEM    8,3X6_5*E(2)|SSPWRI # STATUS BUFFER 3 (ALARMS)
                                  28         ITEM    8,3X6_7*E(2)|SSPWRI # STATUS BUFFER 4 (PERIPHERY)
                                  29         ITEM    8,3X6_8*E(2)|SSPWRI # STATUS BUFFER 5 (DB7-0)
                                  30         ITEM    8,3X6_10*E(2)|SSPWRI # STATUS BUFFER 6 (DB 15-8)
                                  31         ITEM    8,3X6_11*E(2)|SSPWRI # STATUS BUFFER 7 (DB23-16)
                                  32         LOEND
SSPMAPADRS                -003-   33 #
00 |  KEY BUFFER 1 (COMMON SYSTEM)                |  KEY BUFFER 0 (COMMON SYSTEM)
01 |  KEY BUFFER 3 (APPLICATION)                  |  KEY BUFFER 2 (APPLICATION)
02 |  STATUS BUFFER 1 (MISC)                      |  STATUS BUFFER 0 (CU STATUS)
03 |  STATUS BUFFER 3 (ALARMS)                    |  STATUS BUFFER 2 (PERIPHERY)
04 |  STATUS BUFFER 5 (DB7-0)                     |  STATUS BUFFER 4 (PERIPHERY)
05 |  STATUS BUFFER 7 (DB23-16)                   |  STATUS BUFFER 6 (DB 15-8)
   | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
0001000 01 000000 034435 ------          -003- 54       VFD     8,3X6_3*E(2)|SSPWRI 8,3X6_0*E(2)|SSPWRI
0001001 01 000001 070531 ------          -003- 55       VFD     8,3X6_9*E(2)|SSPWRI 8,3X6_6*E(2)|SSPWRI
0001002 01 000002 032455 ------          -003- 56       VFD     8,3X6_2*E(2)|SSPWRI 8,3X6_1*E(2)|SSPWRI
```

DATA TABLES

22:40:42 2/05/81 ****

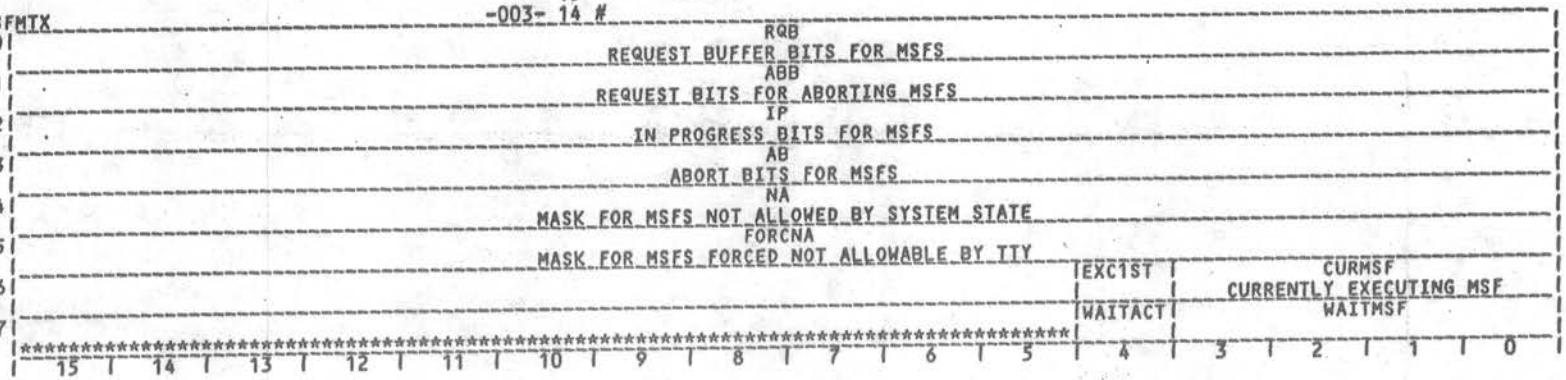
CBLM W77D

```
0001003 01 000003 052515 ------          -003- 01        VFD     8,3X6_5*E(2)|SSPWRI 8,3X6_4*E(2)|SSPWRI
0001004 01 000004 064545 ------          -003- 02        VFD     8,3X6_8*E(2)|SSPWRI 8,3X6_7*E(2)|SSPWRI
0001005 01 000005 112615 ------          -003- 03        VFD     8,3X6_11*E(2)|SSPWRI 8,3X6_10*E(2)|SSPWRI
```

```
                                    01 SSPCKEYS LAYOUT 1,CLASS=REGISTER   # COMMON SYSTEM KEY FUNCTIONS OF SSP
                                    02 # SSPCB0 KEY FUNCTIONS
                                    03 EAEN    ITEM    1                  # MANUAL EMERGENCY ACTION ENABLE REQUEST
                                    04 LOCKM   ITEM    1                  # MANUAL LOCK REQUEST
                                    05 SELCU0  ITEM    1                  # SELECT CU0 FOR FORCE OR LOCK
                                    06 SELCU1  ITEM    1                  # SELECT CU1 FOR FORCE OR LOCK
                                    07 CLRTTY  ITEM    1                  # MANUAL CLEAR & INIT TTYS REQUEST
                                    08 R%SEXC  ITEM    1                  # MANUAL REPEAT & STEP EXECUTE REQUEST
                                    09 RLDPROG ITEM    1                  # MANUAL RELOAD PROGRAM EA REQUEST
                                    10         ITEM    1                  # SPARE

                                    12 # SSPCB3 KEY FUNCTIONS
                                    13 LOCKP   ITEM    1                  # PROGRAM LOCK ENABLE
                                    14 FORCE   ITEM    1                  # MANUAL OR PROGRAM FORCE REQUEST
                                    15                                    # PROGRAM FORCE IS PART OF LOCK SEQUENCE
0001006                             16 R%SF    ITEM    1                  # REPEAT & STEP FAIL DRIVER & LAMP
                                    17 R%SP    ITEM    1                  # REPEAT & STEP PASS DRIVER & LAMP
                                    18 DISAREM ITEM    1                  # DISABLE REMOTE PANEL
                                    19 ALTBUS  ITEM    1                  # ALTERNATE POWER BUS OF SSP IN USE
                                    20 EM_ACT  ITEM    1                  # EMERGENCY ACTION FLAG
                                    21 EAEXC   ITEM    1                  # MANUAL EMERGENCY ACTION EXECUTE REQUEST
                                    22         LOEND
SSPCKEYS                        -003- 23 #
001 | EAEXC | EM_ACT | ALTBUS | DISAREM | R%SP | R%SF | FORCE | LOCKP | SPARE | RLDPROG | R%SEXC | CLRTTY | SELCU1 | SELCU0 | LOCKM | EAEN |
    |  15   |  14    |  13    |  12     |  11  |  10  |  9    |  8    |  7    |  6      |  5     |  4     |  3     |  2     |  1    |  0   |

                                    32 # DEFINE CONSTANTS TO BE USED TO INITIALIZE COMMON BUFFERS.
                                    33 # BUFFERS MAY NOT BE ARBITRARILY ZEROED DUE TO LOCK BITS.
                                    34 # CONSTANTS ARE USED IN CONJUNCTION WITH THE CHGSSP SUBROUTINE.
                        7770436     35 SSPCB0I EQU     ¬ES(SELCU0,SELCU1,LOCKM)*E(8)!SSPCB0
                        7736072     36 SSPCB1I EQU     ¬E(S(EM_ACT)-8,S(FORCE)-8,S(LOCKP)-8)*E(8)!SSPCB1



                                    42 R10     LAYOUT                     # FORMAT OF SSP CONTROL WORD
                                    43 SSPOP   ITEM    2                  #OP CODE
0001006                             44                                    # 00-SPARE
0001006                             45                                    # 01-WRITE (CLEAR&GATE)
0001006                             46                                    # 10-READ
0001006                             47                                    # 11-SPARE
                                    48 SSPADR  ITEM    6                  #3X6 BUFFER ADDRESS
                                    49 SSPDATA ITEM    8                  #DATA FOR WRITE OPERATION
                                    50         LOEND
```

```
R10_______________________________-003- 01 #_____________________________________________________________________________
001|                       SSPDATA                          |                   SSPADR                       |    SSPOP    |
   |-----------DATA FC' WRITE OPERATION---------------------|-----------3X6 BUFFER ADDRESS------------------|   OP CODE   |
   |  15  |  14  |  13  |  12  |  11  |  10  |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |


                    0000002        10 FEB      EQU    2
                    0000004        11 APRIL    EQU    4
                    0000006        12 JUNE     EQU    6
                    0000011        13 SEPT     EQU    9
                    0000013        14 NOV      EQU    11


                    0121334        18 MASID    EQU    41692          # THIS CONSTANT WHEN PRESENT IN WORD MAS_STAT
0001006                            19                                # INDICATES THE CORRESPONDING MAS IS IN DATE
0001006                            20                                # 41692 IS A RANDOM NUMBER


                    0000001        24 MASERMAX EQU    1              # MAXIMUM NUMBER OF MAS ERRORS WHICH WILL BE
                                                                       TOLERATED BEFORE THE MAS IS REMOVED FROM
                                                                       SERVICE


                    7777775        30 INTMAX EQU      -3             # MINUS THE MAXIMUM NUMBER OF INTERRUPTS
                                                                       WHICH WILL BE TOLERATED BEFORE AN EXTERNAL
                                                                       INTERRUPT WILL BE REMOVED.


                    0000007        36 ONL_TMRSW EQU  7               # BIT POSITION OF TEST MODE SWITCH IN SWITCH
                                                                       REGISTER 1
                    0000012        38 ONL_MANKEY EQU 10              # BIT POSITION OF MANUAL KEY IN SWITCH
                                                                       REGISTER 1
                    0000011        40 ONL_PWRKEY EQU 9               # BIT POSITION OF POWER KEY IN SWITCH
                                                                       REGISTER 2
```

```
                    01 MSFMTX LAYOUT  8,CLASS=FLTBLK
                    02 RQB    ITEM    16          #REQUEST BUFFER BITS FOR MSFS
                    03 ABB    ITEM    16          #REQUEST BITS FOR ABORTING MSFS
                    04 IP     ITEM    16          #IN PROGRESS BITS FOR MSFS
                    05 AB     ITEM    16          #ABORT BITS FOR MSFS
                    06 NA     ITEM    16          #MASK FOR MSFS NOT ALLOWED BY SYSTEM STATE
                    07 FORCNA ITEM    16          #MASK FOR MSFS FORCED NOT ALLOWABLE BY TTY
                    08 CURMSF ITEM    4           #CURRENTLY EXECUTING MSF
                    09 EXC1ST ITEM    1           # 1ST EXECUTION OF A MSF
                    10        LOSKIP
                    11 WAITMSF ITEM   4           #NUMBER OF LAST MSF TO CALL WAIT SUBR
                    12 WAITACT ITEM   1           #AN MSF IS WAITING VIA THE WAIT SUBR
                    13        LOEND
MSFMTX          -003- 14 #
```




```
                    44 # THE 2B APPLICATION, BECAUSE OF COMPATIBILITY RESTRICTIONS WITH
                    45 # THE NO. 2 ESS, REQUIRES SOME SYMBOLS AT ASSEMBLY TIME. THESE
                    46 # SYMBOLS ARE DEFINED BY THE MACRO MSFMTXSYM. THE MACRO IS CALLED
                    47 # HERE TO INSURE THAT THE SYMBOLS ARE CORRECT. THEY MUST CORRESPOND TO
                    48 # RQB,IP,AB, AND NA. HOWEVER, THE 2B REQUIRES THESE SYMBOLS
                    49 # AS OFFSETS FROM THE BEGINNING OF CTSD. MSFMTX IS ASSUMED TO
                    50 # EQUAL CTSD+1. RQB,IP,AB, AND NA ARE DEFINED RELATIVE TO MSFMTX.
                    51 # HENCE THE 2B SYMBOLS SHOULD EQUAL RQB+1,IP+1,AB+1, AND NA+1
                    52 # RESPECTIVELY. THE FOLLOWING EQU'S CHECK THIS CORRESPONDENCE. IF
                    53 # ANY OF THE EQU'S RESULTS IN AN ATTEMPT TO CHANGE THE SYMBOL VALUE
                    54 # AS DEFINED BY MSFMTXSYM, AN M-FLAG WILL BE GENERATED FORCING
                    55 # THE INCONSISTENTY TO BE RESOLVED.
                    56 #   MSFMTXSYM
0000001             57 REQUEST2B EQU  RQB+1
0000003             58 INPROG2B EQU   IP+1
```

```
0000004          01 ABORT2B EQU    AB+1
0000005          02 ALLOW2B EQU    NA+1



                 08 R%SCTLR LAYOUT 1,CLASS=REGISTER
                 09 R%S_MSF ITEM   4                  # MSF CURRENTLY UNDER REPEAT AND STEP
                 10 R%S_ACT ITEM   1                  # STEP OR REPEAT IS ACTIVE
                 11 R%S_RPT ITEM   1                  # REPEAT IS THE MODE, THE ALTERNATIVE IS STEP
                 12 R%SBPUSH ITEM  1                  # SET BY SSPC WHEN R%SEXC BUTTON IS FIRST
                                                        DETECTED IN THE PUSHED STATE.
               -002- 14 #*#*#*#*#*#*# R%SBPUSH WILL APPEAR AS R%SBPUS IN PICTURES
                 15 R%S_REQ ITEM   1                  # REQUEST FROM REPEAT AND STEP CONTROLLER
                 16 R%S_NP ITEM    1                  # DO NOT PRINT MSF RESULTS, LIGHT PASS/FAIL
                                                        LAMPS ONLY.
                 18 R%S_1STP ITEM  1                  # SET WHEN 1ST PASS MESSAGE PRINTED
               -002- 19 #*#*#*#*#*#*# R%S_1STP WILL APPEAR AS R%S_1ST IN PICTURES
                 20       LOEND
R%SCTLR        -003- 21 #
001
  |**********************************************|R%S_1ST|R%S_NP |R%S_REQ|R%SBPUS|R%S_RPT|R%S_ACT|        R%S_MSF       |
  | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
```

```
                                    01 AUMASCTLR LAYOUT 2,CLASS=REGISTER  # USED BY MAS UPDATE AND AUDIT
                                    02 UPD_PTR ITEM   16                  # POINTER TO CURRENT 16-WORD BLOCK
                                    03 UPD_IP ITEM    1                   # UPDATE FUNCTION IS IN PROGRESS
                                    04 AU_IP  ITEM    1                   # MAS AUDIT IS IN PROGRESS
                                    05 NODSR  ITEM    1                   # DO NOT PLACE SYSTEM INTO DSR MODE
                                    06 EOST   ITEM    1                   # END OF STORE--COMPLETION OF ONE AUDIT OR
                                                                            UPDATE
                                    08 PKEYM  ITEM    1                   # POWER KEY MEMORY.  SET BY POWER KEY AUDIT
                                                                            AND RESET AFTER USE BY THE CONCERNED PROGRA
                                    10 DGNUPD ITEM    1                   # FAST UPD MODE USED BY DIAGNOSTIC PROGRAMS
                                                                            AFTER A POWER DOWN HAS WIPED OUT THE OMAS
                                                                            CONTENT
                                    13 OFL_AU ITEM    1                   # A TTY REQUEST FOR AN AUDIT OF THE OMAS IS
                                                                            BEING PROCESSED
                                    15 NPUCOR ITEM    1                   # THE ATTEMPTED CORRECTION OF AN UNCORRECTABL
                                                                             E LOCATION WILL NOT GENERATE A RCOVRY MAS ER
                                                                            MESSAGE
                                    18 OTS_UPD ITEM   1                   # UPDATE THE OTHER TEMPORARY STORE ONLY
                                    19 MCH_UPD ITEM   1                   # UPDATE VIA THE MAINTENANCE CHANNEL
                                    20 UCL_UPD ITEM   1                   # DO AN UNCONDITIONAL UPDATE
                                    21 COMP_UPD ITEM  1                   # UPDATE OFF-LINE WITH THE COMPLMENT OF THE
                                                                            ON-LINE
                               -002- 23 #*#*#*#*#*#*# COMP_UPD WILL APPEAR AS COMP_UP IN PICTURES
                                    24 UPD_ERR ITEM   1                   # SOME WORDS WERE SKIPPED BY THE UPDATE
                                    25       LOEND
AUMASCTLR                      -003- 26 #
```

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
00	UPD_PTR															
	POINTER TO CURRENT 16-WORD BLOCK															
01	**********	UPD_ERR	COMP_UP	UCL_UPD	MCH_UPD	OTS_UPD	NPUCOR	OFL_AU	DGNUPD	PKEYM	EOST	NODSR	AU_IP	UPD_IP		

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```
                                    01 MSFTBL LAYOUT  4,CLASS=FLTBLK
                                    02        ITEM    ADDR              # MSF ENTRY POINT
                                    03 MSFAPCTLB ITEM 1                 # CALL SUBROUTINE MSFAPCTL AT MSF COMPLETION
                               -002- 04 #*#*#*#*#*#*# MSFAPCTLB WILL APPEAR AS MSFAPCT IN PICTURES
                                    05        ITEM    16                # MSFRELA
                                    06        ITEM    16                # MSFRELB
                                    07        LOEND
MSFTBL                         -003- 08 #
00 |
   |*************************************************************************************|MSFAPCT|
01 |                                                                                      |       | MSF ENTRY POINT
   |--------------------------------------------------------------------------------------|       |
02 |
   |--------------------------------------------------------------------------------------
03 |                                        MSFRELA
   |--------------------------------------------------------------------------------------
   |                                        MSFRELB
   | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

                                    26 RD     LAYOUT                    # FLAG USED BY MAS AUDIT/UPDATE ROUTINE
                                    27        ITEM    1
                                    28 TS_ADR ITEM    1                 # 0--PROTECTED STORE ADDRESS
 0001006                            29                                  # 1--TEMPORARY STORE ADDRESS
                                    30        LOEND
RD                             -003- 31 #
00 |
   |*************************************************************************************************|TS_ADR |
   | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

                                    42 CURFCN LAYOUT  2
                                    43        ITEM    16                # IDENTITY OF LAST ACTIVE FUNCTION IN A TIME
                                                                          TABLE
                                    45        ITEM    1
                                    46 YRINC  ITEM    1
                                    47 MONINC ITEM    1
                                    48 DAYINC ITEM    1
                                    49 HRINC  ITEM    1
                                    50 MININC ITEM    1
                                    51        LOEND
```

```
CURFCN                                  -003- 01 #
00|
                                        IDENTITY OF LAST ACTIVE FUNCTION IN A TIME TABLE
                                                                                  |MININC | HRINC |DAYINC |MONINC | YRINC |
01|*************************************************************************************|       |       |       |       |       |
  |  15 |  14 |  13 |  12 |  11 |  10 |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |
```

```
                                        15 R0     LAYOUT
                                        16 ABTB   ITEM    1          # ABTB=1 EXECUTE ABORT
                                        17                         # ABTB=0 EXECUTE MSF, THAT IS MSF IS IP
0001006                                 18 1STB   ITEM    1        # 1STB=0 THIS IS PER SCAN ENTRY
                                        19                         # 1STB=1 THIS IS THE FIRST ENTRY
0001006                                 20 ABRQB  ITEM    1        # ABRQB=0 ABORT AN IP MSF (ABTB=1)
0001006                                 21                         # ABRQB=1 ABORT A REQUESTED MSF (ABTB=1)
0001006                                 22                         # IF ABTB=1 ABRQB IS GUARANTEED 0
                                        23        LOEND
R0                                  -003- 24 #
00|                                                                               |ABRQB | 1STB | ABTB |
  |*************************************************************************************|      |      |
  |  15 |  14 |  13 |  12 |  11 |  10 |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |
```

```
                                        35 R6     LAYOUT
                                        36 PASSFLAG ITEM  1          # PASSFLAG=0 MSF HAS FAILED, PASSFLAG=1 MSF
                                                                     HAS PASSED
                                    -002- 38 #*#*#*#*#*#*# PASSFLAG WILL APPEAR AS PASSFLA IN PICTURES
                                        39 SUPPL  ITEM    1          # FLAG--SUPPLEMENT EXISTS FOR THIS MESSAGE
                                        40 PRINTFLG ITEM  1          # MSF HAS SET UP MESSAGE TO BE PRINTED
                                    -002- 41 #*#*#*#*#*#*# PRINTFLG WILL APPEAR AS PRINTFL IN PICTIIRES
                                        42        LOEND
R6                                  -003- 43 #
00|                                                                               |PRINTFL| SUPPL |PASSFLA|
  |*************************************************************************************|      |      |
  |  15 |  14 |  13 |  12 |  11 |  10 |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |
```

DATA TABLES

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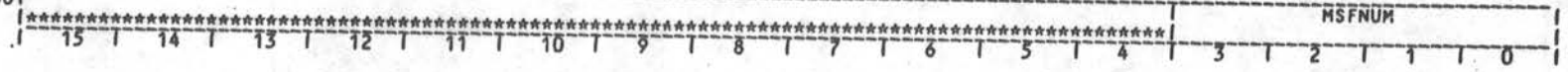
```
                                    01 R2     LAYOUT
                                    02 MSFNUM ITEM    4                 # STANDARD FOR PASSING MSF NUMBER
R2                                  03        LOEND
001                        -003-    04 #
```




```
                                    15 SYSTATER LAYOUT 2,CLASS=REGISTER   # IMAGE OF SYSTATE WORD (SEE COMMENTS AT
                                                                            SYSTEM STATE DETECTOR)
                                    17 OFL_STBY ITEM  1                   # OFF-LINE STANDBY
                           -002-    18 ##########OFL_STBY WILL APPEAR AS OFL_STB IN PICTURES
                                    19 OFL_OOS ITEM   1                   # OFF-LINE OUT OF SERVICE
                                    20 OFL_UAV ITEM   1                   # OFF-LINE UNAVAILABLE
                                    21 INITQ_IP ITEM  1                   # INITIALIZATION IN PROGRESS
                           -002-    22 ##########INITQ_IP WILL APPEAR AS INITQ_I IN PICTURES
                                    23 OSA_FALT ITEM  1                   # OUT-OF-SERVICE/AUTOMATIC/FAULT
                           -002-    24 ##########OSA_FALT WILL APPEAR AS OSA_FAL IN PICTURES
                                    25 OSA_PGM ITEM   1                   # OUT-OF-SERVICE/AUTOMATIC/PROGRAM
                                    26 UPD_DON ITEM   1                   # AT LEAST 1 UPDATE HAS BEEN COMPLETED SINCE
                                                                            BEING OUT OF UPDATE
                                    28 OSA_TBLA ITEM  1                   # OUT-OF-SERVICE/AUTOMATIC/TROUBLE ANALYSIS
                           -002-    29 ##########OSA_TBLA WILL APPEAR AS OSA_TBL IN PICTURES
                                    30 OSM_OFL ITEM   1                   # OFFLINE IN MANUAL (OOS/MAN/OFL)
                                    31 ONL_CC ITEM    1                   # ON-LINE CC (=0 IMPLIES CCO IS ON-LINE)
                                    32 MAS_OOS ITEM   1                   # MAIN STORE OUT-OF-SERVICE
                                    33 SSP_OOS ITEM   1                   # SYSTEM STATUS AND CONTROL PANEL OUT-OF-SERV
                                                                            ICE
                                    35 MCH_OOS ITEM   1                   # MAINTENANCE CHANNEL OUT-OF-SERVICE
                                    36 RST_IP ITEM    1                   # CU RESTORAL IN PROGRESS, IF DGN CU ATP ZERO
                                                                            OSA_FALT
                                    38 SW_IP  ITEM    1                   # HIGH PRIORITY SWITCH IN PROGRESS, SWITCH
                                                                            WHEN UPDATE COMPLETES
                                    40 PKEY   ITEM    1                   # OFFLINE POWER KEY
                                    41 UCORONL ITEM   1                   # AN UNCORRECTABLE ERROR (VIA COMPLEMENT
                                                                            CORRECTION) EXISTS IN THE ON-LINE MAS.
                                    43 UCOROFL ITEM   1                   # AN UNCORRECTABLE ERROR (VIA COMPLEMENT
                                                                            CORRECTION) EXISTS IN THE OFF-LINE MAS.
                                    45 UCORDSR ITEM   1                   # AN UNCORRECTABLE ERROR (VIA DOUBLE STORE
                                                                            READ) EXISTS IN THE SYSTEM.
                                    47 CORONL ITEM    1                   # A CORRECTABLE ERROR (VIA COMPLEMENT
                                                                            CORRECTION) EXISTS IN THE ON-LINE MAS.
                                    49 COROFL ITEM    1                   # A CORRECTABLE ERROR (VIA COMPLEMENT
                                                                            CORRECTION) EXISTS IN THE OFF-LINE MAS.
                                    51        ITEM    7
```

```
                                        01 TST     ITEM    1          # OFFLINE TEST MODE SWITCH (TMRSW)
                                        02 TST_ONL ITEM    1          # ONLINE TEST MODE SWITCH (ONL_TMRSW)
                                        03 MAN_ONL ITEM    1          # ONLINE MANUAL KEY (ONL_MANKEY)
                                        04 PWR_ONL ITEM    1          # ONLINE POWER KEY (ONL_PWRKEY)
                                        05         LOEND
SYSTATER                          -003- 06 #
```

00	PKEY	SW_IP	RST_IP	MCH_OOS	SSP_OOS	MAS_OOS	ONL_CC	OSM_OFL	OSA_TBL	UPD_DON	OSA_PGM	OSA_FAL	INITQ_I	OFL_UAV	OFL_OOS	OFL_STB
												COROFL	CORONL	UCORDSR	UCOROFL	UCORONL
01	PWR_ONL	MAN_ONL	TST_ONL	TST												
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

```
                                        18 # THE SYSTEM SHOULD NOT BE IN THE UPDATE MODE IF ANY ONE
                                        19 # OF THE FOLLOWING FIVE BITS IS SET IN THE 'SYSTATE' WORD.
                    0112640             20 NO_UPD EQU     ES(PKEY,MCH_OOS,MAS_OOS,OSM_OFL,OSA_TBLA,OSA_PGM)



                                        26 TIMRCYL LAYOUT 6,CLASS=PERBLK
0001006                           -001- 27 TIMRCYL
                                        28 # THE ORDER OF THESE ITEMS MAY NOT BE CHANGED SINCE
                                        29 # SUBROUTINE TIMINC ASSUMES THIS ORDER
                                        30 RCYLMAX ITEM   8,9*E(4)+9          # ONLY TWO DIGITS OF YEAR KEPT
                                        31 RCYLINIT ITEM  1,0                 # YEARS WILL RECYCLE FROM 99 TO 0 IN 2000
                                  -002- 32 #*#*#*#*#*#*# RCYLINIT WILL APPEAR AS RCYLINI IN PICTURES
                                        33         ITEM   8,1*E(4)+2          # 12 MONTHS IN A YEAR
                                        34         ITEM   1,1                 # MONTHS START WITH 1
                                        35         LOSKIP
                                        36         ITEM   8,3*E(4)+1          #31 DAYS MAX IN A MONTH
                                        37         ITEM   1,1                 #MONTH COUNTING STARTS AT 1
                                        38         LOSKIP
                                        39         ITEM   8,2*E(4)+3          #23 HOURS IN A DAY
                                        40         ITEM   1,0                 #HOURS START WITH 0
                                        41         LOSKIP
                                        42         ITEM   8,5*E(4)+9          # 59 MINUTES IN AN HOUR
                                        43         ITEM   1,0                 # MINUTES START WITH 0
                                        44         LOSKIP
                                        45         ITEM   8,5*E(4)+9          # 59 SECONDS IN A MINUTE
                                        46         ITEM   1,0                 # SECONDS START WITH 0
                                        47         LOEND
```

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```
TIMRCYL                                  -003- 01 #
00 |*****************************************************|RCYLINI|
01 |                                                     |
02 |                                                     |
03 |                                                     |
04 |                                                     |
05 |*****************************************************|
   |  15 |  14 |  13 |  12 |  11 |  10 |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0  |
0001006 01 000006 000231 ------          -003- 22        VFD     7,0 1,0 8,9*E(4)+9
0001007 01 000007 000422 ------          -003- 23        VFD     7,0 1,1 8,1*E(4)+2
0001010 01 000010 000461 ------          -003- 24        VFD     7,0 1,1 8,3*E(4)+1
0001011 01 000011 000043 ------          -003- 25        VFD     7,0 1,0 8,2*E(4)+3
0001012 01 000012 000131 ------          -003- 26        VFD     7,0 1,0 8,5*E(4)+9
0001013 01 000013 000131 ------          -003- 27        VFD     7,0 1,0 8,5*E(4)+9
```

```
                                                 33 # TTY DICTIONARY WORDS FOR THE DAY OF THE WEEK--USED BY SET:CLK.
0001014                                          34 DAYNAMES
                                                 35         SPELL   MRY,(S,U,N)
0001014 01 000014 001262 ------ TTYTBL   -001-  36         VFD     5, 11,S%UN
                                                 37         SPELL   MRY,(M,O,N)
0001015 01 000015 000025 ------ TTYTBL   -001-  38         VFD     5, 11,M%ON
                                                 39         SPELL   MRY,(T,U,E,S)
0001016 01 000016 001313 ------ TTYTBL   -001-  40         VFD     5, 11,T%UES
                                                 41         SPELL   MRY,(W,E,D)
0001017 01 000017 001322 ------ TTYTBL   -001-  42         VFD     5, 11,W%ED
                                                 43         SPELL   MRY,(T,H,U,R,S)
0001020 01 000020 001273 ------ TTYTBL   -001-  44         VFD     5, 11,T%HURS
                                                 45         SPELL   MRY,(F,R,I)
0001021 01 000021 001076 ------ TTYTBL   -001-  46         VFD     5, 11,F%RI
                                                 47         SPELL   MRY,(S,A,T)
0001022 01 000022 001245 ------ TTYTBL   -001-  48         VFD     5, 11,S%AT
```

```
21 ##############################################################################
22 #*************************************************************************    *
23 #*                                                                       *    *
24 #*                                                                       *    *
25 #*                    BASE LEVEL SEQUENCE (MONSEQ)                       *    *
26 #*                                                                       *    *
27 #*                                                                       *    *
28 #*************************************************************************    *
29 ##############################################################################
```

```
-001- 01  *
-001- 02  * BASE LEVEL SEQUENCE
-001- 03  * --------------------
-001- 04  *
-001- 05  *
-001- 06  * OVERVIEW
-001- 07  * --------
-001- 08  *
      09  * THE TRADITIONAL PROGRAM STRUCTURE OF REAL TIME SYSTEMS AND ELECTRONIC
      10  * SWITCHING SYSTEMS, IN PARTICULAR, HAS BEEN A CLOSED LOOP IN WHICH
      11  * A SET OF MAJOR PROGRAMS EXECUTES SEQUENTIALLY.  THIS SIMPLE STRUCTURE
      12  * IS KNOWN AS THE BASE LEVEL LOOP AND CONTAINS BOTH APPLICATION AND COMMON
      13  * SYSTEM ROUTINES.  A BASE LEVEL LOOP STRUCTURE IS IMPLEMENTED BY
      14  * THE MONSEQ MONITOR.
-001- 15  *
-001- 16  * MONSEQ
-001- 17  * ------
-001- 18  *
      19  * MONSEQ EXECUTES A SERIES OF MAJOR APPLICATION ROUTINES AND/OR MONITORS
      20  * AND THEN EXECUTES EACH COMMON SYSTEM MONITOR ONCE.
      21  * THE ORDER AND IDENTITY OF THE APPLICATION MONITORS ARE SPECIFIED
      22  * IN A TABLE NAMED 'MONTBL'.  MONTBL CONTAINS A 2-WORD ENTRY FOR EACH
      23  * EXECUTION OF A MONITOR DURING A SINGLE BASE LEVEL LOOP.  THE ENTRY
      24  * CONSISTS OF THE ENTRY POINT ADDRESS IN STANDARD ADDRESS FORMAT.
      25  * THE ORDER OF THE ENTRIES IS THE ORDER OF EXECUTION.  THE NUMBER OF
      26  * ENTRIES IN MONTBL MUST BE SPECIFIED BY THE 'ENTRIES' ATTRIBUTE.
      27  *
      28  * EXAMPLES:
      29  *
      30  * DEFINE MONTBL FOR A SIMPLE SEQUENTIAL STRATEGY (NO. 2 ESS)
      31  *
      32  * MONTBL
      33  *      ADDR   INMON
      34  *      ADDR   TCRBLK0
      35  *      ADDR   TCRBLK1
      36  *      ADDR   TCRBLK2
      37  *      ADDR   TCRBLK3
      38  * ENTRIES(MONTBL) EQU (*-MONTBL)/2
      39  *
      40  * DEFINE MONTBL FOR A FREQUENCY STRATEGY (NO. 1 ESS)
      41  *
      42  * MONTBL
      43  *      ADDR   MONA
      44  *      ADDR   MONB
      45  *      ADDR   MONA
      46  *      ADDR   MONC
      47  *      ADDR   MONA
      48  *      ADDR   MONB
      49  *      ADDR   MONA
```

```
                01  *     ADDR   MOND
                02  *   (AND SO FORTH--CBLM IS THE CLASS E WORK)
                03  * ENTRIES(MONTBL) EQU (*-MONTBL)/2
           -001- 04  *
           -001- 05  * SUMMARY OF INTERFACES
           -001- 06  * ---------------------
           -001- 07  *
           -001- 08  *
           -001- 09  * APPLICATION ROUTINES
           -001- 10  * --------------------
           -001- 11  *
                12  * DESCRIPTION:
                13  * BASE LEVEL APPLICATION ROUTINE.  MAJOR PROGRAM OR MONITOR THAT
                14  * IS PART OF BASE LEVEL LOOP.
                15  *
                16  * ENTRY POINTS:
                17  * AS SPECIFIED IN MONTBL
                18  *
                19  * ENTRY CONDITIONS:
                20  * NONE
                21  *
                22  * RETURN POINT:
                23  * MONRTN IN CBLM
                24  *
                25  * RETURN CONDITIONS:
                26  * RO  IS  C     (C=THE INDEX OF THIS MONITOR'S ENTRY IN MONTBL)
                27  *          (0<=C<=ENTRIES(MONTBL)-1)
                28  *
                29  * RESTRICTIONS:
                30  * THE ELAPSED TIME BETWEEN ENTRY TO THE MONITOR AND RETURN TO 'MONRTN'
                31  * MAY NOT EXCEED THE TIME-OUT CONSTANT SPECIFIED BY THE APPLICATION.
                32  * THAT IS, CONTROL MUST BE RETURNED TO MONSEQ BEFORE THE PROGRAM TIMER
                33  * TIMES OUT.
                34  *
                35  *




                41  # THE SEQUENCE OF CALLS TO THE MAJOR MONITORS OF THE SYSTEM FOLLOWS IMMEDIATELY:
                42  # FIRST, THE APPLICATION MONITORS AS DEFINED IN MONTBL, AND THEN THE
                43  # COMMON SYSTEM MONITORS.  THE METHOD OF SEQUENCING THE APPLICATION
                44  # AND COMMON SYSTEM MONITORS IS DIFFERENT FOR THE FOLLOWING REASONS.
                45  #  1. A TABLE OF ADDRESSES IS EASIER TO ADMINISTER ACROSS A FLEXIBLE
                46  #     BOUNDARY.  FOR EXAMPLE, NOT KNOWING THE NUMBER OF APPLICATION MONITORS
                47  #     ENOUGH BL'S WOULD BE NEEDED FOR THE LARGEST NUMBER (A GUESS) AND OTHER
                48  #     APPLICATIONS WOULD SUFFER WITH EXTRANEOUS BL'S.  ALSO, NO MEANINGFUL
                49  #     LABELS COULD BE USED SINCE THE MONITORS ARE DIFFERENT IN EACH APPLICATION.
```

```
01 #  2. THE ADMINISTRATION BETWEEN CALLS TO APPLICATION MONITORS AND
02 #     THE UNKNOWN NUMBER OF MONITORS PRESENT A CASE FOR
03 #     DOING THE SEQUENCING IN A LOOP.
04 #  3. THE ADMINISTRATION CHECKS ARE NOT INCLUDED BETWEEN CALLS TO COMMON SYSTEM
05 #     MONITORS BECAUSE IT IS ASSUMED THAT THEY ARE LESS COMPLEX AND FASTER
06 #     THAN THE APPLICATION MONITORS BEING ALLOWED.  IN FACT, IT IS ASSUMED
07 #     THAT THE ENTIRE COMMON SYSTEM WILL BE SHORTER AND RUN FASTER THAN
08 #     THE WORST CASE APPLICATION MONITOR.
09 #    --WITHOUT THE COMPLICATIONS OF UNKNOWN MONITORS AND EXTRA ADMINISTRATION
10 #     THE SIMPLER SEQUENCING MECHANISM CAN BE USED FOR COMMON SYSTEM MONITORS.

12 # THIS WAS CALLED THE FUNDAMENTAL LOOP FOR A 'SIMPLE' SYSTEM.  IF AN APPLICATION
13 # FINDS THAT IT CANNOT DESIGN ITS SYSTEM AROUND THE SINGLE, SEQUENTIAL
14 # LOOP CONCEPT, IT CAN PROVIDE ITS OWN MONITOR OF MONITORS.  THIS IDENTICAL
15 # STRUCTURE WORKS IN THAT CASE WITH ONLY ONE ENTRY IN MONTBL.  WITH A
16 # SINGLE ENTRY TO AND EXIT FROM THE APPLICATION SYSTEM, IT BECOMES A SEMANTICAL
17 # ARGUMENT AS TO WHETHER CBLM IS CALLING THE APPLICATION AND IT IS
18 # RETURNING OR THE APPLICATION MONITOR IS CALLING CBLM AND IT IS RETURNING.
19 # THUS THE ENTIRE SYSTEM COULD BE VIEWED AS BEING CONTROLLED BY THE
20 # APPLICATION MONITOR WHICH PERIODICALLY CALLS CBLM.  SINCE THE FREQUENCY OF
21 # ENTRIES TO CBLM DETERMINE HOW FAST MULTISCAN FUNCTIONS AND TIME PERIODIC
22 # FUNCTIONS WILL EXECUTE, CALLING CBLM LESS FREQUENTLY WILL SLOW DOWN
23 # THESE FUNCTIONS.  ALSO CHANGES IN STATE OF THE COMMON SYSTEM (NORMAL TO
24 # MANUAL) OR SYSTEM ANOMIALIES (BIN SET) WILL NOT BE DETECTED AS QUICKLY.
25 # WHILE THESE FACTORS NEED TO BE TAKEN INTO ACCOUNT, THE ONLY REQUIREMENT IS
26 # THAT CBLM BE ENTERED OFTEN ENOUGH TO ADMINISTER THE PROGRAM TIMER.
27 # THIS VALUE HOWEVER IS APPLICATION SPECIFIED ALTHOUGH THE MAXIMUM MUST
28 # BE LESS THAN 1.6 SECONDS (SEE RESETPT FOR DETAILS).
```

```
0001023                                                  01 MONSEQ
                                                         02 # IN ADDITION TO INITIALIZING POINTERS, THIS GUARANTEES SUCCESS OF VERIFY
0001023 01 000023 103040 ------                          03       ZR      R2
0001024 01 000024 034440 043014 CTSD                     04       STL     R2,CURMON          # RESET TO FIRST MONITOR FOR NEXT CYCLE.
0001026                                                  05 NXTMON
0001026                                                  06       CALL    RESETPT            # ADMINISTER PROGRAM TIMER
0001026 01 000026 173042 ------                 -001-    07       BSAI    RXESETPT           # SUBROUTINE RESETPT IS IN PROGRAM CBLM
0001027 01 000027 131020 147023 BLMMA                    08       LAL     R1,MONTBL,RA0
0001031 01 000031 010457 ------                          09       RLN     R2,1               # 2X(ENTRY NUMBER) = TABLE INDEX
0001032 01 000032 043342 ------                          10       LAX     RA1,R2(RA0)
0001033 01 000033 040361 ------                          11       L       RA1+1,1(RA0)
0001034 01 000034 052420 ------                          12       BR      0(RA1)             # GO TO MONITOR


                                                         16 MONRTN                           # RETURN FROM MONITOR
0001035                                                  17       LAL     R2,CURMON,RA0      # GET IDENTITY OF MONITOR LAST CALLED
0001035 01 000035 131040 043014 CTSD                     18       IF      R0 -= R2 THEN STOP # SEQUENCE IS WRONG
0001037
0001037 01 000037 020002 ------                 -002-    19           CR      R0,R2
0001040 01 000040 054003 ------ 0001043         -001-    20           BC      IFS392
0001041 01 000041 013000 ------                 -003-    21           MIS     0
0001042 01 000042 154312 ------                 -004-    22            DATA    STPASW%
0001043                                         -001-    23 IFS392
                                                         24 R2       =       R2 + 1             # INCREMENT TO NEXT MONITOR NUMBER
0001043 01 000043 104441 ------                 -004-    25           AN      R2,1
0001044 01 000044 044040 ------                          26       ST      R2,0(RA0)          # SAVE FOR NEXT CHECK
0001045                                                  27       IF      R2 < ENTRIES(MONTBL) THEN B NXTMON
0001045 01 000045 006002 ------                 -003-    28           LR      R0,R2
0001046 01 000046 003400 177776 BLMMA           -003-    29           SI      R0,ENTRIES(MONTBL)
0001050 01 000050 055756 ------ 0001026.        -001-    30           BNC     NXTMON
```

BASE LEVEL SEQUENCE 22:40:42 2/05/81 ****

COMMON SYSTEM MONITOR SEQUENCING CBLM W77D

```
0001051 01 000051 053222 ------ 0001273        01          B       STATD
GJ01052                                        02 STATDRTN

0001052 01 000052 137000 002015 0002015        05          BL      SSPC
0001054                                        06 SSPCRTN

                                               09 CBLM     OW      0(54)                  # 3E790112
                                          -001- 10          NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000054 **********

0001054 01 000054 137000 147227 BLMMA          13          BL      TV_MSFC
0001056                                        14          EOW                            # 3E790112
                                          -001- 15          NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000055 *********
                                                                     *

0001056                                        19 MSFCRTN

0001056 01 000056 137000 003761 0003761        22          BL      TIMEM
0001060                                        23 TIMEMRTN

0001060 01 000060 137000 123206 CTAPH          26          BL      CTAPH
0001062                                        27 CTAPHRTN

0001062 01 000062 137000 161217 CTTYH          30          BL      CTTYB
0001064                                        31 CTTYBRTN

0001064 01 000064 137000 132530 CUTIL          34          BL      CUTILBAS
0001066                                        35 CUTILRTN

                                               38 CBLM     OW      0(66)                  # 3E790112
                                          -001- 39          NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000066 **********

0001066 01 000066 153031 ------ 0001117        42          B       MONSEQ_
0001067                                        43          EOW                            # 3E790112
                                          -001- 44          NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000066 *********
                                                                     *
```

```
                                    -001- 01        *
                                    -001- 02        *       BASE LEVEL SEQUENCE SUBROUTINES
                                    -001- 03        *       ------------------------------
                                    -001- 04        *
                                          05 # THE ALLOWABLE FORM OF THE MESSAGE IS--RMV:CU!
                                          06 # THERE ARE NO ARGUMENTS

0001067                                   08 RMVCU
0001067                                   09        BEGIN   ()
0001067 01 000067 103401 000020           10        LI      R0,ES(OSA_FALT)
0001071                                   11        CALL    UPDSTATS
0001071 01 000071 037020 001725 0001725   -001- 12  BSA     UPDSTATS
0001073                                   13        RETURN  TTY_OK
0001073 01 000073 156464 ------ TTYTBL    -001- 14  BTSAN   TTY_OK
```

```
                                          01 # THE ALLOWABLE FORMS OF THE MESSAGE ARE:
                                          02 #     RST:CU!
                                          03 #     RST:CU;UCL
                                          04 # THE ONLY OPTION IS THE UNCONDITIONAL ACTION OPTION

0001074                                   06 RSTCU
0001074                                   07        BEGIN   ()
0001074 01 000074 131400 043026 CTSD      08        LAL     R0,SYSTATE,RA1
0001076 01 000076 024174 ------ TTYTBL    09        TBN     R7,S(UCL)
0001077                                   10        IF      CF THEN RGBEGIN
0001077 01 000077 055010 ------ 0001107 -002- 11            BNC     IFS425
0001100 01 000100 061720 ------           12            SBS     0(RA1),S(RST_IP) # CAUSE RSTCUP TO PRINT RESTORE TTY MESSAGE
0001101                                   13            CALL    RSTCUP
0001101 01 000101 037020 001126 0001126 -001- 14            BSA     RSTCUP
0001103 01 000103 103401 004002 BLMMA     15            LI      R0,MSFOFL       # SET UP FOR ABT OF MSF
0001105                                   16            CALL    MSFABT
0001105 01 000105 073050 ------       -001- 17            BSAI    MXSFABT         # SUBROUTINE MSFABT IS IN PROGRAM CBLM
0001106                                   18            RETURN  TTY_PF
0001106 01 000106 156463 ------ TTYTBL -001- 19            BTSAN   TTY_PF
0001107                                   20            RGEND
0001107                               -001- 21 IFS425
0001107 01 000107 103041 ------ BLMMA     22        LN      R2,DGNCUMM
0001110                                   23        CALL    MSFREQN
0001110 01 000110 037020 003031 0003031 -001- 24        BSA     MSFREQN
0001112                                   25        IF      CF THEN RETURN TTY_RL
0001112 01 000112 155002 ------ 0001114 -002- 26            BNC     IFS432
0001113 01 000113 056466 ------ TTYTBL -003- 27            BTSAN   TTY_RL
0001114                               -002- 28 IFS432
0001114 01 000114 161720 ------           29        SBS     0(RA1),S(RST_IP)
                                          30 CBLM   OW      0(115)          # 3E790112
                                      -001- 31        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000115 **********


                                          34 CPATCH2 BGNP   0(250)          # 3E790112
0001115 01 000115 037000 114357 0114357 -001- 35        BL      XXX436
                                      -001- 36        NOTE    CPATCH2 'CSECT'
                                      -001- 37        NOTE    ****************** PATCH AREA BEGINS AT 000250 ****************


0114357                               -001- 40 XXX436 PATCHAREA
                                          41 DGREQ  =       E(11,13)        # RUN ALL TESTS (AUTO,REQUEST)
0114357 06 000250 103421 024000       -004- 42            LI      R1,E(11,13)
0114361 06 000252 034420 043055 CTSD  -002- 43            STL     R1,DGREQ
0114363                                   44        RETURN  TTY_PF
0114363 06 000254 056463 ------ TTYTBL -001- 45        BTSAN   TTY_PF
0114364                                   46        ENDP    NR              # 3E790112
                                      -001- 47        NOTE    ************* LAST PATCH ADDRESS USED IS 000254 ***************
                                      -001- 48        NOTE    ***** NUMBER OF PATCH WORDS USED IS 5 (DECIMAL) ********
```

BASE LEVEL SEQUENCE

22:40:42 2/05/81 ****

RESTORE CU TO SERVICE--TTY INPUT SUBROUTINE

CBLM W77D

```
0001117                                          01 MONSEQ_
0001117 01 000117 137000 147231 BLMMA            02       BL      TV_DSPCH
0001121                                          03       TAKEOUT 1
0001121 01 000121 006000 ------          -001-   04       LR      0,0
0001122                                          05       EOW             # 3E790112
                                         -001-   06       NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 000121 *********
                                                                   *
```

```
                                                01 # DESCRIPTION:
                                                02 # CALLED AT THE CONCLUSION OF DIAGNOSTICS TO CHECK
                                                03 # IF CU RESTORAL WAS THE CAUSE FOR RUNNING DIAGNOSTICS
                                                04 # IF IT WAS AND IF DIAGNOSTICS ATP, THE OFF-LINE CU
                                                05 # IS MARKED AS RESTORED.
0001122                                         06
                                                07 # ENTRY POINTS:
                                                08 #   RSTCUP--IF DIAGNOSTICS ATP
                                                09 #   RSTCUF--IF DIAGNOSTICS FAIL
                                                10 #   RSTCUPF--CF=1 IF ATP, CF=0 IF FAIL
0001122                                         11
                                                12 # ENTRY CONDITIONS:
                                                13 # SEE ENTRY POINTS
0001122                                         14
                                                15 # EXIT CONDITIONS:
                                                16 # NONE



0001122                                         20 RSTCUPF
0001122 01 000122 154004 ------ 0001126         21         BC      RSTCUP
0001123                                         22 RSTCUF
0001123                                         23         BEGIN   ()
0001123                                         24         CALL    RMV_CC
0001123 01 000123 137020 001251 0001251 -001-   25         BSA     RMV_CC
0001125                                         26         RETURN
0001125 01 000125 156400 ------         -001-   27         BTSA

0001126                                         29 RSTCUP
0001126                                         30         BEGIN
0001126 01 000126 171420 ------         -002-   31         HA
0001127 01 000127 031500 043026 CTSD            32         LAL     RST_IP,SYSTATE,RA1
0001131                                         33         IF      RST_IP THEN RGBEGIN
0001131 01 000131 024115 ------         -004-   34             TBN     RST_IP,S(RST_IP)
0001132 01 000132 055015 ------ 0001147 -002-   35             BNC     IFS458
0001133 01 000133 031000 043021 CTSD            36             LAL     R0,IM_IMAGE,RA0
0001135 01 000135 062120 ------                 37             ZBS     0(RA0),S(ERRI)
                                                38 # THIS SUBROUTINE IS ONLY CALLED AT BASE LEVEL.
                                                39 # THE EXTERNAL SOURCE THAT CAN BECOME STUCK AND CAUSE
                                                40 # THE ERROR INTERRUPT TO BE REMOVED IS THE OTHER MAS
                                                41 # ERRORS. SINCE CU DIAGNOSTICS PASSED, THE OTHER MAS
                                                42 # IS OK. IN PARTICULAR, NONE OF ITS ERROR SIGNALS IS STUCK.
                                                43 # HENCE, THE ERROR INTERRUPT CAN BE DETERMINISTICALLY ENABLED
                                                44 # AT THIS POINT.
0001136 01 000136 040000 ------                 45             L       R0,0(RA0)
0001137 01 000137 007700 ------                 46             LSR     IM,R0
0001140 01 000140 003020 ------                 47             ZR      R1
0001141 01 000141 002421 000026                 48             STM     R1,N(UCOROFL)(,A1),ES(UCOROFL,UCORDSR,COROFL) # CLEAR MAS
                                                                        ERROR FLAGS
```

BASE LEVEL SEQUENCE 22:40:42 2/05/81 ****

CHECK IF CU SHOULD BE RESTORED--SUBROUTINE CBLM W77D

```
                                      01 CBLM       OW      0(143)          # 3E790058
                                -001- 02            NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000143
                                                              **********


0001143 01 000143 003401 002060       06            LI      R0,ES(MAS_OOS,OSA_FALT,OSA_PGM)
0001145                               07            EOW                     # 3E790058
                                -001- 08            NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000144
                                                              **********


0001145                               12            CALL    UPDSTATZ
0001145 01 000145 037020 001723 0001723 -001- 13    BSA     UPDSTATZ
0001147                               14            RGEND
0001147                         -001- 15 IFS458
0001147                               16          RETURN
0001147 01 000147 156420 ------       -001- 17      BTSAG
```

```
                                    01 # DESCRIPTION:
                                    02 # RESETPT UPDATES SYSTIM, PRESETS THE PROGRAM TIMER (PT) IN
                                    03 # THE ON-LINE CC TO A CONSTANT VALUE, AND ZEROS THE PT
                                    04 # IN THE OFF-LINE CC.
0001150                             05
                                    06 # ENTRY POINT:
                                    07 # RESETPT
0001150                             08
                                    09 # ENTRY CONDITIONS:
                                    10 # NONE
0001150                             11
                                    12 # EXIT CONDITIONS:
                                    13 # NONE



                                    17 # THE INTENT IN THIS ROUTINE IS TO PRESET THE PROGRAM TIMER (PT)
                                    18 # TO TIME OUT IN THE HUNDREDS OF MS RANGE.
                                    19 # THE PT IS PHYSICALLY THE HIGH 8 BITS OF THE TI REGISTER
                                    20 # AND HAS NO INDEPENDENT GATING CONTROL.
                                    21 # THEREFORE, IT IS NECESSARY TO GATE OUT THE ENTIRE TI,
                                    22 # INSERT THE CONSTANT IN THE PT PORTION, AND THEN GATE
                                    23 # THE TI BACK WITHOUT CHANGING THE TC OR LOWER PORTION.
                                    24 # UNFORTUNATELY, THE TI IS INCREMENTED ASYNCHRONOUSLY AT A
                                    25 # 256-USEC RATE.  THEREFORE, AN INCREMENT MAY OCCUR BETWEEN
                                    26 # THE TIME THE TI IS GATED OUT AND THE TIME IT IS GATED BACK.
                                    27 # IF THIS OCCURS, THE COUNTING WILL BE DISRUPTED BECAUSE
                                    28 # THE OLD TC WILL OVERWRITE THE NEW TC VALUE.
                                    29 # THIS NECESSITATES THE SYNCHRONIZING OF THE RESET OPERATION
                                    30 # WITH THE AUTOMATIC INCREMENTING OF THE TC.
                                    31 # THIS IS ACCOMPLISHED BY WAITING FOR THE TC TO INCREMENT
                                    32 # (THEREBY ASSURING STEADY STATE) AND THEN PERFORMING
                                    33 # THE GATING OPERATIONS.

                                    35 # ONLY ONE MORE REFINEMENT IS NECESSARY.  ALTHOUGH IT CANNOT
                                    36 # BE READ, A PRESCALER, INCREMENTED AT A 16-USEC RATE,
                                    37 # EXISTS WHICH FEEDS THE TI.  WHEN THE TI IS GATED TO, THIS
                                    38 # PRESCALER IS ZEROED.  THEREFORE, IF THE GATING OCCURS WHEN
                                    39 # THE PRESCALER IS NONZERO, SOME NUMBER OF 16-USEC INCREMENTS
                                    40 # WILL BE LOST.  THE PRESCALER IS ZEROED AUTOMATICALLY WHEN
                                    41 # THE TI IS INCREMENTED.  THEREFORE, AT THE TIME OF INCREMENTING
                                    42 # A STEADYSTATE CONDITION DOES EXIST, BUT IT IS ONLY 16 USEC
                                    43 # IN LENGTH RATHER THAN THE 256 USEC OF THE TI REGISTER PROPER.
```

```
0001150                                          01 RESETPT
0001150                                          02         BEGIN
0001150 01 000150 171420 ------          -002-   03         HA
                                                 04 # RESET PT AND UPDATE SYSTIM
0001151 01 000151 003421 026000 BLMMA            05         LI      R1,PTRESET          # PTRESET=((1600-T)/25)*E(8)
0001153                                          06                                     # WHERE T IS THE MAXIMUM TIME BETWEEN PT
                                                                                          RESETS IN MILLISECONDS
0001153                                          08         SBIN
0001153 01 000153 013002 ------          -001-   09         MIS     2
0001154 01 000154 105722 ------          -001-   10         DATA    35794
0001155 01 000155 012400 ------                  11         UNPK    TI
0001156                                          12 TIWAIT
0001156 01 000156 106003 ------                  13         LR      R0,R3
0001157 01 000157 012400 ------                  14         UNPK    TI
0001160 01 000160 020003 ------                  15         CR      R0,R3
0001161 01 000161 055775 ------ 0001156          16         BNC     TIWAIT
                                                 17 # THE POSSIBILITY EXISTS THAT THE LAST GATING OPERATION
                                                 18 # OUT OF THE TI OCCURRED WHILE AN INCREMENT WAS
                                                 19 # RIPPLING THROUGH THE COUNTER.  IF SO, THE VALUE IS NOT
                                                 20 # ACCURATE.  SINCE INTERRUPTS ARE BLOCKED, THE TIME SINCE
                                                 21 # TI CHANGED UNTIL NOW IS 2-7 USEC. THIS RANGE
                                                 22 # GUARANTEES THAT THE TI HAS SETTLED AND HAS NOT BEEN
                                                 23 # INCREMENTED AGAIN.  THEREFORE, IT CAN BE TAKEN NOW WITHOUT
                                                 24 # FURTHER CHECKS.
0001162 01 000162 017460 177634                  25         CIRM    R3,0(234),0,MSK(8)
0001164 01 000164 054772 ------ 0001156          26         BC      TIWAIT
0001165 01 000165 012400 ------                  27         UNPK    TI
0001166                                          28         MIMODE  DATA=2
0001166 01 000166 013402 ------          -001-   29         MI      2
0001167                                          30         L       BR,R1
0001167 01 000167 070525 ------          -001-   31             VFD     8,BR%T 8,R1%F
0001170                                          32         BRXPT
0001170 01 000170 164311 ------          -001-   33             DATA    BRXPT%
0001171                                          34         ZMINT
0001171 01 000171 026750 003462          -001-   35             DATA    ZMINT%
0001172 01 000172 003462 177400                  36         NI      R3,MSK(8,8)         # IGNORE TC SECTION OF TI
                                                 37 CBLM    OW      0(174)              # 13833
                                         -001-   38         NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 000174 **********


0001174 01 000174 005061 ------                  41         SR      R3,R1
0001175 01 000175 010470 ------                  42         RRN     R3,8                # R3=NUMBER OF 25-MS COUNTS SINCE LAST RESET
0001176 01 000176 031420 043461 CTSD             43         LAL     R1,SYSTIM,RA1
0001200 01 000200 001423 ------                  44         AR      R1,R3               # INCREMENT SYSTIM
                                                 45 CPATCH3 BGNP  0(113)              # 13833
0001201 01 000201 037000 115206 0115206  -001-   46         BL      XXX479
                                         -001-   47         NOTE    CPATCH3 'CSECT'
                                         -001-   48         NOTE    ***************** PATCH AREA BEGINS AT 000113 *****************
```

```
BASE LEVEL SEQUENCE                                                    22:40:42   2/05/81  ****

RESET PROGRAM TIMER--SUBROUTINE                                                 CBLM          W77D

0115206
0115206 07 000113 144420 ------                  -001- 01 XXX479 PATCHAREA
0115207                                                  02       ST      R1,0(RA1)          # UPDATE SYSTIM
0115207 07 000114 013002 ------                          03       ZBIN
0115210 07 000115 107322 ------                  -001- 04       MIS     2
0115211                                          -001- 05       DATA    36562
0115211 07 000116 037000 001203 0001203          -001- 06       ENDP                       # 13833
                                                 -001- 07       BL      XXX482
                                                 -001- 08       NOTE    ************ LAST PATCH ADDRESS USED IS 000117 ***************
                                                 -001- 09       NOTE    ***** NUMBER OF PATCH WORDS USED IS 5 (DECIMAL) ********


0001203                                          -001- 12 XXX482 OWCONTINUE
0001203                                                  13       LMCH    CLPT
0001203 01 000203 103401 000305                  -001- 14       LI      R0,CLPT
0001205                                          -001- 15       CALL    SMCH
0001205 01 000205 073027 ------                  -002- 16       BSAI    SXMCH              # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0001206                                                  17       EOW                        # 13833
                                                 -001- 18       NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000205 *********
                                                                         *


0001206                                                  22       IF      ¬ CF THEN RGBEGIN  # USE BACKUP IF MCH FAILS
0001206 01 000206 154005 ------ 0001213          -002- 23           BC      IFS489
0001207 01 000207 003401 000003 CINIT                    24           LI      R0,CLPTF
0001211                                                  25           CALL    SBUMCH
0001211 01 000211 037020 111140 CSYSUB           -001- 26           BSA     SBUMCH
0001213                                                  27           RGEND
0001213                                          -001- 28 IFS489

                                                         30 # INTERNAL TIMERS ARE RESET
                                                         31 # NOW RESET THE TIMER IN THE SYSTEM STATUS AND CONTROL PANEL
                                                         32 # IF THE SSP IS NOT OUT-OF-SERVICE.
0001213 01 000213 130500 043026 CTSD                     33       LL      SSP_OOS,SYSTATE
0001215                                                  34       IF      ¬ SSP_OOS THEN RGBEGIN
0001215 01 000215 024113 ------                  -004- 35           TBN     SSP_OOS,S(SSP_OOS)
0001216 01 000216 054007 ------ 0001225          -002- 36           BC      IFS493
0001217 01 000217 003621 016160                          37           LI      R9,SSPIOADR
0001221 01 000221 003641 000312                          38           LI      R10,SSPTIMER
0001223                                                  39           CALL    SIO
0001223 01 000223 037020 111025 CSYSUB           -001- 40           BSA     SIO
                                                         41 # THE BTSAG PROVIDES SUFFICIENT TIME FOR THE SIO TO COMPLETE
                                                         42 # EVEN IF THE INSTRUCTION FOLLOWING THE CALL IS ANOTHER SIO.
0001225                                                  43           RGEND
0001225                                          -001- 44 IFS493
0001225                                                  45       RETURN
0001225 01 000225 156420 ------                  -001- 46       BTSAG
```

```
                                    01 # DESCRIPTION:
                                    02 # USED TO PREVENT INTERFERENCE BETWEEN AUTOMATIC HARDWARE
                                    03 # UPDATING OF OFFLINE STORE AND PROGRAMS THAT USE OFFLINE CC.
                                    04 # QOFLCC TAKES SYSTEM OUT OF AUTO UPDATE MODE, CHANGES
                                    05 # SUBSTATE TO OSA_PGM (OUT-OF-SERVICE/AUTOMATIC/PROGRAM),
                                    06 # AND REQUESTS UPDATE.  IT IS ASSUMED THAT THE CALLING
                                    07 # PROGRAM HAS PRIORITY OVER UPDATE AND HENCE WILL HOLD
                                    08 # IT OUT UNTIL IT HAS CONCLUDED.
                                    09
0001226                             10 # ENTRY POINT:
                                    11 # QOFLCC
                                    12
0001226                             13 # ENTRY CONDITIONS:
                                    14 # NONE
                                    15
0001226                             16 # EXIT CONDITIONS:
                                    17 # NONE



                                    21 QOFLCC
0001226                             22         BEGIN
0001226                             23         HA
0001226 01 000226 171420 ------ -002- 24 RO      =         ES(OSA_PGM)
                                    25             LI        RO,ES(OSA_PGM)
0001227 01 000227 003401 000040 -004-
0001231                             26         CALL      UPDSTATS
0001231 01 000231 037020 001725 0001725 -001- 27         BSA       UPDSTATS
0001233                             28         CALL      WPOST          # INSURE OFF-LINE MAS AND CC IN GOOD SHAPE
                                                                          FOR PROGRAM
0001233 01 000233 137020 110453 CSYSUB -001- 30         BSA       WPOST
0001235                             31         CALL      STPSTUPD       # STOP STORE UPDATE
0001235 01 000235 137020 110610 CSYSUB -001- 32         BSA       STPSTUPD
0001237                             33         RETURN
0001237 01 000237 156420 ------ -001- 34         BTSAG



                                    40 # DESCRIPTION
                                    41 # UQOFLCC RETURNS THE SYSTEM TO THE AUTO UPDATE MODE BY
                                    42 # TAKING DOWN THE OSA_PGM SUBSTATE AND THEN A CHECK IS MADE
                                    43 # TO INSURE THAT THE OFF-LINE MAS AND CC ARE IN GOOD SHAPE.

                                    45 UQOFLCC
0001240                             46         BEGIN     ()
0001240                             47 RO      =         ES(OSA_PGM)
                                    48             LI        RO,ES(OSA_PGM)
0001240 01 000240 103401 000040 -004-
0001242                             49         CALL      UPDSTATZ
```

```
   BASE LEVEL SEQUENCE                                                                    22:40:42    2/05/81  ****

   QUARANTINE OFF-LINE CC--SUBROUTINE                                                                    CBLM          W77D

0001242 01 000242 037020 001723 0001723  -001- 01          BSA     UPDSTATZ
                                              02 CBLM      OW      0(244)                  # 12533
                                        -001- 03          NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000244 **********


0001244                                       06          TAKEOUT 2
0001244 01 000244 106000 ------         -001- 07          LR      0,0
0001245 01 000245 006000 ------         -001- 08          LR      0,0
0001246                                       09          EOW                             # 12533
                                        -001- 10          NOTE    ***************** THE LAST ADDRESS OVERWRITTEN IS 000245 *********
                                                                   *


0001246                                       14          RETURN
0001246 01 000246 056400 ------         -001- 15          BTSA
```

```
BASE LEVEL SEQUENCE                                                                    22:40:42   2/05/81  ****
REMOVE OFF-LINE CC FROM SERVICE--SUBROUTINE                                                    CBLM          W77D

                                                01 # DESCRIPTION:
                                                02 # PLACE SYSTEM IN OFF-LINE/OUT-OF-SERVICE/AUTOMATIC/FAULT STATE
0001247                                         03
                                                04 # ENTRY POINTS:
                                                05 # RMV_CC
                                                06 # RMV_MAS--SET MAS_OOS FLAG AND DO RMV_CC
                                                07 # RMV_ONL--ONLY PRINT RMV CU MESSAGE
0001247                                         08
                                                09 # ENTRY CONDITIONS:
                                                10 # NONE
0001247                                         11
                                                12 # EXIT CONDITIONS:
                                                13 # NONE




0001247                                         18 RMV_MAS
0001247                                         19         ABEGIN
0001247 01 000247 103162 ------                 20         LN      R7,2                 # CODE FOR MAS REMOVE
0001250 01 000250 053002 ------ 0001252         21         B       RMV_MG

0001251                                         23 RMV_CC
0001251                                         24         ABEGIN
0001251 01 000251 103161 ------                 25         LN      R7,1                 # CODE FOR CC REMOVE
0001252                                         26 RMV_MG
0001252 01 000252 103401 000020                 27         LI      R0,ES(OSA_FALT)
0001254                                         28         CALL    UPDSTATS
0001254 01 000254 037020 001725 0001725 -001-   29         BSA     UPDSTATS
0001256 01 000256 124004 ------                 30         TBN     R0,S(OSA_FALT)
0001257                                         31         IF      ¬ CF THEN RGBEGIN
0001257 01 000257 054013 ------ 0001272 -002-   32             BC      IFS530
0001260 01 000260 003140 ------                 33             ZR      R6
0001261 01 000261 057437 ------                 34             TCC1
0001262                                         35             IF      ¬ CF THEN LN R6,1
0001262 01 000262 054002 ------ 0001264 -002-   36             BC      IFS532
0001263 01 000263 003141 ------         -002-   37             LN      R6,1             #
0001264                                 -002-   38 IFS532
0001264                                         39             PRINT   FMT=(WRD(R,M,V),WRD(C,U),DEC,DEC),PACTION=**,TIME=YES

                                        -001-   41 #  MESSAGE PROTOTYPE
                                        -001-   42 #  ** mm       RMV CU ddddd ddddd
0001264 01 000264 173053 ------         -002-   43             BSAI    PXMRY            # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
0001265 01 000265 104300 ------         -002-   44             VFD     1,1 2,0 1,0 3,4 1,0 1,1 1,1 2,0 1,0 3,0
0001266 01 000266 021104 ------         -002-   45             VFD     4,TTYO_ 4,TTYO_ 4,TTYO_DEC 4,TTYO_DEC
0001267 01 000267 021042 ------         -002-   46             VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_
0001270 01 000270 010035 ------ TTYTBL  -002-   47             VFD     5,2 11,RXMV
0001271 01 000271 000077 ------ TTYTBL  -002-   48             VFD     5, 11,CXU
                                        -001-   49             NOTE    THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS

COMMON BASE LEVEL MONITOR                                                                      PR-1C950-50
 22:40:42   2/05/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CBLM      ISSUE 07      PAGE    39
```

BASE LEVEL SEQUENCE 22:40:42 2/05/81 ****

REMOVE OFF-LINE CC FROM SERVICE--SUBROUTINE CBLM W77D

```
                                                  CONTAINED IN GENERAL REGISTERS R6,R7,
0001272                          -001- 02    NOTE ****THIS MESSAGE WILL RESULT IN A MAJOR ALARM****
0001272                                03    RGEND
0001272                          -001- 04 IFS530
0001272                                05    RETURN
0001272 01 000272 156400 ------  -001- 06    BTSA
```

SYSTEM STATE DETECTOR (SSD) 22:40:42 2/05/81 ****

COMMENTS CBLM W77D

```
21 ##############################################################################
22 #*****************************************************************************
23 #*                                                                           *
24 #*                                                                           *
25 #*                        SYSTEM STATE DETECTOR (SSD)                        *
26 #*                                                                           *
27 #*                                                                           *
28 #*****************************************************************************
29 ##############################################################################
```

SYSTEM STATE DETECTOR (SSD) 22:40:42 2/05/81 ****

COMMENTS CBLM W77D

```
                01 # THE SYSTEM STATE DETECTOR PERFORMS THREE SEPARATE TYPES OF FUNCTIONS.
                02 # FIRST, A CERTAIN AMOUNT OF ADMINISTRATIVE WORK IS PERFORMED.
                03 # THIS WORK IS DONE EVERY BASE LEVEL LOOP
                04 # AND INCLUDES THE INITIALIZATION OF CONSTANTS AND THE
                05 # CHECKING FOR THE INITIATION OR TERMINATION OF CERTAIN
                06 # SYSTEM CONDITIONS.
                07 # THE SECOND TYPE OF FUNCTION IS TERMED A CRITICAL
                08 # SYSTEM AUDIT.  IT CHECKS FOR CERTAIN SYSTEM CONDITIONS.
                09 # IT DIFFERS FROM THE ADMINISTRATIVE FUNCTIONS IN THAT
                10 # IT CHECKS FOR ABNORMAL STATES AND TAKES CORRECTIVE ACTION.
                11 # FINALLY, AFTER ALL THE CHECKS HAVE BEEN MADE, KEY ELEMENTS
                12 # OF THE SYSTEM (BOTH HARDWARE AND SOFTWARE) ARE ANALYZED
                13 # AND COMBINED TO PRODUCE AN OVERALL SYSTEM STATE
                14 # FOR THE COMMON SYSTEM.
0001273         15
                16 # THERE ARE FOUR MAJOR SYSTEM STATES DEFINED AS FOLLOWS:
0001273         17
                18 # OFL_STBY--(OFF-LINE STANDBY) THE ABSENCE OF THE OTHER THREE STATES
                19 # OFL_OOS---(OFF-LINE OUT OF SERVICE) THE PRESENCE OF ONE OF THE SUBSTATES
                20 #           LISTED BELOW
                21 # OFL_UAV---(OFF-LINE UNAVAILABLE) THE SYSTEM IS LOCKED, IE, THE LOCK LEADS INTO
                22 #           THE CC'S ARE ACTIVE
                23 # INITQ_IP--(INITIALIZATION IN PROGRESS) INITIALIZATION OCCURRED LESS THAN
                24 #           1024 BASE LEVEL LOOPS AGO
0001273         25
                26 # OFL_STBY--WILL ALLOW A NORMAL SWITCH
                27 # OFL_OOS---WILL ALLOW ONLY AN EMERGENCY SWITCH
                28 # OFL_UAV---WILL NOT ALLOW ANY SWITCH
                29 # INITQ_IP--WILL ESCALATE THE INIT LEVEL NUMBER IF AN INITIALIZATION OCCURS
0001273         30
0001273         31
                32 # IT IS IMPORTANT TO NOTE THAT, WITH THE EXCEPTION OF OFL_STBY, THE ABOVE
                33 # DEFINITIONS DO NOT MAKE THE MAJOR STATES UNIQUE.  THAT IS, MORE THAN ONE
                34 # CAN EXIST AT ANY ONE TIME AND IN FACT IT IS POSSIBLE TO GET AN INITIALIZATION
                35 # WHILE THE SYSTEM IS LOCKED AND THE OFF-LINE IS OUT OF SERVICE.
0001273         36
                37 #*#*# BY DEFINITION THE MAJOR STATE OF THE SYSTEM IS THE MOST VULNERABLE OF THE
                38 #*#*# ACTIVE MAJOR STATES.
0001273         39
                40 # THUS INITQ_IP SUPERCEDES OFL_UAV WHICH SUPERCEDES OFL_OOS.
0001273         41
0001273         42
                43 # THE IDENTIFICATION OF THE MAJOR STATES, WITH THE EXCEPTION OF OFL_OOS, IS A
                44 # STRAIGHT FORWARD PROCEDURE AS CAN BE SEEN FROM THE DEFINITIONS.  OFL_OOS IS
                45 # FURTHER DIVIDED INTO FIVE SUBSTATES AND/OR TWO CLASSES DEFINED AS FOLLOWS:
0001273         46
                47 # CLASS 1--STATUS SUBSTATES
0001273         48
                49 # OSA_FALT--(OUT OF SERVICE/AUTOMATIC/FAULT) THE OFF-LINE WAS REMOVED FROM
```

```
                01 #           SERVICE AUTOMATICALLY BECAUSE DETECTION (SANITY) TEST FAILED OR
                02 #           EXCESSIVE ERRORS WERE ENCOUNTERED WHILE IT WAS ON-LINE
                03 # OSM_RMV---(OUT OF SERVICE/MANUAL/REMOVE) THE OFF-LINE WAS REMOVED FROM SERVICE
                04 #           BY A TTY REQUEST
0001273         05
                06 # CLASS 2--ACTIVITY SUBSTATES
0001273         07
                08 # OS_UPD----(OUT OF SERVICE/UPDATE) THE MAIN STORE OF THE OFF-LINE CC IS BEING
                09 #           UPDATED TO THE CURRENT CONTENTS OF THE ON-LINE CC STORE
                10 # OSA_TBLA--(OUT OF SERVICE/AUTOMATIC/TROUBLE ANALYSIS) THE OFF-LINE CC IS
                11 #           CURRENTLY BEING USED BY A PROGRAM
                12 # OSM_OFL---(OUT OF SERVICE/MANUAL/OFF-LINE) THE OFF-LINE CC IS CURRENTLY
                13 #           BEING USED BY A MAN, IE, IT IS IN MANUAL.
0001273         14
0001273         15
                16 # FUNCTIONALLY THE OOS SUBSTATES HAVE THE FOLLOWING SIGNIFICANCE:
                17 # OSA_FALT--PROGRAMS MAY ACCESS OFF-LINE CC, MAIN STORE IS IN DATE
                18 # OSM_RMV---SAME AS OSA_FALT
                19 # OS_UPD----PROGRAMS MAY ACCESS OFF-LINE CC, MAIN STORE IS OUT OF DATE
                20 # OSA_TBLA--PROGRAMS MAY NOT ACCESS OFF-LINE CC, MAIN STORE IS OUT OF DATE
                21 # OSM_OFL---SAME AS OSA_TBLA
0001273         22
0001273         23
                24 # AS WITH THE MAJOR STATES, THE OOS SUBSTATES ARE NOT UNIQUE, BUT THE CLASSES
                25 # ARE. WITHIN A CLASS, THE SUBSTATES ARE UNIQUE BUT A SUBSTATE FROM ONE CLASS
                26 # MAY COEXIST WITH ONE FROM THE OTHER CLASS.  THUS, THE 11 POSSIBLE SUBSTATE
                27 # COMBINATIONS ARE:
                28 #    FALT       RMV
                29 #    UPD        TBLA
                30 #    OFL        FALT/UPD
                31 #    RMV/UPD    FALT/TBLA
                32 #    RMV/TBLA   FALT/OFL
                33 #    RMV/OFL
                34 # EACH CLASS HAS A PRIORITY ORDERING.  IN CLASS 1, FALT PREEMPTS RMV.  IN
                35 # CLASS 2, OFL PREEMPTS TBLA PREEMPTS UPD.
```

```
0001273                                          01 STATD
                                                 02 # INTCNT IS SET TO MINUS THE MAXIMUM NUMBER OF EXTERNAL INTERRUPTS
                                                 03 # EXPECTED IN A BASE LEVEL LOOP AND IS USED TO DETECT STUCK INTERRUPTS.
                                                 04 # IT IS INCREMENTED BY ONE ON EACH OCCURRENCE OF AN EXTERNAL INTERRUPT.
                                                 05 # IF INTCNT OVERFLOWS, THE INTERRUPT IS ASSUMED TO BE STUCK AND IS BLOCKED.
                                                 06 # THE MAXIMUM NUMBER MUST BE SMALL ENOUGH SO THAT THE OCCURRENCE OF THAT
                                                 07 # MANY INTERRUPTS WILL NOT CAUSE THE PROGRAM TIMER TO TIME OUT.
0001273 01 000273 103421 177775                  08         LI      R1,INTMAX
0001275 01 000275 034420 043142 CTSD             09         STL     R1,INTCNT          # RESET INTERRUPT COUNT FOR THIS BASE LEVEL
                                                                                          LOOP


                                                 14 # ONE WORD IS RESERVED FOR EACH CC WHICH IN EFFECT
                                                 15 # ACCUMULATES THE LENGTH OF TIME THE CC REMAINS ON-LINE.
                                                 16 # THIS IS DONE BY INCREMENTING THE WORD CORRESPONDING TO
                                                 17 # THE ON-LINE CC ONCE PER BASE LEVEL LOOP UNTIL IT RECYCLES.
0001277 01 000277 031440 043346 CTSD             18         LAL     R2,CCOLOOPS,RA1
0001301 01 000301 057437 ------                  19         TCC1
0001302                                          20         IF      CF THEN LA R2,1(RA1)
0001302 01 000302 055002 ------ 0001304  -002-   21             BNC     IFS551
0001303 01 000303 041441 ------          -002-   22             LA      R2,1(RA1)       #
0001304                                  -002-   23 IFS551
0001304                                          24         IF      R2 ¬= 0 THEN R2 = R2 + 1
0001304 01 000304 114042 ------          -002-   25             TZ      R2
0001305 01 000305 054002 ------ 0001307  -001-   26             BC      IFS552
0001306 01 000306 004441 ------          -005-   27             AN      R2,1
0001307                                  -001-   28 IFS552
0001307 01 000307 144440 ------                  29         ST      R2,0(RA1)


                                                 35 # CHECK IF SYSTEM IS IN INITIALIZATION INTERVAL BY CHECKING
                                                 36 # IF COUNTER 'INITQCD' HAS REACHED ZERO. IF NOT, DECREMENT IT.
                                                 37 # IF IT IS ZERO, ZERO 'INITLVL' TO TAKE SYSTEM
                                                 38 # OUT OF INTERVAL.
0001310 01 000310 030440 043026 CTSD             39         LL      R2,SYSTATE         # SET UP SYSTATE FOR USE IN AND/OR IMMEDIATE
                                                                                          LY FOLLOWING THE RANGE
0001312 01 000312 031420 043341 CTSD             41         LAL     R1,INITQCD,RA1
0001314 01 000314 036020 001317 0001317          42         BX      R1,COUNTING
0001316 01 000316 053025 ------ 0001343          43         B       OSCHKS

0001317                                          45 COUNTING
0001317 01 000317 144420 ------                  46         ST      R1,0(RA1)          # UPDATE INITQCD
0001320                                          47         IF      R1 = 0 THEN RGBEGIN # END OF INITIALIZATION INTERVAL
0001320 01 000320 014021 ------          -002-   48             TZ      R1
0001321 01 000321 055022 ------ 0001343  -001-   49             BNC     IFS558
```

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0001322 01 000322 034420 043025 CTSD          01          STL     R1,INITLVL      # ZERO LEVEL COUNT AND RECYCLE BIT
                                              02 # SYSTEM IS OUT OF CRITICAL INTERVAL RIGHT HERE
                                              03 # IE, NEXT INITIALIZATION WILL BE LEVEL 1
0001324                                       04          CALL    OPPOSTMO        # TRIGGER PRINTING OF POST-MORTEM DUMP
0001324 01 000324 037020 006001 CINIT   -001- 05          BSA     OPPOSTMO
0001326                                       06          CALL    INITQEND
0001326 01 000326 137020 147171 BLMMA   -001- 07          BSA     INITQEND
0001330 01 000330 103340 ------               08          ZR      R14             # ZERO BITS 19-16 OF 20-BIT CONSTANT USED BY
                                                                                    EXCOFLMG
0001331 01 000331 003761 000300               10          LI      R15,ES(ISC2,ISC1) # ZERO ISC BITS NOW THAT SYSTEM HAS
                                                                                    COMPLETED THE INITIALIZATION INTERVAL
0001333 01 000333 003401 107161               12          LI      RO,SS_R%T*E(8)!AR%F
                                              13 # EXCOFLMG IS A SPECIAL ENTRY TO THE INIT_OCC SUBROUTINE.
                                              14 # WITH RO AND R15 SET UP AS ABOVE, THE ISC BITS WILL BE
                                              15 # CLEARED IN ADDITION TO THE REST OF THE INITIALIZATION.
                                              16 # OFF-LINE CANNOT BE INITIALIZED IF IT IS CURRENTLY IN USE BY A
                                              17 # PROGRAM (OSA_PGM) OR BY A PERSON (OSM_OFL).
0001335 01 000335 017440 001000               18          CIRM    R2,0,ES(OSA_TBLA,OSA_PGM),ES(OSM_OFL,OSA_TBLA,OSA_PGM)/ES(OSA
                                                                                    _TBLA,OSA_PGM)
0001337                                       20          IF      CF THEN CALL EXCOFLMG
0001337 01 000337 055003 ------ 0001342 -002- 21          BNC     IFS563
0001340 01 000340 037020 111242 CSYSUB  -003- 22          BSA     EXCOFLMG
0001342                                 -002- 23 IFS563
0001342 01 000342 107777 ------               24          LSR     SS_R,R15
0001343                                       25          RGEND
0001343                                 -001- 26 IFS558
0001343                                       27 OSCHKS



0001343 01 000343 115402 ------               33      COM     RO,R2               # PRINT MCH FAILURE MESSAGE IF MCH WENT OUT
                                                                                    OF SERVICE SINCE LAST ENTRY
0001344 01 000344 024014 ------               35      TBN     RO,S(MCH_OOS)       # CF=1 IF MCH IS STILL IN SERVICE
0001345 01 000345 003000 ------ CINIT         36      LN      RO,ERPMCH
0001346                                       37      CALL    ERRPRTCK
0001346 01 000346 073035 ------         -001- 38      BSAI    errprTck            # SUBROUTINE ERRPRTCK IS IN PROGRAM CINIT
0001347                                       39      LMCH    RTNMB               # GET MANUAL SWITCH
0001347 01 000347 103401 000243         -001- 40      LI      RO,RTNMB
0001351                                 -001- 41      CALL    SMCH
0001351 01 000351 073027 ------         -002- 42      BSAI    S%MCH               # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0001352 01 000352 103060 ------               43      ZR      R3                  # INIT FOR FOLLOWING HN R3,3 IN CASE RANGE
                                                                                    IS SKIPPED
0001353                                       45      IF      CF THEN RGBEGIN     # USE DATA ONLY IF MCH WORKS
0001353 01 000353 055023 ------ 0001376 -002- 46          BNC     IFS570
0001354 01 000354 012403 ------               47          UNPK    MCHB
0001355 01 000355 024064 ------               48          TBN     R3,S(MANKEY)'   # OFF-LINE CC NOW IN MANUAL MODE?
0001356 01 000356 030030 ------               49          ICF     R1,S(OSM_OFL)
```

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   SYSTEM STATE DETECTOR (SSD)                                                                                    22:40:42    2/05/81  ****

   ADMINISTRATION PERFORMED EVERY BASE LEVEL LOOP                                                                                  CBLM          W77D

0001357 01 000357 024070 ------                                  01          TBN     R3,S(PWRKEY)
0001360 01 000360 030037 ------                                  02          ICF     R1,S(PKEY)
0001361 01 000361 022034 ------                                  03          ZBN     R1,S(MCH_OOS)   # MCH WORKED THIS TIME
0001362 01 000362 003401 110400                                  04          LI      RO,ES(OSM_OFL,PKEY,MCH_OOS)
0001364                                                          05          CALL    UPDSTATE        # UPDATE STATE WORD WITH OFF-LINE KEY DATA
0001364 01 000364 037020 001726 0001726  -001-                  06          BSA     UPDSTATE
0001366 01 000366 115500 ------                                  07          COM     R4,RO
0001367 01 000367 014101 ------                                  08          NR      R4,R1
0001370                                                          09          IF      OSM_OFL THEN RGBEGIN # DO RANGE ON 0 TO 1 TRANSITION
0001370 01 000370 024110 ------          -004-                   10          TBN     OSM_OFL,S(OSM_OFL)
0001371 01 000371 055005 ------ 0001376  -002-                   11          BNC     IFS573
                                                                 12 # THIS IS FIRST ENTRY TO MANUAL, THEREFORE PRINT STATE CHANGE MESSAGE.
                                                                 13          SPELL   RO,(M,A,N)
0001372 01 000372 003401 001137 TTYTBL   -001-                  14          LI      RO,MXAN
0001374                                                          15          CALL    REPTCUSTAT
0001374 01 000374 037020 002000 0002000  -001-                  16          BSA     REPTCUSTAT
0001376                                                          17          RGEND
0001376                                 -001-                   18 IFS573
0001376                                                         19          RGEND
0001376                                 -001-                   20 IFS570
0001376 01 000376 172463 ------                                  21      HN      R3,3                # SAVE KEY VALUES FOR LATER KEY AUDIT
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```
01 # A NUMBER OF CONTROL REGISTERS EXIST WHICH, IF LEFT
02 # IN SOME ABNORMAL STATE FOR EVEN A SHORT PERIOD OF TIME,
03 # WOULD SERIOUSLY AFFECT PROCESSING CAPABILITY.
04 # THESE CRITICAL REGISTERS ARE AUDITED ON EVERY ENTRY TO CBLM.
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                                                01 # THE HOLD-GET REGISTER SHOULD USUALLY BE SET TO THE
                                                02 # HIGHEST HG SLOT ON ENTRY TO STATD (IE, AT BASE LEVEL)
                                                03 # IT IS AUDITED AGAINST THIS KNOWN VALUE TO PROTECT AGAINST
                                                04 # IT DRIFTING IN VALUE. DRIFT OCCURS BECAUSE OF PROGRAM
                                                05 # BUGS THAT MANIPULATE THE HG INCORRECTLY. THE FACT THAT
                                                06 # IT IS INCORRECT IS NOT NECESSARILY FATAL', BUT IT MUST BE
                                                07 # CORRECTED BEFORE IT DRIFTS OUT OF THE HGAREA OR A
0001377                                         08 # FATAL ERROR WILL RESULT.
                                                09
                                                10 # THERE IS ONLY ONE KNOWN PROGRAM THAT MANIPULATES THE HG
                                                11 # AND LEAVES IT AT A NONSTANDARD VALUE FOR ONE BASE LEVEL
                                                12 # LOOP. THIS IS THE SUBROUTINE WAIT. WHEN WAIT DOES THIS,
                                                13 # IT SETS WORD 'MSFMTX+SCURMSF' TO A VALUE BETWEEN 1-15.
                                                14 # IF THIS IS THE CASE, THE HG AUDIT IS SKIPPED ON THIS ENTRY TO
                                                15 # THE STATE DETECTOR.


0001377 01 000377 030440 043010 CTSD           19        LL      R2,MSFMTX+N(WAITACT)
0001401 01 000401 024044 ------               20        TBN     R2,S(WAITACT)
0001402                                       21        IF      ¬ CF THEN RGBEGIN
0001402 01 000402 054012 ------ 0001414 -002- 22            BC      IFS585
0001403                                       23            MIMODE  L R7,HG
0001403 01 000403 013000 ------         -001- 24            MIS     0
0001404 01 000404 062465 ------         -002- 25             VFD     8,R7%T 8,HG%F
                                              26 R3         =       A.HGAREA+TBLSIZ(HGAREA)-ENTRYSIZ(HGAREA) # THIS IS THE
                                                                                    STANDARD VALUE
0001405 01 000405 003461 042760 LAYOUT -004- 28            LI      R3,HGAREA+TBLSIZ(HGAREA)-ENTRYSIZ(HGAREA)
0001407                                       29            MIMODE  L HG,R3         # FOR CASE OF NO COMPARE
0001407 01 000407 013000 ------         -001- 30            MIS     0
0001410 01 000410 032531 ------         -002- 31             VFD     8,HG%T 8,R3%F
0001411 01 000411 003002 ------ CINIT         32            LN      R0,ERPHG
0001412 01 000412 020163 ------               33            CR      R7,R3
0001413                                       34            CALL    ERRPRTCK
0001413 01 000413 073035 ------         -001- 35            BSAI    errprTck        # SUBROUTINE ERRPRTCK IS IN PROGRAM CINIT
0001414                                       36            RGEND
0001414                                 -001- 37 IFS585
```

```
                                                01 # VERIFY THAT THE CC0 AND THE CC1 BITS OF THIS MACHINE ARE
                                                02 # NOT BOTH SET OR RESET. IF EITHER CONDITION EXISTS,
                                                03 # A FATAL HARDWARE ERROR IS ASSUMED AND A STOP & SWITCH
                                                04 # IS GENERATED
0001414 01 000414 157417 ------                  05         TSRPL   SS                  # CC0 BIT
0001415 01 000415 054005 ------ 0001422         06         BC      TSTCC1ON
0001416 01 000416 057437 ------                  07         TSRPH   SS                  # CC1 BIT
0001417 01 000417 054005 ------ 0001424         08         BC      UPDONL_CC
0001420                                         09 STOP%SWITCH
0001420                                         10         STOP
0001420 01 000420 113000 ------         -002-   11         MIS     0
0001421 01 000421 154312 ------         -003-   12               DATA    STPASW%

0001422                                         14 TSTCC1ON
0001422 01 000422 157437 ------                  15         TSRPH   SS                  # CC1 BIT
0001423 01 000423 054775 ------ 0001420         16         BC      STOP%SWITCH
0001424                                         17 UPDONL_CC


                                                21 # WE ARE RUNNING ON-LINE CODE.  THIS SHOULD BE THE ON-LINE CC.
                                                22 # IF SS(CC)=0 STOP & SWITCH. THIS WILL NOT CAUSE TROUBLE IF
                                                23 # THE OTHER CC IS ON-LINE(IT WILL ONLY BE INTERRUPTED) AND IF
                                                24 # THE OTHER CC IS OFF-LINE IS NEEDED TO GET GOING AGAIN.
0001424 01 000424 112417 ------                  25         UNPK    SS
0001425 01 000425 024074 ------                  26         TBN     R3,S(CC)
0001426 01 000426 055772 ------ 0001420         27         BNC     STOP%SWITCH


                                                31 # THE ONLY TWO LEGAL STATES FOR SS(LON,LOF) IN THE ON-LINE CC
                                                32 # IS (0,0) OR (1,0).  IF (0,1) OR (1,1) IS DETECTED, A STOP & SWITCH
                                                33 # IS GENERATED. THE ONLY WAY THESE CAN OCCUR IS A
                                                34 # HARDWARE FAULT OR THIS CC IS BEING FORCED OFF-LINE.
                                                35 # STOP & SWITCH IS THE CORRECT RESPONSE IN EITHER CASE.
0001427 01 000427 024070 ------                  36         TBN     R3,S(LOF)
0001430 01 000430 054770 ------ 0001420         37         BC      STOP%SWITCH


                                                41 # DETERMINE WHETHER THIS CC'S IO IS DISABLED
                                                42 # SINCE THIS IS THE ON-LINE CC IT SHOULD NOT BE.
                                                43 # IF THE OTHER CC IS TRYING TO CONTROL THIS ONE, IT
                                                44 # HAS SUFFICIENT ACCESS TO DO SO.
                                                45 # THEREFORE, ASSUME THE DISABLING WAS ACCIDENTAL
                                                46 # (IT TAKES A SINGLE MICRO INSTRUCTION TO PERFORM A SELF DISABLE).
                                                47 # AS A PRECAUTIONARY MEASURE, HOWEVER, THE STANDARD
                                                48 # ENABLING SEQUENCE WILL BE EMPLOYED. THIS SEQUENCE
                                                49 # CONSISTS OF RUNNING THE SANITY TEST BETWEEN THE FIRST AND
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SYSTEM STATE DETECTOR (SSD)                                                    22:40:42   2/05/81  ****

SS REGISTER AUDIT                                                                    CBLM          W77D

                                                          01 # SECOND STAGES OF THE HARDWARE SEQUENCE.
0001431 01 000431 024077 ------                            02         TBN     R3,S(DSABL)
0001432                                                   03         IF      CF THEN RGBEGIN
0001432 01 000432 055011 ------ 0001443  -002-           04             BNC     IFS601
0001433                                                   05             MIMODE  ENA
0001433 01 000433 013000 ------          -001-            06             MIS     0
0001434 01 000434 035072 ------          -002-            07              DATA    ENA%
0001435 01 000435 071420 ------                           08             HA
0001436                                                   09             CALL    SANITY
0001436 01 000436 037020 006760 CINIT    -001-            10             BSA     SANITY
0001440 01 000440 171400 ------                           11             GA
0001441                                                   12             MIMODE  ENB
0001441 01 000441 013000 ------          -001-            13             MIS     0
0001442 01 000442 035071 ------          -002-            14              DATA    ENB%
0001443                                                   15             RGEND
0001443                                  -001-            16 IFS601
                                                          17 # VERIFY ZERO STATE OF CRITICAL BITS
0001443                                                   18         MIMODE  ZER                  # IN CASE BHC IS RESET BY THIS AUDIT
0001443 01 000443 113000 ------          -001-            19         MIS     0
0001444 01 000444 025750 ------          -002-            20              DATA    ZER%
0001445 01 000445 003401 000056                           21         LI      R0,ES(BIN,HLT,BTC,BHC)
0001447 01 000447 007760 ------                           22         LSR     SS_R,R0              # CORRECT SS BITS
0001450 01 000450 006162 ------                           23         LR      R7,R2                # SET UP FOR ERROR PRINTOUT
0001451 01 000451 006203 ------                           24         LR      R8,R3
0001452 01 000452 003000 ------                           25         ZR      R0
0001453 01 000453 017003 100056                           26         CRM     R0,R3,ES(DSABL,BIN,HLT,BTC,BHC)
0001455 01 000455 003005 ------ CINIT                     27         LN      R0,ERPSS
0001456                                                   28         CALL    ERRPRTCK
0001456 01 000456 073035 ------          -001-            29         BSAI    errprTck             # SUBROUTINE ERRPRTCK IS IN PROGRAM CINIT
```

SYSTEM STATE DETECTOR (SSD) 22:40:42 2/05/81 ****

OFF-LINE SS REGISTER AUDIT CBLM W77D

```
0001457                                                  01          LMCH    RTNSS
0001457 01 000457 103401 000223                  -001-   02          LI      RO,RTNSS
0001461                                          -001-   03          CALL    SMCH
0001461 01 000461 073027 ------                  -002-   04          BSAI    S%MCH              # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0001462                                                  05          IF      CF THEN RGBEGIN    # USE DATA ONLY IF MCH SUCCEEDS
0001462 01 000462 155006 ------ 0001470          -002-   06                  BNC     IFS615
                                                         07 # THE PH AND PL BITS ARE NOT CHECKED HERE DUE TO A CONFLICT
                                                         08 # WITH THE WAY THE HARDWARE AND MICRO-CODE ARE DESIGNED.
                                                         09 # IN PARTICULAR, THESE BITS CAN LOOK SET WHEN THEY ARE NOT
                                                         10 # BECAUSE THE MICRO PROGRAM GATES TO THEM AND THIS GATING
                                                         11 # OPERATION OVERRIDES THE HARDWARE STRAPPING.
                                                         12 # THEY ARE VERIFIED WHEN THE OFF-LINE CC SWITCHES ON-LINE
                                                         13 # AND BY THE MICRO-CODE WHEN WE BOOTSTRAP FROM TAPE.
                                                         14          UNPK    MCHB
0001463 01 000463 012403 ------                          15 # WE HAVE ALREADY VERIFIED THAT WE ARE THE ON-LINE CC.
                                                         16 # THEREFORE, CONSIDER SS(CC)=1 AN ERROR AND TEST THE
                                                         17 # OTHER CC.
                                                         18          TBN     R3,S(CC)
0001464 01 000464 024074 ------                          19 CBLM     OW      0(465)             # 13317
                                                 -001-   20          NOTE    ********** THE FIRST ADDRESS OVERWRITTEN IS 000465
                                                                              **********

                                                         24 CPATCH1  BGNP    0(356)             # 13317
0001465 01 000465 037000 113140 0113140          -001-   25          BL      XXX618
                                                 -001-   26          NOTE    CPATCH1 'CSECT'
                                                 -001-   27          NOTE    ********** PATCH AREA BEGINS AT 000356 **********
                                                                              *

                                                 -001-   31 XXX618   PATCHAREA
0113140
0113140                                                  32
0113140 05 000356 155040 ------ 0113200                  33          BNC     CCOK
0113141 05 000357 031400 043024 CTSD                     34          LAL     RO,ERPRTCTL,RA1
0113143 05 000361 024010 ------                          35          TBN     RO,OFL_ERR         # OFF LINE ACTIVE ERROR
0113144 05 000362 054031 ------ 0113175                  36          BC      ERRPRTED
0113145 05 000363 006162 ------                          37          LR      R7,R2
0113146 05 000364 006203 ------                          38          LR      R8,R3
0113147 05 000365 003541 001175 TTYTBL                   39          LI      R6,0%FL
0113151                                                  40          CALL    REPT_ERR
0113151 05 000367 037020 111423 CSYSUB           -001-   41          BSA     REPT_ERR
0113153                                                  42          LMCH    DISA
0113153 05 000371 103401 000245                  -001-   43          LI      RO,DISA
0113155                                          -001-   44          CALL    SMCH
0113155 05 000373 073027 ------                  -002-   45          BSAI    S%MCH              # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0113156                                                  46          CALL    SANITY             # CHECK ON LINE SANITY
0113156 05 000374 137020 006760 CINIT            -001-   47          BSA     SANITY
0113160                                                  48          LMCH    DISB
0113160 05 000376 103401 000341                  -001-   49          LI      RO,DISB
```

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   SYSTEM STATE DETECTOR (SSD)                                                                    22:40:42   2/05/81  ****

   OFF-LINE SS REGISTER AUDIT                                                                                  CBLM          M77D

 0113162                                                -001- 01              CALL    SMCH
 0113162 05 000400 073027 ------                        -002- 02              BSAI    S%MCH           # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
 0113163                                                      03              CALL    INIT_OCC        # INIT THE OFFLINE
 0113163 05 000401 137020 111240 CSYSUB                 -001- 04              BSA     INIT_OCC
 0113165 05 000403 103401 000223                              05              LI      R0,RTNSS        # GET THE OFFLINE SS REG.
                                                              06 DINSERT      NOTE    ' CALL SMCH
                                                              07 DDELETE      NOTE    2
W0113167 05 000405 037020 111077 CSYSUB                       08              BSA     SMCH
 0113171 05 000407 112403 ------                              09              UNPK    MCHB
 0113172 05 000410 031400 043024 CTSD                         10              LAL     R0,ERPRTCTL,RA1
 0113174 05 000412 061600 ------                              11              SBS     0(RA1),OFL_ERR  # SET THE OFFLINE ERROR PRINT CONTROL BIT
 0113175                                                      12 ERRPRTED
 0113175 05 000413 124074 ------                              13              TBN     R3,S(CC)
 0113176 05 000414 054002 ------ 0113200                      14              BC      CCERR
 0113177 05 000415 062600 ------                              15              ZBS     0(RA1),OFL_ERR  # ZERO THE ERROR BIT ON A SOFT FAULT
 0113200                                                      16 CCERR
 0113200                                                      17 CCOK
 0113200                                                      18              ENDP                    # 13317
 0113200 05 000416 137000 001467 0001467                -001- 19              BL      %%%627
                                                        -001- 20              NOTE    ************ LAST PATCH ADDRESS USED IS 000417 ***************
                                                                                       *
                                                        -001- 22              NOTE    ***** NUMBER OF PATCH WORDS USED IS 34 (DECIMAL) ********

 0001467                                                -001- 25 %%%627       OWCONTINUE
 0001467                                                      26              TAKEOUT 1
 0001467 01 000467 106000 ------                        -001- 27              LR      0,0
 0001470                                                      28              EOW                     # 13317
                                                        -001- 29              NOTE    ***************** THE LAST ADDRESS OVERWRITTEN IS 000467
                                                                                       **********

 0001470                                                      33              RGEND
 0001470                                                -001- 34 IFS615

   COMMON BASE LEVEL MONITOR                                                                                 PR-1C950-50
    22:40:42   2/05/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CBLM      ISSUE 07      PAGE    52
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SYSTEM STATE DETECTOR (SSD)                                                    22:40:42   2/05/81  ****

ON-LINE MANUAL SWITCH AUDIT                                                                CBLM          W77D

                                                01 # THE MANUAL KEY, POWER KEY, AND TEST MODE REVERSAL SWITCH
                                                02 # SHOULD NEVER BE OPERATED IN THE ON-LINE CC.  LIKEWISE,
                                                03 # THE TEST MODE REVERSAL SWITCH SHOULD NEVER BE OPERATED
                                                04 # IN THE OFF-LINE CC.  THE OFF-LINE POWER KEY SHOULD NEVER
                                                05 # BE DETECTED AS OPERATED, FOR IF IT IS OPERATED IN THE CORRECT
                                                06 # SEQUENCE POWER WILL BE REMOVED BLOCKING ON-LINE ACCESS TO THE KEY.
0001470 01 000470 172003 ------                  07         GN      R0,3                  # RESTORE THE SAVED VALUES OF THE OFF-LINE
                                                                                            POWER KEY AND TEST MODE REVERSAL SWITCH
0001471 01 000471 012411 ------                  09         UNPK    DB                    # SAVE THE CONTENTS OF THE DB AND PROTECT
                                                                                            AGAINST BAD PARITY IN IT
0001472                                          11         SBIN                          # THE DISP BIT IS SET, HENCE AN INTERRUPT
                                                                                            BETWEEN THE MI AND THE UNPK INSTRUCTIONS
                                                                                            WOULD CHANGE THE DATA SEEN BY THE AUDIT
0001472 01 000472 013002 ------          -001-  14         MIS     2
0001473 01 000473 105722 ------          -001-  15         DATA    35794
0001474 01 000474 012060 ------                 16         PACK    MCHB
0001475                                         17         MIMODE  SIS2XDB
0001475 01 000475 013000 ------          -001-  18         MIS     0
0001476 01 000476 026471 ------          -002-  19              DATA    SIS2XDB%
0001477 01 000477 012411 ------                 20         UNPK    DB
0001500 01 000500 024071 ------                 21         TBN     R3,ONL_PWRKEY
0001501 01 000501 030000 ------                 22         ICF     R0,0
0001502                                         23         MIMODE  SIS1XDB
0001502 01 000502 013000 ------          -001-  24         MIS     0
0001503 01 000503 026466 ------          -002-  25              DATA    SIS1XDB%
0001504 01 000504 012411 ------                 26         UNPK    DB
0001505                                         27         MIMODE  L DB,MCHB             # RESTORE THE DB
0001505 01 000505 013000 ------          -001-  28         MIS     0
0001506 01 000506 124631 ------          -002-  29            VFD     8,DB%T 8,MCHB%F
0001507                                         30         ZBIN
0001507 01 000507 013002 ------          -001-  31         MIS     2
0001510 01 000510 107322 ------          -001-  32         DATA    36562
0001511 01 000511 016060 001401                 33         IRM     R3,R0,ES(PWRKEY,TMRSW)!E(0) # MERGE ALL KEY STATUS FOR EASY TEST
                                                34 CBLM    OW      0(513)                # 3E800105
                                         -001-  35         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000513 **********

                                                38 CBLM    BGNP    0(2525)               # 3E800105
0001513 01 000513 037000 003525 0003525  -001-  39         BL      XXX644
                                         -001-  40         NOTE    CBLM 'CSECT'
                                         -001-  41         NOTE    ****************** PATCH AREA BEGINS AT 002525 ****************

0003525                                  -001-  44 XXX644  PATCHAREA
0003525 01 002525 131400 043027 CTSD             45         LAL     R0,SYSTATE+N(PWR_ONL),RA1
0003527 01 002527 024060 ------                 46         TBN     R3,0                  # ONL_PWRKEY
0003530 01 002530 030017 ------                 47         ICF     R0,S(PWR_ONL)         # UPDATE ONLINE POWER KEY STATE IN SYSTATE
0003531 01 002531 024072 ------                 48         TBN     R3,ONL_MANKEY
0003532 01 002532 030016 ------                 49         ICF     R0,S(MAN_ONL)         # UPDATE ONLINE MANUAL KEY STATE IN SYSTATE

COMMON BASE LEVEL MONITOR                                                                  PR-1C950-50

 22:40:42   2/05/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CBLM      ISSUE  07      PAGE    53
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SYSTEM STATE DETECTOR (SSD)

22:40:42 2/05/81 ****

ON-LINE MANUAL SWITCH AUDIT

CBLM W77D

```
0003533 01 002533 024067 ------                01        TBN     R3,ONL_TMRSW
0003534 01 002534 030015 ------                02        ICF     RO,S(TST_ONL)        # UPDATE ONLINE TEST MODE SWITCH STATE IN
                                                                                        SYSTATE
0003535 01 002535 024071 ------                04        TBN     R3,S(TMRSW)
0003536 01 002536 030014 ------                05        ICF     RO,S(TST)            # UPDATE OFFLINE TEST MODE SWITCH STATE IN
                                                                                        SYSTATE
0003537 01 002537 044400 ------                07        ST      RO,O(RA1)            # UPDATE SYSTATE KEY STATES
0003540 01 002540 003462 003601                08        NI      R3,E(ONL_MANKEY,ONL_TMRSW,O)!ES(PWRKEY,TMRSW)
0003542                                        09        ENDP                         # 3E800105
0003542 01 002542 037000 001515 0001515  -001- 10        BL      XXX646
                                         -001- 11        NOTE    ************ LAST PATCH ADDRESS USED IS 002543 ***************
                                         -001- 12        NOTE    ***** NUMBER OF PATCH WORDS USED IS 15 (DECIMAL) ********

0001515                                  -001- 15 XXX646 OWCONTINUE
0001515                                        16        EOW                          # 3E800105
                                         -001- 17        NOTE    ***************** THE LAST ADDRESS OVERWRITTEN IS 000514 *********
                                                                  *

0001515 01 000515 103006 ------ CINIT          21        LN      RO,ERPKEY
0001516                                        22        CALL    ERRPRTCK
0001516 01 000516 073035 ------          -001- 23        BSAI    errprTck             # SUBROUTINE ERRPRTCK IS IN PROGRAM CINIT
```

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SYSTEM STATE DETECTOR (SSD)                                                    22:40:42   2/05/81  ****

MS REGISTER AUDIT                                                                    CBLM          W77D

0001517 01 000517 112416 ------                    01      UNPK    MS
0001520 01 000520 006163 ------                    02      LR      R7,R3
0001521                                            03      MIMODE  L MS,NOP
0001521 01 000521 013000 ------             -001-  04      MIS     0
0001522 01 000522 106760 ------             -002-  05              VFD     8,MS%T 8,NOP%F
0001523 01 000523 003004 ------ CINIT              06      LN      R0,ERPMS
0001524 01 000524 014167 ------                    07      TZ      R7
0001525                                            08      CALL    ERRPRTCK
0001525 01 000525 073035 ------             -001-  09      BSAI    errprTck          # SUBROUTINE ERRPRTCK IS IN PROGRAM CINIT
```

```
                                                  01 # THE IM REGISTER IS NORMALLY ZERO AT BASE LEVEL.
                                                  02 # THE ONLY EXCEPTION TO THIS IS THE RECOVERY MODE FOR
                                                  03 # EXTERNAL STUCK INTERRUPTS.  EXTERNAL INTERRUPTS BY THEIR
                                                  04 # NATURE DISTURB BOTH CU'S IN A PROCESSOR.  FOR THIS REASON,
                                                  05 # THE ONLY RECOVERY MODE IS TO BLOCK THE STUCK INTERRUPT AND
                                                  06 # THEREBY IGNORE IT.  AS A PRECAUTIONARY MEASURE AGAINST THE
                                                  07 # ACCIDENTAL BLOCKING OF AN INTERRUPT, A RECORD OF BLOCKED
                                                  08 # INTERRUPTS IS MAINTAINED IN MAS WORD IM_IMAGE.  THEREFORE,
                                                  09 # IM_IMAGE SHOULD EQUAL THE IM REGISTER AT BASE LEVEL.
                                                  10 # THIS AUDIT COMPARES THE TWO AND FAILS IF THEY MISMATCH.
                                                  11 # ON FAILURE, THE INTERRUPTS CORRESPONDING TO BITS WHICH
0001526                                           12 # MISMATCH ARE UNBLOCKED.
                                                  13
                                                  14 # ONE SPECIAL CASE EXISTS.  WHEN THE OFF-LINE CU IS BEING POWERED DOWN,
                                                  15 # THE OCC INTERRUPT FROM IT MAY APPEAR STUCK.  THE INTERRUPT
                                                  16 # PROGRAM BLOCKS THE INTERRUPT WHEN IT SUSPECTS THIS IS THE CASE
                                                  17 # BUT DOES NOT UPDATE IM_IMAGE.  THUS A 'FAILURE' IS GUARANTEED.
                                                  18 # SINCE THIS IS NOT A REAL FAILURE, IT IS SINGLED OUT AND NO
                                                  19 # ERROR MESSAGE IS GENERATED.  THIS IS PERMISSIBLE SINCE THE OCC
                                                  20 # INTERRUPT IS TREATED AS AN INTERNAL INTERRUPT AND HENCE RECOVERY
                                                  21 # WHEN IT IS REALLY STUCK IS VIA A STOP AND SWITCH RATHER THAN
                                                  22 # A BLOCK.
0001526 01 000526 112414 ------                    23         UNPK    IM
0001527 01 000527 006163 ------                    24         LR      R7,R3
0001530 01 000530 031600 043021 CTSD               25         LAL     R8,IM_IMAGE,RA1
0001532                                            26         IF      R7 ~= R8 THEN RGBEGIN
0001532 01 000532 020170 ------          -002-     27             CR      R7,R8
0001533 01 000533 054012 ------ 0001545  -001-     28             BC      IFS656
0001534                                            29             MIMODE  L IS_R,R7
0001534 01 000534 013000 ------          -001-     30             MIS     0
0001535 01 000535 033145 ------          -002-     31              VFD     8,IS_RXT 8,R7XF
0001536 01 000536 006007 ------                    32             LR      R0,R7
0001537 01 000537 014010 ------                    33             NR      R0,R8           # PRESERVE THE BLOCK ONLY WHERE IM AND
                                                                                             IM_IMAGE AGREE
0001540 01 000540 044400 ------                    35             ST      R0,0(RA1)
0001541 01 000541 007700 ------                    36             LSR     IM,R0
0001542 01 000542 024167 ------                    37             TBN     R7,S(OCCI)      # THE OTHER CC INTERRUPT SHOULD NOT BE
                                                                                             BLOCKED FOR STUCK INTERRUPT RECOVERY
0001543 01 000543 054004 ------ 0001547            39             BC      SKPOCCI         # SKIP ERROR MESSAGE
0001544 01 000544 004400 ------                    40             ZCF                     # FLAG FAILURE
0001545                                            41             RGEND
0001545                                  -001-     42 IFS656
0001545 01 000545 103003 ------ CINIT              43         LN      R0,ERPIM
0001546                                            44         CALL    .ERRPRTCK
0001546 01 000546 073035 ------          -001-     45         BSAI    errprtck            # SUBROUTINE ERRPRTCK IS IN PROGRAM CINIT
0001547                                            46 SKPOCCI
```

```
SYSTEM STATE DETECTOR (SSD)                                                    22:40:42   2/05/81  ****

UPDATE SYSTEM STATE WORD 'SYSTATE'                                                        CBLM          W77D

                                                 01 # THE CONTENTS OF SYSTEM STATE WORD 'SYSTATE' IS UPDATED FROM
                                                 02 # THE PRIMARY SOURCES. TYPICALLY THE CHANGE WILL BE MADE
                                                 03 # IMMEDIATELY BY THE ROUTINE CAUSING THE CHANGE. THEREFORE,
                                                 04 # THIS ROUTINE EXISTS PRIMARILY TO INSURE THE SOFTWARE STATE
                                                 05 # DOES NOT GET OUT OF SYNC WITH THE REST OF THE SYSTEM
                                                 06 # FOR UNKNOWN REASONS.

                                                 08 # THE LAYOUT OF SYSTATE IS AS FOLLOWS:
 0001547,                                        09       SYSTATER_PICTURE
SYSTATER                                  -001- 10 #
00| PKEY   | SW_IP  |RST_IP  |MCH_OOS|SSP_OOS|MAS_OOS|ONL_CC  |OSM_OFL|OSA_TBL|UPD_DON|OSA_PGM|OSA_FAL|INITQ_I|OFL_UAV|OFL_OOS|OFL_STB|
  |        |        |        |       |       |       |        |       |       |       |       |       |       |       |       |       |
01|PWR_ONL |MAN_ONL |TST_ONL |  TST  |       |       |        |       |       |       |       |COROFL |CORONL |UCORDSR|UCOROFL|UCORONL|
  |        |        |        |       |       |       |        |       |       |       |       |       |       |       |       |       |
  |   15   |   14   |   13   |   12  |   11  |   10  |   9    |   8   |   7   |   6   |   5   |   4   |   3   |   2   |   1   |   0   |


0001547 01 000547 157437 ------                  22        TCC1
0001550 01 000550 030111 ------                  23        ICF     ONL_CC,S(ONL_CC)

0001551 01 000551 012417 ------                  25        UNPK    SS
0001552 01 000552 024071 ------                  26        TBN     R3,S(LON)
0001553 01 000553 030102 ------                  27        ICF     OFL_UAV,S(OFL_UAV)

0001554 01 000554 022103 ------                  29        ZBN     INITQ_IP,S(INITQ_IP) # INIT TO NOT INITIALIZATION SEQUENCE
0001555                                          30        IF      INITQCD -== 0 THEN SBN INITQ_IP,S(INITQ_IP) # CHANGE IF NECESSARY
0001555 01 000555 030400 043341 CTSD      -002- 31            LL      R0,INITQCD
0001557 01 000557 014000 ------           -002-;32            TZ      R0
0001560 01 000560 054002 ------ 0001562   -001- 33            BC      IFS664
0001561 01 000561 026103 ------           -001- 34            SBN     INITQ_IP,S(INITQ_IP) # CHANGE IF NECESSARY
0001562                                   -001- 35 IFS664

                                                 37 # UPDATE SYSTATE FROM PRIMARY SOURCE,IE.,ACTIVE MSFS
0001562 01 000562 131440 043001 CTSD             38        LAL     R2,MSFMTX,RA1
0001564 01 000564 040402 ------                  39        L       R0,IP(RA1)
0001565 01 000565 014440 ------                  40        OR      R2,R0
0001566 01 000566 040403 ------                  41        L       R0,AB(RA1)
0001567 01 000567 014440 ------                  42        OR      R2,R0                  # COMBINE IN PROGRESS AND ABORT STATES TO
                                                                                          ALLOW A SINGLE CHECK
                                                 44 CBLM   OW      0(570)                 # 12913
                                          -001- 45        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000570 **********


0001570                                          48        TAKEOUT 3
0001570 01 000570 006000 ------           -001- 49        LR      0,0
0001571 01 000571 006000 ------           -001- 50        LR      0,0
0001572 01 000572 006000 ------           -001- 51        LR      0,0
0001573 01 000573 026107 ------                  52        SBN     OSA_TBLA,S(OSA_TBLA)
```

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SYSTEM STATE DETECTOR (SSD)                                                    22:40:42   2/05/81  ****

UPDATE SYSTEM STATE WORD 'SYSTATE'                                                      CBLM          W77D

0001574 ,                                      01          EOW                      # 12913
                                         -001- 02          NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000573 *********
                                                             *


0001574 01 000574 003442 004002 BLMMA           06          NI       R2,MSFOFL
0001576                                        07          IF       CF THEN RGBEGIN
0001576 01 000576 055003 ------ 0001601  -002- 08              BNC      IFS672
0001577 01 000577 022107 ------          -      09              ZBN      OSA_TBLA,S(OSA_TBLA)
0001600                                        10              TAKEOUT 1                 # 3E790058
0001600 01 000600 006000 ------          -001- 11              LR       0,0
0001601                                        12              RGEND
0001601                                  -001- 13 IFS672


                                               17 # OFL_OOS IS SET IFF ONE OR MORE OF ITS FIVE SUBSTATES ARE ACTIVE
0001601 01 000601 106024 ------                18          LR       R1,R4
                                               19 CBLM     OW       0(602)               # 12913
                                         -001- 20          NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000602 **********


0001602 01 000602 003401 001214                23          LI       R0,E(S(ONL_CC),S(OFL_UAV),S(INITQ_IP),S(OSA_TBLA))
0001604                                        24          EOW                       # 12913
                                         -001- 25          NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000603 *********
                                                             *


0001604                                        29          CALL     UPDSTATE
0001604 01 000604 037020 001726 0001726  -001- 30          BSA      UPDSTATE
0001606 01 000606 117001 000004                31          CRM      R0,R1,M(OFL_UAV)
0001610 01 000610 006101 ------                32          LR       R4,R1                # SAVE SYSTATE
0001611                                        33          IF       ¬ CF THEN RGBEGIN
0001611 01 000611 054011 ------ 0001622  -002- 34              BC       IFS681
                                               35              SPELL    R0,(A,V,L)       # INIT TTY WORD
0001612 01 000612 003401 001410 TTYTBL   -001- 36              LI       R0,A%VL
0001614 01 000614 024022 ------                37              TBN      R1,S(OFL_UAV)
0001615                                        38              IF       CF THEN SPELL R0,(U,A,V)
0001615 01 000615 055003 ------ 0001620  -002- 39              BNC      IFS686
0001616 01 000616 003401 001572 TTYTBL   -003- 40              LI       R0,U%AV
0001620                                  -002- 41 IFS686
0001620                                        42              CALL     REPTCUSTAT
0001620 01 000620 137020 002000 0002000  -001- 43              BSA      REPTCUSTAT
0001622                                        44              RGEND
0001622                                  -001- 45 IFS681
```

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SYSTEM STATE DETECTOR (SSD)                                                    22:40:42   2/05/81  ****

UPDATE SYSTEM STATE WORD 'SYSTATE'                                                    CBLM          M77D

                                                01 # IF THE MCH HAS FAILED, SET THE POWER KEY MEMORY BIT FOR
                                                02 # THE MAS AUDIT ROUTINE.  AS THE NAME IMPLIES, THE POWER KEY
                                                03 # IS OF INTEREST TO DETERMINE WHETHER OR NOT A POWER DOWN
                                                04 # HAS OCCURRED.  SINCE THE POWER KEY CANNOT BE INTERROGATED
                                                05 # WHEN POWER IS DOWN DUE TO THE FAILURE OF THE MAINTENANCE
                                                06 # CHANNEL, THE FAILURE IS USED AS A SUBSTITUTE.  THE MCH CAN OF
                                                07 # COURSE FAIL DUE TO OTHER REASONS SO THIS METHOD IS NOT
                                                08 # FOOLPROOF.  SETTING THE BIT IF POWER DOWN HAS NOT
                                                09 # OCCURRED SHOULD HAVE NO ILL EFFECTS.
0001622 01 000622 124114 ------                  10          TBN     R4,S(MCH_OOS)
0001623                                         11          IF      CF THEN RGBEGIN
0001623 01 000623 055004 ------ 0001627  -002-  12              BNC     IFS693
                                                13 CBLM         OW      0(624)          # 3E800105
                                        -001-   14              NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000624
                                                                  **********


                                                18 CBLM         BGNP    0(2544)         # 3E800105
0001624 01 000624 037000 003544 0003544  -001-  19              BL      XXX696
                                        -001-   20              NOTE    CBLM 'CSECT'
                                        -001-   21              NOTE    ****************** PATCH AREA BEGINS AT 002544 ***************
                                                                  *

0003544                                 -001-   25 XXX696       PATCHAREA
0003544 01 002544 131000 043017 CTSD             26              LAL     R0,AUMASCTL,RA0
0003546 01 002546 061101 ------                 27              SBS     N(PKEYM)(RA0),S(PKEYM)
0003547 01 002547 031000 043027 CTSD            28              LAL     R0,SYSTATE+N(COROFL),RA0
0003551 01 002551 003402 177751                 29              NI      R0,¬(M(COROFL)|M(UCORDSR)|M(UCOROFL)) # RESET MAS ERROR FLAGS
                                                                                                ON POWER DOWN
0003553                                         31              ENDP                          # 3E800105
0003553 01 002553 037000 001626 0001626  -001-  32              BL      XXX698
                                        -001-   33              NOTE    ************ LAST PATCH ADDRESS USED IS 002554 **************
                                                                  *
                                        -001-   35              NOTE    ***** NUMBER OF PATCH WORDS USED IS 9 (DECIMAL) ********


0001626                                 -001-   38 XXX698       OWCONTINUE
0001626                                         39              EOW                           # 3E800105
                                        -001-   40              NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000625
                                                                  **********


0001626 01 000626 144000 ------                  44              ST      R0,0(RA0)       # UPDATE SYSTATE OMAS STATE FLAGS
0001627                                         45              RGEND
0001627                                 -001-   46 IFS693


COMMON BASE LEVEL MONITOR                                                                  PR-1C950-50
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```
0001627 01 000627 131400 043026 CTSD           01          LAL      RO,SYSTATE,RA1
0001631 01 000631 040421 ------                02          L        R1,1(RA1)
0001632 01 000632 024012 ------                03          TBN      RO,S(MAS_OOS)
0001633 01 000633 054004 ------ 0001637        04          BC       RMV
0001634 01 000634 017420 013000                05          CIRM     R1,0,0,ES(UCOROFL,UCORDSR,COROFL)
0001636                                        06          IF       ¬ CF THEN RGBEGIN
0001636 01 000636 054003 ------ 0001641  -002- 07                BC       IFS704
0001637                                        08 RMV
0001637                                        09                CALL     RMV_MAS
0001637 01 000637 137020 001247 0001247  -001- 10                BSA      RMV_MAS
0001641                                        11                RGEND
0001641                                  -001- 12 IFS704


                                               16 # THE SYSTEM STATE HAS NOW BEEN DETERMINED.  SHOULD THE SYSTEM BE IN
                                               17 # THE UPDATE MODE?
                                               18 # R4 = SYSTATE
0001641 01 000641 112404 ------                19          UNPK     MMSR                 # GET MMSR TO TEST UPDATE BITS
0001642 01 000642 024116 ------                20          TBN      R4,S(SW_IP)
                                               21 CBLM     OW       0(643)               # 13320
                                         -001- 22          NOTE     ************** THE FIRST ADDRESS OVERWRITTEN IS 000643 **********

0001643 01 000643 031000 043017 CTSD           25          LAL      RO,AUMASCTL,RAO
0001645 01 000645 006124 ------                26          LR       R5,R4                # SAVE SYSTATE
0001646 01 000646 054005 ------ 0001653        27          BC       SWIP
0001647                                        28          EOW                           # 13320
                                         -001- 29          NOTE     **************** THE LAST ADDRESS OVERWRITTEN IS 000646 *********
                                                                     *


                                               33 CBLM     OW       0(647)               # 12913
                                         -001- 34          NOTE     ************** THE FIRST ADDRESS OVERWRITTEN IS 000647 **********

0001647 01 000647 003502 112640                37          NI       R4,NO_UPD
0001651 01 000651 050400 116077 0116077        38          BNCL     NOTIUPD
0001653                                        39 SWIP
0001653 01 000653 124126 ------                40          TBN      R5,S(UPD_DON)
0001654                                        41          EOW                           # 12913
                                         -001- 42          NOTE     **************** THE LAST ADDRESS OVERWRITTEN IS 000653 *********
                                                                     *
```

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SYSTEM STATE DETECTOR (SSD)                                                    22:40:42    2/05/81  ****

UPDATE SYSTEM STATE WORD 'SYSTATE'                                                    CBLM          W77D

                                                 01 CBLM    OW      0(654)              # 13320
                                          -001-  02        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000654 **********


                                                 05 DEPATCH NOTE    CHANGE LONG BRANCH TO SHORT BY REMOVING 'L' ON NEXT LINE
0001654 01 000654 050000 116065 0116065           06         BCL     PUTIUPD
0001656 01 000656 051001 ------                  07         TBS     N(UPD_IP)(RA0),S(UPD_IP)
                                                 08 CPATCH4 BGNP    0(5)                # 13320
0001657 01 000657 037000 116064 0116064   -001-  09         BL      XXX717
                                          -001-  10         NOTE    CPATCH4 'CSECT'
                                          -001-  11         NOTE    ****************** PATCH AREA BEGINS AT 000005 ****************


0116064                                   -001-  14 XXX717 PATCHAREA
0116064 10 000005 155007 ------ 0116073          15         BNC     DOREQ
0116065                                          16 PUTIUPD
0116065 10 000006 103401 001400                  17         LI      R0,E(S(UPD0),S(UPD1))
0116067                                          18         CALL    MMSRS
0116067 10 000010 037020 116420 0116420   -001-  19         BSA     MMSRS
                                                 20 DEPATCH NOTE    CHANGE LONG BRANCH TO SHORT BY REMOVING 'L' ON NEXT LINE
0116071 10 000012 137000 001661 0001661          21         BL      RSTPRTCHK
0116073                                          22 DOREQ
0116073                                          23         TAKEOUT 2
0116073 10 000014 106000 ------           -001-  24         LR      0,0
0116074 10 000015 006000 ------           -001-  25         LR      0,0
0116075                                          26         CALL    REQ_UPD
0116075 10 000016 037020 003030 0003030   -001-  27         BSA     REQ_UPD
0116077                                          28 NOTIUPD
0116077 10 000020 162540 ------                  29         ZBS     N(UPD_DON)(RA1),S(UPD_DON)
0116100 10 000021 003401 030000                  30         LI      R0,E(S(BDSR0),S(BDSR1))
0116102                                          31         CALL    MMSRS
0116102 10 000023 037020 116420 0116420   -001-  32         BSA     MMSRS
0116104 10 000025 103401 001400                  33         LI      R0,E(S(UPD0),S(UPD1))
0116106                                          34         CALL    MMSRZ
0116106 10 000027 037020 116412 0116412   -001-  35         BSA     MMSRZ
0116110 10 000031 124030 ------                  36         TBN     R1,S(UPD0)
0116111 10 000032 050400 001661 0001661          37         BNCL    RSTPRTCHK
0116113 10 000034 031400 043351 CTSD             38         LAL     R0,MASTATE,RA1
0116115 10 000036 003000 ------                  39         ZR      R0
0116116                                          40         STOS    0(RA1)
E0116116 10 000037 000420 ------          -001-  41         MSTF    0(RA1)
 0116117 10 000040 136100 ------          -001-  42         DATA    B(1011110001000000)
0116120 10 000041 062241 ------                  43         ZBS     N(UCL_UPD)(RA0),S(UCL_UPD)
0116121                                          44         ENDP                        # 13320
0116121 10 000042 037000 001661 0001661   -001-  45         BL      XXX725
                                          -001-  46         NOTE    ************ LAST PATCH ADDRESS USED IS 000043 ***************
                                          -001-  47         NOTE    ***** NUMBER OF PATCH WORDS USED IS 31 (DECIMAL) ********


COMMON BASE LEVEL MONITOR                                                                  PR-1C950-50

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SYSTEM STATE DETECTOR (SSD)                                                    22:40:42    2/05/81  ****

UPDATE SYSTEM STATE WORD 'SYSTATE'                                                          CBLM          W77D

0001661                                  -001- 01 XXX725 OWCONTINUE
0001661                                        02        EOW                          # 13320
                                         -001- 03        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000660 *********
                                                                  *



0001661                                        08 RSTPRTCHK
0001661 01 000661 131500 043026 CTSD           09        LAL     OFL_STBY,SYSTATE,RA1
                                               10 CBLM   OW      0(663)                 # 13320
                                         -001- 11        NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 000663 **********

0001663 01 000663 003401 020100                14        LI      R0,E(S(RST_IP),S(UPD_DON))
0001665 01 000665 017004 020100                15        CRM     R0,R4,E(S(RST_IP),S(UPD_DON))
0001667 01 000667 055016 ------ 0001705        16        BNC     UPDCHKEND
0001670                                        17        EOW                          # 13320
                                         -001- 18        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000667 *********
                                                                  *

0001670 01 000670 062720 ------                22        ZBS     N(RST_IP)(RA1),S(RST_IP)
                                               23        SPELL   R6,(S,T,O,P,P,E,D)
0001671 01 000671 003541 000346 TTYTBL   -001- 24        LI      R6,S%TOPPED
0001673                                        25        IF      ¬ OFL_OOS THEN SPELL R6,(C,O,M,P,L)
0001673 01 000673 024101 ------          -004- 26            TBN     OFL_OOS,S(OFL_OOS)
0001674 01 000674 054003 ------ 0001677  -002- 27            BC      IFS737
0001675 01 000675 003541 000302 TTYTBL   -003- 28            LI      R6,C%OMPL
0001677                                  -002- 29 IFS737
0001677                                        30        PRINT   FMT=(WRD(R,S,T),WRD(C,U),WRD)

                                         -001- 32 #  MESSAGE PROTOTYPE
                                         -001- 33 #      mm      RST CU WRD
0001677 01 000677 173053 ------          -002- 34        BSAI    P%MRY                  # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
0001700 01 000700 100200 ------          -002- 35        VFD     1,1 2,0 1,0 3,0 1,0 1,1 1,0 2,0 1,0 3,0
0001701 01 000701 021040 ------          -002- 36        VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_WRD
0001702 01 000702 021042 ------          -002- 37        VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_
0001703 01 000703 010036 ------ TTYTBL   -002- 38        VFD     5,2 11,R%ST
0001704 01 000704 000077 ------ TTYTBL   -002- 39        VFD     5, 11,C%U
                                         -001- 40        NOTE    THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
                                                                   CONTAINED IN GENERAL REGISTERS R6,
0001705                                        42 UPDCHKEND
0001705 01 000705 137000 001052 0001052        43        BL      STATDRTN
```

```
                                        01 # DESCRIPTION:
                                        02 # PRINT THE CONTENTS OF A BLOCK OF STORE CONTAINING THE CU STATUS.
0001707                                 03
                                        04 # ENTRY POINT:
                                        05 # OPCU
0001707                                 06
                                        07 # ENTRY CONDITIONS:
                                        08 # NONE
0001707                                 09
                                        10 # EXIT CONDITION:
                                        11 # R0 = RETURN CODE
                                        12 #   TTY_RL--CONTROL BLOCK IS BUSY.  DUMP WILL NOT TAKE PLACE.
                                        13 #   TTY_PF--DUMP WILL FOLLOW.



0001707                                 17 OPCU
0001707                                 18         BEGIN   ()
0001707 01 000707 131000 001714 0001714 19         LAL     R0,OPCUBLK,RA0
0001711                                 20         CALL    FIXDMPST
0001711 01 000711 037020 133215 CUTIL    -001- 21  BSA     FIXDMPST
0001713                                 22         RETURN
0001713 01 000713 156400 ------          -001- 23  BTSA



0001714                                 29 OPCUBLK
0001714 01 000714 000160 ------                 30         DATA    7*E(4)
0001715 01 000715 000040 ------                 31         DATA    32                  # PRINT 32 STATUS WORDS
                                                32         SPELL   MRY,(O,P)
0001716 01 000716 000027 ------ TTYTBL   -001- 33         VFD     5, 11,0XP
                                                34         SPELL   MRY,(C,U,SP,S,T,A,T)
0001717 01 000717 001424 ------ TTYTBL   -001- 35         VFD     5, 11,CUzSTAT
0001720 01 000720 000000 ------                 36         DATA    0
0001721 01 000721 000000 043001 CTSD            37         ADDR    MSFMTX              # FIRST WORD OF STATUS BLOCK
```

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SYSTEM STATE DETECTOR (SSD)                                                    22:40:42   2/05/81  ****
UPDATE THE SYSTEM STATE WORD SYSTATE--SUBROUTINE                                        CBLM          W77D

                                        01 # DESCRIPTION:
                                        02 # UPDATE STATE AS DIRECTED BY INPUT PARAMETERS
                                        03 # THEN INSURE MAJOR STATES ARE ACCURATE
0001723                                 04
                                        05 # ENTRY POINT:
                                        06 # UPDSTATE
                                        07 # UPDSTATS--ONLY SETTING BIT
                                        08 # UPDSTATZ--ONLY ZEROING BITS
0001723                                 09
                                        10 # ENTRY CONDITIONS:
                                        11 # R0 = MASK OF STATE BITS TO CHANGE
                                        12 # R1 = NEW VALUES (UPDSTATE ONLY)
0001723                                 13
                                        14 # EXIT CONDITIONS:
                                        15 # R0 = CONTENTS OF SYSTATE ON ENTRY
                                        16 # R1 = CONTENTS OF SYSTATE ON EXIT



0001723                                 20 UPDSTATZ
0001723 01 000723 103020 ------         21         ZR      R1
0001724 01 000724 053002 ------ 0001726 22         B       UPDSTATE

0001725                                 24 UPDSTATS
0001725 01 000725 106020 ------         25         LR      R1,R0

0001726                                 27 UPDSTATE
0001726                                 28         BEGIN
0001726 01 000726 171420 ------ -002-   29         HA
0001727 01 000727 031440 043026 CTSD    30         LAL     R2,SYSTATE,RA1
0001731 01 000731 063420 ------         31         STVM    R1,0(RA1)
0001732 01 000732 040420 ------         32         L       R1,0(RA1)           # GET NEW CONTENTS
0001733 01 000733 026021 ------         33         SBN     R1,S(OFL_OOS)       # INIT TO SOME OOS SUBSTATE ACTIVE
0001734 01 000734 003000 ------         34         ZR      R0
                                        35 CBLM    OW      0(735)              # 13320
                                -001-   36         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000735 **********


                                        39 CBLM    OW      0(735)              # 12569
                                -001-   40         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000735 **********

0001735 01 000735 024026 ------         43         TBN     R1,S(UPD_DON)       # NOT UPD_DON LEAVES OFL_OOS SET
0001736                                 44         EOW                         # 12569
                                -001-   45         NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000735 *********
                                                    *


COMMON BASE LEVEL MONITOR                                                              PR-1C950-50
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SYSTEM STATE DETECTOR (SSD)                                                                    22:40:42    2/05/81  ****

UPDATE THE SYSTEM STATE WORD SYSTATE--SUBROUTINE                                                                CBLM          W77D

                                                 01 CPATCH4 BGNP   0(44)                 # 13320
0001736 01 000736 037000 116123 0116123  -001- 02        BL      XXX775
                                        -001- 03        NOTE    CPATCH4 'CSECT'
                                        -001- 04        NOTE    ****************** PATCH AREA BEGINS AT 000044 ****************


0116123                                 -001- 07 XXX775 PATCHAREA
0116123 10 000044 155005 ------ 0116130         08        BNC     LEAVOOS
0116124 10 000045 017020 112620                 09        CRM     R1,R0,ES(PKEY,MCH_OOS,MAS_OOS,OSM_OFL,OSA_TBLA,OSA_FALT)
0116126 10 000047 055002 ------ 0116130         10        BNC     LEAVOOS
0116127 10 000050 022021 ------                 11        ZBN     R1,S(OFL_OOS)
0116130                                         12 LEAVOOS
0116130                                         13        TAKEOUT 3
0116130 10 000051 106000 ------         -001- 14        LR      0,0
0116131 10 000052 006000 ------         -001- 15        LR      0,0
0116132 10 000053 006000 ------         -001- 16        LR      0,0
0116133                                         17        ENDP                          # 13320
0116133 10 000054 037000 001740 0001740 -001- 18        BL      XXX778
                                        -001- 19        NOTE    ************* LAST PATCH ADDRESS USED IS 000055 ***************
                                        -001- 20        NOTE    ***** NUMBER OF PATCH WORDS USED IS 10 (DECIMAL) ********


0001740                                 -001- 23 XXX778 OWCONTINUE
0001740                                         24        TAKEOUT 1
0001740 01 000740 106000 ------         -001- 25        LR      0,0
                                                26 # OFL_STBY IS SET IF NONE OF THE OTHER THREE MAJOR STATES ARE ACTIVE
0001741 01 000741 017420 007000                 27        CIRM    R1,0,0,E(S(OFL_OOS),S(OFL_UAV),S(INITQ_IP))
0001743 01 000743 030020 ------                 28        ICF     R1,S(OFL_STBY)
0001744 01 000744 002420 000003                 29        STM     R1,0(RA1),E(S(OFL_OOS),S(OFL_STBY))
0001746                                         30        EOW                           # 13320
                                        -001- 31        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000745 *********
                                                          *


0001746 01 000746 006002 ------                 35        LR      R0,R2                 # RESTORE ORIGINAL CONTENT OF SYSTATE
0001747                                         36        RETURN
0001747 01 000747 056420 ------         -001- 37        BTSAG
```

```
                                                 01          *       DESCRIPTION:
                                                 02          *       CHECK THE STATUS OF THE OFFLINE MAIN STORE TO DETERMINE
                                                 03          *       IF IT MAY BE ACCESSED BY PROGRAM.
                                                 04          *
                                                 05          *       ENTRY POINT:
                                                 06          *       CK_OST
                                                 07          *
                                                 08          *       ENTRY CONDITIONS:
                                                 09          *       NONE
                                                 10          *
                                                 11          *       EXIT CONDITIONS:
                                                 12          *       R0 = RETURN CODE
                                                 13          *       0--OMAS IS NOT ACCESSIBLE
                                                 14          *       1--OMAS IS ACCESSIBLE BUT IS NOT IN DATE
                                                 15          *       2--OMAS IS IN DATE WITH THE ON-LINE MAS
                                                 16          *       3--OMAS IS IN DATE WITH THE ON-LINE MAS, BUT IS NOT MARKED IN
                                                                       DATE
                                                 18          *       4--ON-LINE MAS MARKED OUT-OF-DATE


0001750                                          22 CK_OST
0001750                                          23          BEGIN
0001750 01 000750 171420 ------          -002-   24          HA
0001751 01 000751 030400 043026 CTSD             25          LL      R0,SYSTATE
0001753 01 000753 003020 ------                  26          ZR      R1
0001754 01 000754 017001 112640                  27          CRM     R0,R1,NO_UPD        # SHOULD SYSTEM BE IN UPDATE?
0001756                                          28          IF      ¬ CF THEN RETURN 0  # OFF-LINE STORE IS NOT OR CANNOT BE UPDATED
0001756 01 000756 054002 ------ 0001760  -002-   29              BC      IFS789
0001757 01 000757 056440 ------          -003-   30              BTSAGN  0
0001760                                  -002-   31 IFS789
                                                 32 CBLM     OW      0(760)              # 12913
                                         -001-   33          NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000760 **********


                                                 36 CPATCH4  BGNP    0(57)               # 12913
0001760 01 000760 137000 116136 0116136  -001-   37          BL      XXX793
                                         -001-   38          NOTE    CPATCH4 'CSECT'
                                         -001-   39          NOTE    ****************** PATCH AREA BEGINS AT 000057 ****************


0116136                                  -001-   42 XXX793   PATCHAREA
0116136 10 000057 130400 043020 CTSD             43          LL      R0,AUMASCTL+1
0116140 10 000061 024000 ------                  44          TBN     R0,S(UPD_IP)        # IS AN UPDATE IN PROGRESS
0116141 10 000062 050400 001763 0001763          45          BNCL    OFLSBUPD
0116143                                          46          ENDP                        # 12913
0116143 10 000064 037000 001762 0001762  -001-   47          BL      XXX795
                                         -001-   48          NOTE    ************* LAST PATCH ADDRESS USED IS 000065 ****************
                                         -001-   49          NOTE    ***** NUMBER OF PATCH WORDS USED IS 7 (DECIMAL) ********
```

```
SYSTEM STATE DETECTOR (SSD)                                                    22:40:42   2/05/81  ****

CHECK STATE OF OFF-LINE MAIN STORE                                                    CBLM          W77D


0001762                                  -001- 03 XXX795 OWCONTINUE
0001762                                        04        RETURN  1
0001762 01 000762 156441 ------          -001- 05        BTSAGN  1
0001763                                        06        EOW                          # 12913
                                         -001- 07        NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 000762 *********
                                                          *


0001763                                        11 OFLSBUPD
                                               12 # OFF-LINE STORE SHOULD BE UP TO DATE. CHECK MARKER WORD TO BE SURE
0001763 01 000763 131400 043351 CTSD            13        LAL     R0,MASTATE,RA1
0001765                                        14        LOS     0(RA1)
0001765 01 000765 076020 ------          -001- 15        STAF    0(RA1)
0001766 01 000766 136160 003405          -001- 16        DATA    B(1011110001110000)
0001767                                        17        IF      R0 -= MASID THEN RETURN 3
0001767 01 000767 003405 121334          -002- 18            CI      R0,MASID
0001771 01 000771 054002 ------ 0001773  -001- 19            BC      IFS801
0001772 01 000772 056443 ------          -002- 20            BTSAGN  3
0001773                                  -001- 21 IFS801
0001773 01 000773 140420 ------                22        L       R1,0(RA1)
0001774 01 000774 020001 ------                23        CR      R0,R1
0001775                                        24        IF      CF -= 1 THEN RETURN 4
0001775 01 000775 054002 ------ 0001777  -001- 25            BC      IFS804
0001776 01 000776 056444 ------          -002- 26            BTSAGN  4
0001777                                  -001- 27 IFS804
0001777                                        28        RETURN  2
0001777 01 000777 156442 ------          -001- 29        BTSAGN  2
```

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SYSTEM STATE DETECTOR (SSD)                                                                    22:40:42   2/05/81  ****

PRINT THE REPT CU STAT TTY MESSAGE                                                                        CBLM          W77D

                                                    01 CBLM   OW      0(1000)              # 3E790032
                                               -001- 02       NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 001000 **********


                                                    05 # DESCRIPTION:
                                                    06 # PRINT A TTY MESSAGE OF THE FORM 'REPT STAT CU cu XXX',
                                                    07 # WHERE XXX IS ANY TTY DICTIONARY WORD AND 'cu' IS THE OFFLINE CU.
0002000                                             08
                                                    09 # ENTRY POINT:
                                                    10 # REPTCUSTAT
0002000                                             11
                                                    12 # ENTRY CONDITIONS:
                                                    13 # R0 = TTY DICTIONARY WORD
0002000                                             14
                                                    15 # EXIT CONDITIONS:
                                                    16 # NONE



0002000                                             20 REPTCUSTAT
0002000                                             21       BEGIN
0002000 01 001000 171420 ------                -002- 22       HA
                                                    23 CPATCH BGNP    0(661)               # 3E790032
0002001 01 001001 037000 112313 0112313        -001- 24       BL      XXX813
                                               -001- 25       NOTE    CPATCH 'CSECT'
                                               -001- 26       NOTE    ****************** PATCH AREA BEGINS AT 000661 ****************


0112313                                        -001- 29 XXX813 PATCHAREA
0112313 04 000661 106200 ------                     30       LR      R8,R0                # POSITION 'WRD'
0112314 04 000662 030400 043026 CTSD                31       LL      R0,SYSTATE
0112316 04 000664 015400 ------                     32       COM     R0
0112317 04 000665 024011 ------                     33       TBN     R0,S(ONL_CC)
0112320                                             34       ENDP                         # 3E790032
0112320 04 000666 037000 002003 0002003        -001- 35       BL      XXX815
                                               -001- 36       NOTE    ************* LAST PATCH ADDRESS USED IS 000667 ***************
                                               -001- 37       NOTE    ***** NUMBER OF PATCH WORDS USED IS 7 (DECIMAL) ********


0002003                                        -001- 40 XXX815 OWCONTINUE
0002003 01 001003 103160 ------                     41       ZR      R7
0002004 01 001004 030160 ------                     42       ICF     R7,0
0002005                                             43       PRINT   FMT=(WRD(R,E,P,T),WRD(S,T,A,T),WRD(C,U),DEC,WRD)

                                               -001- 45 #  MESSAGE PROTOTYPE
                                               -001- 46 #      mm      REPT STAT CU ddddd WRD
0002005 01 001005 073053 ------                -002- 47       BSAI    PXMRY                # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
0002006 01 001006 100200 ------                -002- 48       VFD     1,1 2,0 1,0 3,0 1,0 1,1 1,0 2,0 1,0 3,0
0002007 01 001007 020100 ------                -002- 49       VFD     4,TTY0_ 4,TTY0_WRD 4,TTY0_DEC 4,TTY0_WRD

COMMON BASE LEVEL MONITOR                                                                                 PR-1C950-50

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   SYSTEM STATE DETECTOR (SSD)                                                    22:40:42   2/05/81  ****

   PRINT THE REPT CU STAT TTY MESSAGE                                                      CBLM          W77D

0002010 01 001010 021042 ------          -002- 01      VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_
0002011 01 001011 014033 ------ TTYTBL   -002- 02      VFD     5,3 11,RXEPT
0002012 01 001012 000345 ------ TTYTBL   -002- 03      VFD     5, 11,SXTAT
0002013 01 001013 000077 ------ TTYTBL   -002- 04      VFD     5, 11,CXU
                                         -001- 05      NOTE    THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
                                                               CONTAINED IN GENERAL REGISTERS R7,R8,
0002014                                        07      RETURN
0002014 01 001014 156420 ------          -001- 08      BTSAG
                                               09      EOW                          # 3E790032
0002015                                  -001- 10      NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 001014 *********
                                                               *
```

```
21 ##########################################################################################
22 #*****************************************************************************************
23 #*                                                                                       *
24 #*                                                                                       *
25 #*                    SYSTEM STATUS PANEL CONTROLLER (SSPC)                              *
26 #*                                                                                       *
27 #*                                                                                       *
28 #*****************************************************************************************
29 ##########################################################################################
```

SYSTEM STATUS PANEL CONTROLLER (SSPC) 22:40:42 2/05/81 ****

MAIN ROUTINE CBLM W77D

```
          01  HEADER
-001- 02  *
-001- 03  * SYSTEM STATUS PANEL CONTROLLER
-001- 04  * ------------------------------
-001- 05  *
-001- 06  *
-001- 07  * OVERVIEW
-001- 08  * --------
-001- 09  *
      10  * THE SYSTEM STATUS PANEL (SSP) IS A COMMON SYSTEM CIRCUIT
      11  * WHICH CAN BE USED TO PROVIDE KEY FUNCTIONS FOR
      12  * MANUAL REQUESTS AND TO DISPLAY STATUS INFORMATION
      13  * ON A SET OF LAMPS. THE USE OF THE KEYS AND LAMPS
      14  * IS SPLIT BETWEEN THE COMMON SYSTEM AND THE APPLICATION.
      15  * THE SUBSET ASSIGNED TO THE APPLICATION MAY BE USED
      16  * IN ANY MANNER THEY SELECT. THE SSP IS DIVIDED INTO MODULES
      17  * WHICH CONSISTS OF 8 KEY FUNCTIONS AND 16 STATUS LAMPS.
      18  * THESE ARE DIVIDED INTO THREE BUFFERS WHICH FORM THE
      19  * BASIC LOGICAL UNIT OF THE SSP. TWO KEY FUNCTION
      20  * BUFFERS AND TWO STATUS BUFFERS ARE RESERVED FOR
      21  * COMMON SYSTEM USE. THEY ARE USED TO PROVIDE CONTROL
      22  * OF SYSTEM INITIALIZATION, SYSTEM OVERRIDES, AND THE
      23  * STEP & REPEAT MODE OF MULTISCAN FUNCTIONS, AND
      24  * TO DISPLAY CC STATUS.
-001- 25  *
-001- 26  * SSPC
-001- 27  * ----
-001- 28  *
      29  * THE SSP CONTROLLER PROVIDES THE SOFTWARE TO CONTROL THE
      30  * SSP AND ADMINISTERS THE COMMON SYSTEM PORTION OF IT.
      31  * THE SOFTWARE CONSISTS OF TWO PORTIONS. FIRST, THE SSPC
      32  * UPDATES THE STATUS PORTION FROM A MEMORY MAP ONCE PER
      33  * BASE LEVEL LOOP. THUS, THE TYPICAL APPLICATION PROGRAM,
      34  * WHICH ONLY UPDATES STATUS INFORMATION, NEED NOT BE
      35  * CONCERNED WITH THE PHYSICAL PANEL AT ALL. FOR THE
      36  * OTHER CASES, A SET OF SUBROUTINES IS PROVIDED TO ACCESS
      37  * THE PANEL.
-001- 38  *
-001- 39  * SUMMARY OF INTERFACES
-001- 40  * --------------------
-001- 41  *
-001- 42  *
-001- 43  * MEMORY MAP OF SSP STATUS BITS
-001- 44  * ----------------------------
-001- 45  *
      46  * DESCRIPTION:
      47  * APPLICATION DEFINED TABLE IN TEMPORARY STORE CONTAINING
      48  * THE IMAGE OF ALL SSP STATUS BITS. ONCE PER BASE LEVEL
      49  * LOOP, THE SSPC WILL UPDATE THE SSP FROM THIS TABLE.
```

```
                    01  *
                    02  * TABLE NAME:
                    03  * SSPMAP
                    04  *
                    05  * TABLE FORMAT:
                    06  * EACH WORD OF THE TABLE OR MAP CORRESPONDS TO TWO STATUS
                    07  * BUFFERS ON A GIVEN CIRCUIT PACK, IE, TWO BUFFERS THAT
                    08  * HAVE CONSECUTIVE SSP BUFFER ADDRESSES. SEE SECTION 5.3.2
                    09  * FOR DESCRIPTION OF ADDRESS. WITHIN EACH WORD BITS 7-0
                    10  * RELATE TO THE BUFFER WITH THE SMALLER ADDRESS. THE LENGTH
                    11  * OF THE TABLE MUST BE SPECIFIED BY THE TBLSIZ ATTRIBUTE.
                    12  * THIS ATTRIBUTE IS AUTOMATICALLY DEFINED IF THE TSD MACRO
                    13  * IS USED TO GENERATE THE TABLE.
                    14  *
                    15  * THE BUFFER WITH THE LOWEST ADDRESS SSPMAP(7-0) IS
                    16  * RESERVED BY THE COMMON SYSTEM.
                    17  *


 0002015                                        21        SSPCKEYS_PICTURE
SSPCKEYS                                  -001- 22 #
001 EAEXC  EM_ACT  ALTBUS  DISAREM  RXSP  RXSF  FORCE  LOCKP  SPARE  RLDPROG  RXSEXC  CLRTTY  SELCU1  SELCU0  LOCKM  EAEN
     15     14     13      12      11     10     9      8      7      6        5       4       3       2       1      0


 0002015                                        31 SSPC
                                                32 # THE SSPC IS EXECUTED ONLY IF THE SYSTEM STATUS AND
                                                33 # CONTROL PANEL IS NOT OUT-OF-SERVICE.
 0002015 01 001015 130500 043026 CTSD           34        LL      SSP_OOS,SYSTATE
 0002017                                        35        IF      SSP_OOS THEN BL $SPCRTN
 0002017 01 001017 024113 ------          -004- 36            TBN     SSP_OOS,S(SSP_OOS)
 0002020 01 001020 050000 001054 0001054  -002- 37            BCL     SSPCRTN

                                                39 # TWO BITS (ALTBUS AND DISAREM) ARE NONSTANDARD BECAUSE
                                                40 # OF THE HARDWARE IMPLIMENTATION. THE HARDWARE ONLY HAS THE CAPABILITY
                                                41 # OF HOLDING THESE BITS CLEAR, IE, IT CANNOT SET THEM. THEREFORE,
                                                42 # THE PROGRAM MUST CONTINUALLY ATTEMPT TO SET THESE BITS TO
                                                43 # GET THE TRUE STATUS. IF THEY ARE ACTIVE, THE SET WILL
                                                44 # SUCCEED AND THE PROGRAM WILL SEE A ONE. IF THEY ARE INACTIVE,
                                                45 # THE HARDWARE CLEAR SIGNAL WILL OVERRIDE THE ATTEMPT TO SET
                                                46 # THEM AND THE PROGRAM WILL SEE A ZERO.
 0002022 01 001022 003441 030072                47        LI      R2,ES(ALTBUS,DISAREM)!SSPCB1
 0002024 01 001024 006242 ------                48        LR      R10,R2
 0002025                                        49        CALL    CHGSSP
 0002025 01 001025 073051 ------          -001- 50        BSAI    CXHGSSP             # SUBROUTINE CHGSSP IS IN PROGRAM CBLM
 0002026 01 001026 103001 ------ CINIT          51        LN      R0,ERPSSP
```

```
0002027                                          01        CALL    ERRPRTCK          # PRINT ERROR MESSAGE ON FIRST FAILURE
0002027 01 001027 073035 ------          -001-   02        BSAI    errprTck          # SUBROUTINE ERRPRTCK IS IN PROGRAM CINIT



                                                 06 # READ KEY BUFFERS TO KEEP MAP UP TO DATE
                                                 07 # SO IT CAN BE RESTORED IF NECESSARY. THIS IS ALSO
                                                 08 # PART OF THE APPLICATION ACCESS TO THE SSP.
0002030                                          09        CALL    RDSSPKEYS         # UPDATES SSPMAP FROM SSP KEY BUFFERS
0002030 01 001030 137020 002110 0002110  -001-   10        BSA     RDSSPKEYS



                                                 17 R6     =       ¬ R7 & R8         # DETERMINE TRANSITIONS TO ACTIVE
0002032 01 001032 115547 ------          -004-   18            COM     R6,R7
0002033 01 001033 014150 ------          -004-   19            NR      R6,R8
                                                 20 R8     =       ¬ R8 & R7         # DETERMINE TRANSITIONS TO INACTIVE
0002034 01 001034 015610 ------          -004-   21            COM     R8,R8
0002035 01 001035 014207 ------          -004-   22            NR      R8,R7
0002036 01 001036 024145 ------                  23        TBN     R6,S(RXSEXC)
0002037                                          24        IF      CF THEN RGBEGIN
0002037 01 001037 055004 ------ 0002043  -002-   25            BNC     IFS861
0002040 01 001040 031000 043011 CTSD             26            LAL     R0,RXSCTL,RA0
0002042 01 001042 061140 ------                  27            SBS     0(RA0),S(RXSBPUSH) # NOTIFY MSFC
                                                 28 # CHANGE IN STORE TO AVOID INTERWRITE PROBLEM.
0002043                                          29            RGEND
0002043                                  -001-   30 IFS861



0002043                                          34        IF      CLRTTY THEN RGBEGIN
0002043 01 001043 124144 ------          -004-   35            TBN     CLRTTY,S(CLRTTY)
0002044 01 001044 055006 ------ 0002052  -002-   36            BNC     IFS864
0002045                                          37            CALL    TTYINIT
0002045 01 001045 037020 161250 CTTYT    -001-   38            BSA     TTYINIT
0002047 01 001047 162500 ------                  39            ZBS     0(RA1),S(CLRTTY)
0002050                                          40            CALL    UPDCKEYS
0002050 01 001050 037020 002140 0002140  -001-   41            BSA     UPDCKEYS
0002052                                          42            RGEND
0002052                                  -001-   43 IFS864
```

SYSTEM STATUS PANEL CONTROLLER (SSPC) 22:40:42 2/05/81 ****

MAIN ROUTINE CBLM M77D

```
                                                    01 # BEGIN THE CONTROL OF THE LOCK FUNCTION
                                                    02 R4      =        A.ES(SELCU0)*ES(SSPDATA)|SSPCB0 # INIT TO CU0
0002052 01 001052 103501 002036          -004-     03              LI       R4,ES(SELCU0)*ES(SSPDATA)|SSPCB0
0002054 01 001054 057437 ------                    04          TCC1
0002055                                            05          IF       CF THEN R4 = A.ES(SELCU1)*ES(SSPDATA)|SSPCB0 # CHANGE TO CU1
0002055 01 001055 055003 ------ 0002060  -002-     06              BNC      IFS875
0002056 01 001056 003501 004036          -006-     07              LI       R4,ES(SELCU1)*ES(SSPDATA)|SSPCB0
0002060                                  -002-     08 IFS875
                                                    09 R3      =        A.ES(FORCE)|SSPCB1  # INIT TO LOCK ENABLE SEQUENCE
0002060 01 001060 103461 001072          -004-     10              LI       R3,ES(FORCE)|SSPCB1
                                                    11 R10     =        A.ES(LOCKP)|SSPCB1
0002062 01 001062 003641 000472          -004-     12              LI       R10,ES(LOCKP)|SSPCB1
0002064 01 001064 024201 ------                    13          TBN      R8,S(LOCKM)          # 1ST TIME CLEAR?
0002065                                            14          IF       CF THEN RGBEGIN
0002065 01 001065 055003 ------ 0002070  -002-     15              BNC      IFS889
0002066 01 001066 007243 ------                    16              EXR      R10,R3               # SWITCH TO DISABLE LOCK SEQUENCE
0002067 01 001067 053003 ------ 0002072            17              B        LOCKMERGE
0002070                                            18              RGEND
0002070                                  -001-     19 IFS889
0002070                                            20          IF       LOCKM THEN RGBEGIN
0002070 01 001070 124141 ------          -004-     21              TBN      LOCKM,S(LOCKM)
0002071 01 001071 055011 ------ 0002102  -002-     22              BNC      IFS892
0002072                                            23 LOCKMERGE
0002072                                            24              CALL     OASSP                # ENABLE OR DISABLE LOCK
0002072 01 001072 137020 002224 0002224  -001-     25              BSA      OASSP
0002074 01 001074 106244 ------                    26              LR       R10,R4
0002075                                            27              CALL     OASSP
0002075 01 001075 037020 002224 0002224  -001-     28              BSA      OASSP
0002077 01 001077 106243 ------                    29              LR       R10,R3
0002100                                            30              CALL     OASSP
0002100 01 001100 037020 002224 0002224  -001-     31              BSA      OASSP
0002102                                            32              RGEND
0002102                                  -001-     33 IFS892


                                                    39 # THE INTERROGATION OF KEYS IS NOW COMPLETE
                                                    40 # THE STATUS LAMPS OF THE SSP WILL NOW BE UPDATED FROM
                                                    41 # SSPMAP ON A BIT FOR LAMP BASIS.
0002102 01 001102 103002 ------                     42          LN       R0,2
0002103 01 001103 003023 ------                    43          LN       R1,3
0002104                                            44          CALL     UPDSSP
0002104 01 001104 037020 002171 0002171  -001-     45          BSA      UPDSSP
0002106 01 001106 137000 001054 0001054            46          BL       SSPCRTN
```

```
0002110                                                  01 RDSSPKEYS
                                                         02 # INTERNAL SUBROUTINE USED ONLY BY SSPC, UPDAKEYS, AND UPDCKEYS
0002110                                                  03         BEGIN    ()
0002110 01 001110 103041 ------                          04         LN       R2,1                  # TWO LOOPS
0002111 01 001111 003621 016160                          05         LI       R9,SSPIOADR
0002113 01 001113 003641 071132                          06         LI       R10,PACK(6,3X6_9 2,SSPRD 6,3X6_6 2,SSPRD)
0002115 01 001115 031560 043030 CTSD                     07         LAL      R7,SSPMAP,RA1
0002117                                                  08 RDKEYSLP
0002117                                                  09         CALL     SENDIO                # GET FIRST KEY BUFFER
0002117 01 001117 173034 ------                 -001-    10         BSAI     S%ENDIO               # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
0002120 01 001120 155016 ------ 0002136                  11         BNC      LMPLITER
0002121 01 001121 006213 ------                          12         LR       R8,R11
0002122 01 001122 010650 ------                          13         RRN      R10,8
0002123 01 001123 010610 ------                          14         RRN      R8,8
0002124                                                  15         CALL     SENDIO                # GET SECOND KEY BUFFER
0002124 01 001124 073034 ------                 -001-    16         BSAI     S%ENDIO               # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
0002125 01 001125 155011 ------ 0002136                  17         BNC      LMPLITER
0002126 01 001126 016213 177400                          18         IRM      R8,R11,MSK(8,8)       # PACK
0002130 01 001130 046602 ------                          19         STX      R8,R2(RA1)
0002131 01 001131 003641 035036                          20         LI       R10,PACK(6,3X6_3 2,SSPRD 6,3X6_0 2,SSPRD)
0002133 01 001133 036040 002117 0002117                  21         BX       R2,RDKEYSLP
0002135                                                  22         RETURN
0002135 01 001135 056400 ------                 -001-    23         BTSA

                                                         25 LMPLITER
0002136                                                  26         LR       R7,R8                 # THIS IS THE FAILURE BRANCH.
0002136 01 001136 106170 ------                          27 # SINCE ACTION IS ONLY TAKEN ON A TRANSITION, INSURING THAT THE
                                                         28 # OLD DATA (R7) MATCHES THE NEW DATA (R8) WILL ALSO INSURE THAT
                                                         29 # NO ACTION IS TAKEN. NO ACTION IS INTENDED BECAUSE AT LEAST ONE
                                                         30 # SSP ACCESS FAILED
0002137                                                  31         RETURN
0002137 01 001137 056400 ------                 -001-    32         BTSA
```

```
                                                 01        *       DESCRIPTION:
                                                 02        *       UPDATE THE TWO SSP KEY BUFFER CONTAINING COMMON (APPLICATION)
                                                                     FUNCTIONS.
                                                 04        *
                                                 05        *       ENTRY POINT:
                                                 06        *       UPDCKEYS (UPDAKEYS)
                                                 07        *
                                                 08        *       ENTRY CONDITIONS:
                                                 09        *       SSPMAP(+1) CONTAINS PROPOSED STATE OF THE TWO KEY BUFFERS
                                                 10        *
                                                 11        *       EXIT CONDITIONS:
                                                 12        *       R0 = RETURN CODE
                                                 13        *       0--UPDATE WAS ATTEMPTED
                                                 14        *       1--UPDATE WAS NOT ATTEMPTED BECAUSE THE SSP IS OUT-OF-SERVICE


0002140                                          18 UPDCKEYS
0002140                                          19        BEGIN
0002140 01 001140 171420 ------          -002-   20        HA
0002141 01 001141 003060 ------                  21        LN      R3,0
0002142 01 001142 053003 ------ 0002145          22        B       UPDKEYS

0002143                                          24 UPDAKEYS
0002143                                          25        ABEGIN
0002143 01 001143 171420 ------          -001-   26        HA
0002144 01 001144 003061 ------                  27        LN      R3,1
0002145                                          28 UPDKEYS
                                                 29 # DUE TO A PECULIARITY IN THE WAY THE SSP HARDWARE OPERATES, THE
                                                 30 # PROGRAM SHOULD AVOID SENDING DATA TO IT UNLESS IT IS NECESSARY
                                                 31 # TO DO SO. (SENDING DATA TO A BIT WHOSE CORRESPONDING KEY IS
                                                 32 # DEPRESSED, WILL CAUSE THE BIT TO BE CLEARED EVEN THOUGH THE
                                                 33 # ACT OF DEPRESSING THE KEY AND THE PROGRAM SENT DATA WOULD HAVE
                                                 34 # INDEPENDENTLY CAUSED THE BIT TO BE SET.) CONSEQUENTLY, THESE NORMAL
                                                 35 # ACCESS ROUTINES FIRST READ THE SSP KEYS AND WILL ONLY TRANSFER THE
                                                 36 # DATA FROM THE SSPMAP TO THE SSP IF THIS ACTION WILL RESULT IN
                                                 37 # A CHANGE OF STATE AT THE SSP.
0002145 01 001145 130500 043026 CTSD                38        LL      R4,SYSTATE
0002147 01 001147 024113 ------                  39        TBN     R4,11
0002150                                          40        IF      CF THEN BTSAGN 1
0002150 01 001150 055002 ------ 0002152  -002-   41            BNC     IFS913
0002151 01 001151 056441 ------          -002-   42            BTSAGN  1               #
0002152                                  -002-   43 IFS913

0002152 01 001152 131100 043030 CTSD             45        LAL     R4,SSPMAP,RA0
0002154 01 001154 040121 ------                  46        L       R5,1(RA0)
0002155 01 001155 042143 ------                  47        LX      R6,R3(RA0)          # SAVE NEW DATA
0002156                                          48        CALL    RDSSPKEYS
0002156 01 001156 037020 002110 0002110  -001-   49        BSA     RDSSPKEYS
```

```
0002160 01 001160 142163 ------                  01        LX      R7,R3(RA0)          # GET CURRENT DATA
0002161 01 001161 044100 ------                  02        ST      R4,0(RA0)
0002162 01 001162 044121 ------                  03        ST      R5,1(RA0)
0002163                                          04        IF      R6 = R7 THEN RETURN 0 # IF NO CHANGE WOULD RESULT, DO NOT SEND
                                                                                         ORDER
0002163 01 001163 020147 ------          -002-   06                CR      R6,R7
0002164 01 001164 055002 ------ 0002166  -001-   07                BNC     IFS915
0002165 01 001165 056440 ------          -002-   08                BTSAGN  0
0002166                                  -001-   09 IFS915
0002166 01 001166 106003 ------                  10        LR      R0,R3               # ENTRY CONDITIONS FOR UPDSSP
0002167 01 001167 003020 ------                  11        LN      R1,0
0002170 01 001170 053002 ------ 0002172         12        B       UPDSSPA
```

```
                                    01        *       DESCRIPTION:
                                    02        *       READ OUT CONTENTS OF MEMORY MAP SSPMAP AND
                                    03        *       UPDATE THE SSP BUFFERS TO CORRESPOND.
                                    04        *
                                    05        *       ENTRY POINT:
                                    06        *       UPDSSP
                                    07        *
                                    08        *       ENTRY CONDITION:
                                    09        *       R0 = OFFSET FROM BEGINNING OF MAP OF FIRST WORD TO BE UPDATED
                                    10        *       R1 = NUMBER OF WORDS TO BE UPDATED MINUS ONE
                                    11        *
                                    12        *       EXIT CONDITIONS:
                                    13        *       NONE
```

```
0002171                             17        SSPMAPADRS_PICTURE
SSPMAPADRS                    -001- 18 #
00 |-------------------------------|-------------------------------|
   |   KEY BUFFER 1 (COMMON SYSTEM)|   KEY BUFFER 0 (COMMON SYSTEM)|
01 |-------------------------------|-------------------------------|
   |   KEY BUFFER 3 (APPLICATION)  |   KEY BUFFER 2 (APPLICATION)  |
02 |-------------------------------|-------------------------------|
   |   STATUS BUFFER 1 (MISC)      |   STATUS BUFFER 0 (CU STATUS) |
03 |-------------------------------|-------------------------------|
   |   STATUS BUFFER 3 (ALARMS)    |   STATUS BUFFER 2 (PERIPHERY) |
04 |-------------------------------|-------------------------------|
   |   STATUS BUFFER 5 (DB7-0)     |   STATUS BUFFER 4 (PERIPHERY) |
05 |-------------------------------|-------------------------------|
   |   STATUS BUFFER 7 (DB23-16)   |   STATUS BUFFER 6 (DB 15-8)   |
   |-------------------------------|-------------------------------|
     15  |  14  |  13  |  12  |  11  |  10  |  9  |  8  |  7  |  6  |  5  |  4  |  3  |  2  |  1  |  0
```

```
0002171                                   42 UPDSSP
0002171                                   43        ABEGIN
0002171 01 001171 171420 ------     -001- 44        HA
0002172                                   45 UPDSSPA
0002172 01 001172 106061 ------           46        LR      R3,R1
                                          47 # TABLE SSPMAPADRS CONTAINS THE 3X6 CODE BUFFER ADDRESSES
                                          48 # OF THE BUFFERS WHOSE DATA IS CONTAINED IN SSPMAP.
0002173 01 001173 031040 001000 0001000   49        LAL     R2,SSPMAPADRS,RA0
0002175 01 001175 031440 043030 CTSD      50        LAL     R2,SSPMAP,RA1
0002177 01 001177 043040 ------           51        LAX     R2,R0(RA0)
0002200 01 001200 043440 ------           52        LAX     R2,R0(RA1)
0002201 01 001201 003621 016160           53        LI      R9,SSPIOADR
0002203                                   54 SSPLMPLP
0002203 01 001203 142203 ------           55        LX      R8,R3(RA0)
0002204 01 001204 042643 ------           56        LX      R10,R3(RA1)
```

SYSTEM STATUS PANEL CONTROLLER (SSPC) 22:40:42 2/05/81 ****

UPDATE SSP FROM SSP MAP--SUBROUTINE CBLM W77D

```
0002205 01 001205 006172 ------                    01        LR      R7,R10
0002206 01 001206 010610 ------                    02        RRN     R8,8
0002207 01 001207 016250 000377                    03        IRM     R10,R8,MSK(8)
0002211 01 001211 016207 000377                    04        IRM     R8,R7,MSK(8)
0002213 01 001213 010610 ------                    05        RRN     R8,8
0002214                                            06        CALL    SENDIO
0002214 01 001214 073034 ------           -001-    07        BSAI    S%ENDIO      # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
0002215 01 001215 155006 ------ 0002223            08        BNC     SSPLMPERR
0002216 01 001216 006250 ------                    09        LR      R10,R8
0002217                                            10        CALL    SENDIO
0002217 01 001217 073034 ------           -001-    11        BSAI    S%ENDIO      # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
0002220 01 001220 155003 ------ 0002223            12        BNC     SSPLMPERR
0002221 01 001221 036060 002203 0002203            13        BX      R3,SSPLMPLP
0002223                                            14 SSPLMPERR
0002223                                            15        RETURN  0
0002223 01 001223 156440 ------           -001-    16        BTSAGN  0
```

```
                                -001- 01        *
                                -001- 02        *       SUBROUTINES TO ACCESS SSP
                                -001- 03        *       ------------------------
                                -001- 04        *
                                      05        *       DESCRIPTION:
                                      06        *       CHANGE PART OF A SSP BUFFER
                                      07        *       TO CHANGE ENTIRE BUFFER USE CHGSSP WITH MASK = MSK(8)
                                      08        *       TO READ BUFFER USE ANY ENTRY POINT WITH MASK = 0
                                      09        *
                                      10        *       ENTRY POINTS:
                                      11        *       CHGSSP--CHANGE BITS WHICH ARE SET IN DATA FIELD TO VALUE IN R2
                                      12        *
                                      13        *       ENTRY CONDITIONS:
                                      14        *       R2(15-8)=DATA TO BE SENT TO BUFFER
                                      15        *       R10(15-8)=MASK TO BE USED WHEN GATING TO BUFFER
                                      16        *       BITS EQUAL TO ONE IN MASK WILL BE
                                      17        *       CHANGED TO DATA IN R2
                                      18        *       R10(7-2)=ADDRESS OF BUFFER (3X6 CODE)
                                      19        *
                                      20        *       KEY FUNCTION    1ST STATUS    2ND STATUS
                                      21        *       ------------    ----------    ----------
                                      22        *       RESERVED        RESERVED      001101
                                      23        *       001110          010011        010101
                                      24        *       010110          011001        011010
                                      25        *       011100          100011        100101
                                      26        *       100110          101001        101010
                                      27        *       101100          110001        RESERVED
                                      28        *       R10(1-0)=B(10)
                                      29        *
                                      30        *       EXIT CONDITIONS:
                                      31        *       R11 = THE ORIGINAL CONTENTS OF THE BUFFER


0002224                               35 OASSP
0002224 01 001224 106052 ------       36        LR      R2,R10              # INIT TO SET SSP BITS
0002225 01 001225 024201 ------       37        TBN     R8,S(LOCKM)         # ENABLE OR DISABLE LOCK
0002226                               38        IF      CF THEN ZR R2       # SWITCH TO ZERO SSP BITS
0002226 01 001226 055002 ------ 0002230 -002- 39            BNC     IFS927
0002227 01 001227 003040 ------       -002- 40            ZR      R2          #
0002230                               -002- 41 IFS927
0002230                               42 CHGSSP
0002230                               43        BEGIN
0002230 01 001230 171420 ------       -002- 44        HA
0002231 01 001231 003621 016161       45        LI      R9,SSPIOADR!SSPWRI  # SSPWRI IS USED BELOW ! SSPWRI # SSPWRI IS
                                                                            FOR USE BELOW
0002233                               47        CALL    SENDIO              # READ CURRENT BUFFER CONTENT (ASSUMES
                                                                            R10(1-0)=10)
0002233 01 001233 073034 ------       -001- 49        BSAI    SXENDIO         # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
```

```
SYSTEM STATUS PANEL CONTROLLER (SSPC)                                                    22:40:42   2/05/81  ****

CHANGE SYSTEM STATUS PANEL BUFFER--SUBROUTINE                                                    CBLM          W77D

0002234 01 001234 155013 ------ 0002247        01        BNC     SSPIOERR
0002235 01 001235 072673 ------                02        HN      R11,11
                                               03 # INSERT R2 INTO R11 THROUGH MASK IN R10
0002236 01 001236 015412 ------                04        COM     R0,R10
0002237 01 001237 014260 ------                05        NR      R11,R0
0002240 01 001240 014052 ------                06        NR      R2,R10
0002241 01 001241 014662 ------                07        OR      R11,R2
0002242 01 001242 016253 177400                08        IRM     R10,R11,MSK(8,8)    # USE ONLY BITS 15-8 OF THE RESULT
0002244 01 001244 016251 000003                09        IRM     R10,R9,M(SSPOP)
0002246                                        10        CALL    SENDIO
0002246 01 001246 073034 ------          -001- 11        BSAI    SXENDIO             # SUBROUTINE SENDIO IS IN PROGRAM CSYSUB
0002247                                        12 SSPIOERR
0002247                                        13        RETURN
0002247 01 001247 156420 ------          -001- 14        BTSAG
```

```
                                        01 # DESCRIPTION:
                                        02 # CHANGE THE STATUS OF THE SSP. IF IT IS BEING RESTORED,
                                        03 # UPDATE THE PANEL FROM THE FROZEN MAP.
0002250                                 04
                                        05 # ENTRY POINTS:
                                        06 # RMV_SSP (REMOVE SSP)
                                        07 # RST_SSP (RESTORE SSP)
0002250                                 08
                                        09 # ENTRY CONDITIONS:
                                        10 # NONE
0002250                                 11
                                        12 # EXIT CONDITIONS:
                                        13 # NONE



0002250                                 17 RMV_SSP
0002250                                 18       BEGIN
0002250 01 001250 171420 ------  -002- 19       HA
0002251 01 001251 031400 043026 CTSD    20       LAL     R0,SYSTATE,RA1
0002253 01 001253 061660 ------         21       SBS     0(RA1),S(SSP_OOS)
0002254                                 22       RETURN
0002254 01 001254 056420 ------  -001- 23       BTSAG


0002255                                 27 RST_SSP
0002255                                 28       BEGIN
0002255 01 001255 171420 ------  -002- 29       HA
0002256 01 001256 031400 043026 CTSD    30       LAL     R0,SYSTATE,RA1
0002260 01 001260 062660 ------         31       ZBS     0(RA1),S(SSP_OOS)
0002261                                 32       CALL    UPDCKEYS
0002261 01 001261 037020 002140 0002140 -001- 33       BSA     UPDCKEYS
0002263                                 34       CALL    UPDAKEYS
0002263 01 001263 137020 002143 0002143 -001- 35       BSA     UPDAKEYS
0002265                                 36       RETURN
0002265 01 001265 156420 ------  -001- 37       BTSAG



                                        43 # TTY INPUT ENTRY POINTS TO REMOVE AND RESTORE THE SSP.
                                        44 # THE ONLY ALLOWABLE FORMS OF THESE INPUT MESSAGES ARE
                                        45 # RST:SSP!
                                        46 # RMV:SSP!
```

```
                                          01 SSPRST
0002266                                   02        BEGIN   ()
0002266                                   03        CALL    RST_SSP
0002266                                   04        BSA     RST_SSP
0002266 01 001266 137020 002255 0002255  -001-
0002270                                   05        RETURN  TTY_OK
0002270 01 001270 156464 ------ TTYTBL   -001- 06  BTSAN   TTY_OK


                                          10 SSPRMV
0002271                                   11        BEGIN   ()
0002271                                   12        CALL    RMV_SSP
0002271                                   13        BSA     RMV_SSP
0002271 01 001271 137020 002250 0002250  -001-
0002273                                   14        RETURN  TTY_OK
0002273 01 001273 156464 ------ TTYTBL   -001- 15  BTSAN   TTY_OK
```

```
21 ##############################################################################
22 #*****************************************************************************
23 #*                                                                           *
24 #*                                                                           *
25 #*                  MULTISCAN FUNCTION CONTROLLER (MSFC)                     *
26 #*                                                                           *
27 #*                                                                           *
28 #*****************************************************************************
29 ##############################################################################
```

```
                01  HEADER
           -001- 02  *
           -001- 03  * MULTISCAN FUNCTION CONTROLLER
           -001- 04  * ----------------------------
           -001- 05  *
           -001- 06  *
           -001- 07  * OVERVIEW
           -001- 08  * --------
           -001- 09  *
                 10  * IN ADDITION TO THE NORMAL PROCESSING ROUTINES IN ANY APPLICATION, THERE EXIST
                 11  * SOME MISCELLANEOUS ROUTINES, EG, DIAGNOSTICS, WHICH MUST BE CONTROLLED.
                 12  * IN THE INTEREST OF SYSTEM SANITY THE CONTROLS FOR THESE FUNCTION SHOULD BE
                 13  * RIGID AND CENTRALIZED.  THE REASONS FOR THIS ARE:
                 14  *      -AVOID DUPLICATE CONTROL FUNCTIONS
                 15  *      -AVOID INTERFERENCE BETWEEN FUNCTIONS
                 16  *      -ALLOW SHARING OF FACILITIES IF REQUIRED TO BY ECONOMICS.
                 17  *
                 18  * THE MULTISCAN FUNCTION CONTROLLER (MSFC) IS INTENDED TO PROVIDE THIS CONTROL
                 19  * UNLESS THE APPLICATION HAS ITS OWN EXECUTIVE SYSTEM.  A MSF IS BY DEFINITION
                 20  * ANY FUNCTION WHICH REQUIRES REAL TIME BREAKS AND IS NOT REGULARLY SCHEDULED.
                 21  * ALL FUNCTIONS WHICH MEET THESE TWO CRITERIA MAY BE PLACED UNDER THE MSFC.
                 22  * THE ONLY FUNCTION THAT FALLS IN THIS CLASS AND MAY NOT BE UNDER THE MSFC
                 23  * IS AUDITS. THE REASON IS THAT, SINCE CONTROL IS EXERCISED, IT IS THEORETICALLY
                 24  * POSSIBLE TO GET THE MSFC INTO A STATE WHERE AUDITS WOULD NOT BE ALLOWED.
                 25  * IF ONE OF THESE AUDITS WERE INTENDED TO CLEAR THE PROBLEM THAT
                 26  * ACCIDENTALLY GENERATED THIS STATE, THE SYSTEM WOULD BE DEADLOCKED.
                 27  *
                 28  *
                 29  * A FEW SPECIAL CATEGORIES OF FUNCTIONS EXIST WHICH
                 30  * MUST BE MULTISCAN FUNCTIONS. ANY FUNCTION THAT CAN OPERATE
                 31  * UNDER STEP OR REPEAT CONTROL MUST BE AN MSF. LIKEWISE,
                 32  * ALL NONRESIDENT PROGRAMS MUST BE MSFS.
                 33  *
                 34  * AN MSF IS EXPECTED TO TAKE NO MORE THAN 5 MSEC. OF REAL TIME PER SCAN



                 38 # CONTROL IS MAINTAINED IN A BLOCK OF TEMPORARY STORE CALLED THE MSF
                 39 # MATRIX (MSFMTX).  IT IS CALLED A MATRIX BECAUSE IT TAKES THAT FORM
                 40 # WITH THE MSFS CORRESPONDING TO COLUMNS AND MSF STATES TO ROWS.  THE FOUR
                 41 # KEY ROWS ARE REQUEST BUFFER (RQB),ABORT A REQUEST BIT (ABB),IN PROGRESS (IP), AND
                 42 # ABORT (AB). HENCE, AN MSF CAN BE IN ANY ONE OF 16 STATES:
0002274          43
                 44 # RQB/ABB/IP/AB
                 45 # 0000--INACTIVE
                 46 # 0001--ABORT
                 47 # 0010--IN PROGRESS
                 48 # 0011--1ST IN PROGRESS ABORT
                 49 # 0100--ILLEGAL STATE
```

```
                01 # 1000--REQUEST
                02 # 1001--REQUEST + ABORT
                03 # 1010--REQUEST + IN PROGRESS
                04 # 1011--REQUEST + 1ST IN PROGRESS ABORT
                05 # 1100--REQUEST TO ABORT A REQUEST
                06 # 1101--REQUEST TO ABORT A REQUEST + ABORT
                07 # 1110--ILLEGAL STATE
                08 # 1111--REQUEST TO ABORT A REQUEST + 1ST IN PROGRESS ABORT
0002274         09
                10 # THE FOUR MAJOR STATES ARE 0000,1000,0010, AND 0001, THAT IS,
                11 # THE MSF IS EITHER INACTIVE, REQUESTED, IN PROGRESS, OR ABORTING.
                12 # 1010 AND 1001 ARE COMBINATIONS OF THE MAIN STATES
                13 # COVERING TWO REQUESTS.  IF AN ABORT IS RECEIVED WHILE
                14 # THE MSF IS IN ONE OF THESE TWO STATES, TWO ABORTS WILL OCCUR:
                15 # ONE FOR THE REQUEST AND ONE FOR EITHER THE CONTINUING ABORT OR THE IP.
0002274         16
                17 # THE RELATIONSHIP BETWEEN THE STATES IS BEST ILLUSTRATED BY
                18 # THE SEQUENCE DIAGRAM WHICH FOLLOWS.  NOTE THAT THE 'DISTANCE' BETWEEN
                19 # ANY TWO ADJACENT STATES IS 1, THAT IS, THEY DIFFER IN
                20 # ONLY ONE BIT POSITION.  THIS IS NECESSARY BECAUSE THE 4 BITS
                21 # ARE IN 4 DIFFERENT WORDS AND IT IS PHYSICALLY IMPOSSIBLE TO
                22 # CHANGE MORE THAN ONE BIT AT A TIME.
                23 # THE MAJOR TRANSITION PATHS ARE LABELED.  MOST OF THE OTHERS
                24 # ARE QUITE UNUSAL.  FOR INSTANCE, THE 0110-0111 TRANSITION
                25 # WOULD ONLY OCCUR IF AN INTERRUPT OCCURRED IN THE SHORT
                26 # INSTRUCTION SEQUENCE WHICH PERFORMED THE 1110-0010 TRANSITION
                27 # AND THAT INTERRUPT ABORTED THE MSF UNDERGOING THE TRANSITION.
```

```
                01 # INACTIVE                                    0000
                02 #                                              1
                03 #                                              V          B
                04 # REQUESTED                                   1000---------------->1100
                05 #                                             A1                    1
                06 #                                              V                    V
                07 #                                             1010------>1111      1101
                08 #                                              C1         E1        1
                09 #                                              V          V   F     V
                10 #                                    0000<-----0010------>0011------>0001------>0000
                11 #                                              1          G1        1
                12 #                                              V      G   V     I   V
                13 #                                    1000<-----1010------>1011------>1001------>1000
                14 #                                                         1         1
                15 #                                                         V         V
                16 #                                                        1111------>1101------>1100
0002274         17
0002274         18
                19 # PRIMARY TRANSITION PATHS
                20 # WHERE THE SAME LETTER APPEARS ON CONSECUTIVE ARROWS
                21 # THE INTERVENING STATE IS ONLY A TRANSITION STATE
0002274         22
                23 # A   MOVE IN PROGRESS
                24 # B   ABORT A REQUEST
                25 # C   FOLLOWING COMPLETION OF 1ST IP SEGMENT
                26 # D   FOLLOWING COMPLETION OF 1ST ABORT REQUEST SEGMENT
                27 # E   ABORT AN IP + ABORT A REQUEST
                28 # F   FOLLOWING COMPLETION OF 1ST ABORT REQUEST SEGMENT (ABORT OF IP REMAINS)
                29 # G   ABORT A IP
                30 # H   FOLLOWING COMPLETION OF 1ST ABORT IP SEGMENT
                31 # I   SEE H (BUT REQUEST PENDING)
```

COMMENTS CBLM W77D

```
                01 # IN ADDITION TO THE FOUR STATE VARIABLES, THERE ARE THREE ALLOW VARIABLES
                02 # FOR EACH MSF.  IF A MSF IS 'NOT ALLOWED', REQUESTS FOR IT WILL BE DENIED
                03 # AND, IF IT IS REQUESTED OR IN PROGRESS, IT WILL BE ABORTED.
                04 #   NA-----NOT ALLOW BY SYSTEM STATE (AUTOMATIC)
                05 #   FORCA--FORCED ALLOWED BY TTY (OVERRIDE OF NA)
                06 #   FORCNA-FORCED NOT ALLOWED BY TTY (OVERRIDE OF NA)
                07 # THE LOGICAL EXPRESSION NA|FORCNA&¬FORCA IS USED TO DETERMINE IF A MSF IS NOT
                08 # ALLOWED.
0002274         09
0002274         10
                11 # BECAUSE THE MSFS VARY FROM APPLICATION TO APPLICATION, FLEXIBILITY
                12 # IS VERY IMPORTANT.  THE MSFC WAS DESIGNED TO ALLOW ANY INTERRELATIONSHIP
                13 # BETWEEN MSFS.  THERE ARE ONLY FOUR POSSIBLE RELATIONSHIPS BETWEEN TWO MSFS
                14 # MSF1 AND MSF2:
                15 #   DENY----IF MSF1 IS REQUESTED WHILE MSF2 IS RQ OR IP, THE REQUEST IS DENIED.
                16 #           NOTE THAT AB IS NOT TESTED.  THIS IS A HUMAN FACTOR DECISION.
                17 #           A NORMAL SEQUENCE WOULD BE TO REQUEST MSF1 AND FIND THAT IT IS DENIED.
                18 #           THEN ABORT MSF2 TO GET RID OF THE CONFLICT AND THEN REREQUEST MSF1.
                19 #           IF THE REREQUEST WAS DENIED BECAUSE THE ABORT HAD NOT YET COMPLETED,
                20 #           IT WOULD BE CONFUSING BECAUSE THE ABORT SHOULD
                21 #           HAVE ELIMINATED THE CONFLICT.
                22 #   HOLD----REQUESTS FOR MSF1 WILL BE ACCEPTED BUT IT WILL NOT GO IP
                23 #           WHILE MSF2 IS IP OR AB.
                24 #   GO------REQUESTS FOR MSF1 WILL BE ACCEPTED AND WILL GO IP INDEPENDENT OF MSF2.
                25 #   PREEMPT-REQUESTS FOR MSF1 WILL BE ACCEPTED AND CAUSE MSF2 TO BE ABORTED.
                26 #           MSF1 WILL NOT GO IP WHILE MSF1 IS IP OR AB.
0002274         27
                28 # NOTE THAT THESE RELATIONSHIPS ARE UNIDIRECTIONAL.  THAT IS, IF THE RELATION OF
                29 # MSF1 RELATIVE TO MSF2 IS HOLD, IT IS NOT NECESSARY THAT THE RELATION OF MSF2 RELATIVE
                30 # TO MSF1 BE HOLD.  IN PARTICULAR, IF MSF1 HAS A HIGHER PRIORITY THAN MSF2, THE
                31 # RELATION MSF1-MSF2 WOULD BE PREEMPT, IE, MSF1 WOULD PREEMPT MSF2, BUT THE RELATION MSF2-MSF1
                32 # WOULD BE HOLD OR DENY.
0002274         33
                34 # THE FOUR STATES ARE ENCODED BY TWO STATE VARIABLES AS FOLLOWS:
                35 # MSFRELA MSFRELB
                36 #       0 0      GO
                37 #       0 1      HOLD
                38 #       1 0      PREEMPT
                39 #       1 1      DENY
0002274         40
0002274         41
          -001- 42  *
          -001- 43  * MSFC
          -001- 44  * ----
          -001- 45  *
                46  * FOUR WORDS ARE DEDICATED TO EACH MSF.  THE FIRST TWO WORDS CONTAIN A
                47  * 20-BIT ADDRESS ENTRY POINT TO THE MSF.  THE OTHER WORDS CONTAIN
                48  * THE TWO STATE VARIABLES MSFRELA AND MSFRELB.  BIT N OF THE
                49  * TWO WORDS ENCODE THE RELATIONSHIP OF THIS MSF TO THE N-TH MSF.
```

COMMENTS

```
01  * THESE WORDS ARE ORGANIZED LIKE THOSE OF THE MATRIX (SEE LAYOUT WHICH FOLLOWS).
02  * THE FOUR WORDS DEDICATED TO AN MSF FORM ONE ENTRY IN TABLE MSFTBL.
03  * CONVERSELY, MSFTBL HAS ONE 4-WORD ENTRY FOR EACH MSF.  BY DEFINITION,
04  * MSF NUMBER N OCCUPIES THE N-TH ENTRY OF MSFTBL.
05  *
06  * THE LAYOUT OF THE MSF DATA CAN BE REPRESENTED PICTORIALLY AS FOLLOWS:
07  *                          M M M M M M M M M M M M M M M M
08  *                          S S S S S S S S S S S S S S S S
09  *                          F F F F F F F F F F F F F F F F
10  *                          1 1 1 1 1 1 9 8 7 6 5 4 3 2 1 0
11  *                          5 4 3 2 1 0
12  #                  -
13  #                  |    RQB
14  #                  |     ABB
15  #        PART      |     IP
16  #         OF       |     AB
17  #       MSFMTX     |     NA
18  #                  |   FORCA
19  #                  |  FORCNA
20  #                  -
21  *                   -
22  *    ONE 4-WORD     |  MSF--                          A A A A
23  *     ENTRY IN      |  ADDR-A A A A A A A A A A A A A A A A
24  *      MSFTBL      |MSFRELA
25  *                  |MSFRELB
26  *                  -
27  *
28  * MSFTBL IS CREATED WITH A SET OF COMMON SYSTEM MACROS THAT
29  * ALLOW THE RELATIONSHIPS BETWEEN MSFS TO BE SPECIFIED IN A NATURAL MANNER.
30  * BASICALLY, ALL MSFS ARE CONSIDERED INDEPENDENT UNLESS QUALIFIED.
31  * THIS IS BECAUSE REQUESTS FOR THEM WILL BE ACCEPTED AND
32  * THEY WILL BE SET IN PROGRESS INDEPENDENTLY OF THE CURRENT STATE
33  * OF ANY OTHER MSF. THEY ARE QUALIFIED BY IDENTIFYING BY NAME
34  * GROUPS OF MSFS WHICH ARE INTERRELATED. THE QUALIFYING MACROS ARE:
35  *     ONLY1RQ--AT MOST ONE MSF FROM THE GROUP MAY BE REQUESTED OR IN PROGRESS.
36  *         REQUESTS FOR OTHERS WILL BE DENIED.
37  *     ONLY1IP--AT MOST ONE MSF FROM THE GROUP MAY BE IN PROGRESS.
38  *         REQUESTS FOR OTHERS WILL BE ACCEPTED BUT HELD.
39  *     PRIORITY-ARGUMENTS ON THIS MACRO CALL ARE ASSUMED TO BE ORDERED
40  *         WITH THE FIRST MSF SPECIFIED HAVING THE HIGHEST PRIORITY.
41  *         THUS A,B,C INDICATES A WILL PREEMPT B AND/OR C AND B WILL PREEMPT C.
42  *
43  * ONCE THE RELATIONSHIPS HAVE BEEN SPECIFIED WITH THESE
44  * THREE MACROS, THE ACTUAL TABLE IS GENERATED BY REPEATEDLY
45  * CALLING THE MSFDEF MACRO.  THE MACRO HAS THREE ARGUMENTS.
46  * THE LABEL FIELD IS THE SYMBOLIC NAME OF THE MSF.  THE FIRST
47  * VARIABLE FIELD ARGUMENT IS THE SYMBOLIC ENTRY POINT FOR THIS MSF.
48  * THE SECOND VARIABLE FIELD ARGUMENT IS THE NAME OF THE PROGRAM
49  * IN WHICH THE ENTRY POINT EXISTS.  THIS LAST ARGUMENT IS OMITTED
```

```
01  * IF IT IS THE PROGRAM IN WHICH MSFDEF IS BEING CALLED.
02  * MSFDEF WILL GENERATE ALL NECESSARY PUBLICS AND EXTERNS.
03  *
04  * THE NUMBER OF ENTRIES IN MSFTBL MUST BE SPECIFIED BY
05  * THE ENTRIES ATTRIBUTE.
06  *
07  * ONE POSSIBLE TABLE IS ILLUSTRATED BELOW AND SHOWS THE
08  * COMMON SYSTEM REQUIREMENTS.
09  *
10  * MSFTBL
11  *         ONLY1RQ  MSFA,MSFB,DGNCUMM,CTTYTP
12  *         ONLY1IP  MSFA,MSFC
13  *         ONLY1RQ  MSFB,MSFC
14  *         PRIORITY MANUAL,DGNCUMM,MSFB,UPDATE
15  * DGNCUMM MSFDEF   ENTRDG,CDGNM
16  * UPDATE  MSFDEF   TSUPD,CBLM
17  * CTTYTP  MSFDEF   TTYT_TP,CTTYT
18  * MANUAL  MSFDEF   MANMSF,CBLM
19  * MSFA    MSFDEF   MSFAADR,MSFAPROG
20  * MSFB    MSFDEF   MSFBADR
21  * MSFC    MSFDEF   MSFCADR,MSFCPROG
22  * ENTRIES(MSFTBL) EQU (*-MSFTBL)/4
23  *
24  * THE ABOVE MACROS ARE AVAILABLE ON THE LIBRARY DATA SET
25  * (MEMBER=CBLM). THE FOLLOWING INTERRELATIONSHIPS SHOULD BE
26  * OBSERVED.
27  *     ALL NONRESIDENT PROGRAMS SHOULD BE IN A SINGLE ONLY1RQ GROUP
28  *     PROGRAMS THAT SHARE A REQUEST BUFFER FORM A ONLY1RQ GROUP
29  *     PROGRAMS THAT SHARE A WORKING BUFFER FORM A ONLY1IP GROUP
30  *     MANUAL HAS PRIORITY OVER DGNCUMM
31  *     DGNCUMM HAS PRIORITY OVER ALL PROGRAMS THAT USE THE OFF-LINE CC
32  *     ALL PROGRAMS THAT USE THE OFF-LINE CC HAVE PRIORITY OVER UPDATE
33  *     DGNCUMM AND CTTYTP ARE NONRESIDINT PROGRAMS (SEE ABOVE).
34  *     A TOTAL OF 6 MSF POSITIONS (OF THE 16) ARE RESERVED FOR
35  *        THE COMMON SYSTEM, IE, TWO SPARES ARE RESERVED
36  *
37  * THE ONLY WAY A MSF MAY BE ENTERED IS BY REQUESTING IT.
38  * THE ONLY WAY A MSF MAY BE REQUESTED IS WITH SUBROUTINE MSFREQ
39  * LIKEWISE, THE ONLY WAY TO CANCEL A MSF IS BY ABORTING IT VIA
40  * SUBROUTINE MSFABT.  THESE ARE THE ONLY WAYS A PROGRAM CAN
41  * AUTOMATICALLY AFFECT A MSF.  IN ADDITION TO THESE A MSF CAN
42  * BE ALLOWED OR INHIBITED BY TTY REQUEST.  ANY OTHER CHANGES
43  * ARE MADE ONLY INTERNAL TO THE MSF CONTROLLER.
44  *
45  * THE HEART OF THE MSFC IS THE ANALYSIS OF THE MATRIX PERFORMED
46  * BY SUBROUTINE MSFANLZ.  THE ANALYSIS PROCEEDS AS FOLLOWS.
47  * MARK ANY RQ OR IP MSF TO ABORT IF ITS NA BIT IS SET
48  * CONSIDER ALL PENDING REQUESTS ONE AT A TIME.
49  *   IF THE REQUEST SHOULD PREEMPT A RQ OR IP MSF, ABORT THAT MSF.
```

```
                01  *   IF THE REQUEST SHOULD PREEMPT AN AB MSF, GO TO NEXT REQUEST.
                02  *   IF THE REQUEST SHOULD HOLD FOR ANY HOLD OR DENY MSF, GO TO NEXT REQUEST.
                03  *   IF NONE OF THE ABOVE, SET THE MSF IP BY CHANGING ITS STATE AND
                04  *      GO TO NEXT REQUEST.
                05  * AFTER ALL REQUESTS HAVE BEEN PROCESSED, CONSIDER EXECUTING AN AB MSF.
                06  * IF NO AB MSF IS PRESENT, CONSIDER EXECUTING AN IP MSF.
                07  * IF NO IP MSF IS PRESENT, MSFC IS DONE.
                08  *
                09  * AT MOST ONE SEGMENT OF ONE MSF IS EXECUTED ON A GIVEN ENTRY
                10  * TO THE MSF CONTROLLER.  THE SEARCH FOR WHICH MSF TO EXECUTE IS
                11  * BEGUN JUST BEYOND THE MSF EXECUTED ON THE LAST ENTRY TO THE MSFC.
                12  * HENCE, THE AB (IP) MSFS ARE EXECUTED ON A ROTATING BASIS.
                13  * THIS HAS THE CONSEQUENCE THAT INDIVIDUAL MSFS WILL
                14  * EXECUTE MORE SLOWLY AS MORE MSFS ARE INITIATED.
                15  * IF N MSFS ARE ACTIVE, A SEGMENT OF EACH IS EXECUTED
                16  * EVERY N-TH ENTRY TO THE MSFC.
           -001- 17  *
           -001- 18  * SUMMARY OF INTERFACES
           -001- 19  * --------------------
           -001- 20  *
           -001- 21  *
           -001- 22  * APPLICATION ROUTINES
           -001- 23  * --------------------
           -001- 24  *
                25  * DESCRIPTION:
                26  * APPLICATION AND/OR COMMON SYSTEM SUBROUTINE. MULTISCAN FUNCTIONS.
                27  *
                28  * ENTRY POINTS:
                29  * AS DEFINED IN MSFTBL
                30  *
                31  * ENTRY CONDITIONS:
                32  * R0 = ENTRY CODE
                33  *   BIT 0--0 = MSF IP ENTRY, 1 = MSF ABORT ENTRY
                34  *   BIT 1--0 = PER SCAN ENTRY, 1 = FIRST ENTRY
                35  *   BIT 2--ONLY FOR ABORTS:0 = ABORTING AN IP MSF, 1 = ABORTING A REQUEST
                36  *
                37  * RETURN POINTS:
                38  * VIA RETURN MACRO
                39  *
                40  * RETURN CONDITIONS:
                41  * R0 = RETURN CODE
                42  *   0--RESERVED FOR INTERNAL CONTROL
                43  *   1--RESERVED FOR INTERNAL CONTROL
                44  *   2--CONTINUE (MSF WILL STAY IN PROGRESS OR ABORTING)
                45  *   3--FINAL RETURN, NO PRINTING TO BE DONE
                46  *   4--FINAL RETURN, FAIL, PRINT TTY_MFA
                47  *   5--FINAL RETURN, PASS, PRINT TTY_MFA
                48  *   6--FINAL RETURN, FAIL, PRINT TTY_MFA+SUPPLEMENT
                49  *   7--FINAL RETURN, PASS, PRINT TTY_MFA+SUPPLEMENT
```

```
01  *
02  * CODES 2&3 HAVE NO OTHER CONDITIONS
03  * CODES 4&5 REQUIRE TTY_MFA TO CONTAIN A MESSAGE TO BE PRINTED
04  * CODES 6&7 REQUIRE TTY_MFA TO CONTAIN THE FIRST HALF OF A
05  *           SUPPLEMENTAL MESSAGE AND RA1 POINTING TO A BUFFER
06  *           CONTAINING THE TTY_MFA IMAGE FOR THE SECOND HALF.
07  *
08  * RESTRICTIONS:
09  * MSFS THAT MAY EXECUTE UNDER STEP OR REPEAT MAY NOT USE CODE 3
10  *
11  * ALL MSFS MUST SUPPLY THEIR OWN REQUEST BUFFERS. THAT IS,
12  * THE MSFC ONLY HAS PROVISIONS FOR SCHEDULING AND NOT FOR PASSING
13  * INPUT PARAMETERS. FURTHERMORE, IF A MSF CAN EXECUTE IN
14  * THE STEP OR REPEAT MODE, THE REQUEST BUFFER MAY NOT BE
15  * CHANGED DURING EXECUTION.
16  *
17  * ALL MSFS SHOULD HAVE AN ABORT ROUTINE THAT IS EXECUTED
18  * WHEN THE INPUT CODE INDICATES ABORT. IT SHOULD CLEAN UP
19  * AND FINISH AS QUICKLY AS POSSIBLE.
20  *
21  *
```

```
0002274                                                  01 MSFC
                                                         02 # FIRST CHECK FOR REPEAT & STEP CONTROL
                                                         03 # IF FLAG INDICATING THAT EXECUTE BUTTON WAS PUSHED IS SET
                                                         04 # AND A MSF IS CURRENTLY UNDER STEP & REPEAT CONTROL,
                                                         05 # THE APPROPRIATE ACTION IS TAKEN. FOR THE STEP FUNCTION,
                                                         06 # THE ACTION IS TO REQUEST IT AGAIN. FOR THE REPEAT
                                                         07 # FUNCTION, THE ACTION IS TO TOGGLE A BIT WHICH IS
                                                         08 # INTERROGATED BY THE MSFRXSCK SUBROUTINE TO DETERMINE
                                                         09 # WHETHER OR NOT A COMPLETING MSF SHOULD BE IMMEDIATELY
                                                         10 # REREQUESTED.

0002274 01 001274 131440 043011 CTSD                     12          LAL     R2,RXSCTL,RA1
0002276 01 001276 062540 ------                          13          ZBS     0(RA1),S(RXSBPUSH)
0002277 01 001277 017440 050120                          14          CIRM    R2,ES(RXS_ACT,RXSBPUSH),0,ES(RXS_ACT,RXSBPUSH)
0002301                                                  15          IF      CF THEN RGBEGIN
0002301 01 001301 055014 ------ 0002315  -002-           16              BNC     IFS966
0002302 01 001302 024045 ------                          17              TBN     R2,S(RXS_RPT)
0002303                                                  18              IF      ¬ CF THEN RGBEGIN
0002303 01 001303 054010 ------ 0002313  -002-           19                  BC      IFS968
0002304 01 001304 006162 ------                          20                  LR      R7,R2
0002305 01 001305 003040 ------                          21                  ZR      R2
0002306 01 001306 026045 ------                          22                  SBN     R2,S(RXSEXC)
0002307 01 001307 003641 006072                          23                  LI      R10,ES(RXSF,RXSP)!SSPCB1
0002311                                                  24                  CALL    CHGSSP
0002311 01 001311 073051 ------          -001-           25                  BSAI    CXHGSSP         # SUBROUTINE CHGSSP IS IN PROGRAM CBLM
0002312 01 001312 106047 ------                          26                  LR      R2,R7
0002313                                  -001-           27                  RGEND
0002313                                                  28 IFS968
0002313                                                  29                  CALL    MSFREQRXS
0002313 01 001313 137020 003025 0003025. -001-           30                  BSA     MSFREQRXS
0002315                                                  31                  RGEND
0002315                                  -001-           32 IFS966

                                                         38 # THE MAIN ANALYSIS OF MSF INTERACTIONS IS PERFORMED BY
                                                         39 # THE MSFANLZ SUBROUTINE. IF NO MSF IS IN PROGRESS OR
                                                         40 # ABORTING, A RETURN WITH R0=0 IS EXECUTED AND MSFC IS DONE.
                                                         41 # IF THE MSF SELECTED FOR EXECUTION LAST TERMINATED BY
                                                         42 # CALLING THE WAIT SUBROUTINE, THE HOLD-GET REGISTER IS INCREMENTED
                                                         43 # BY 32 AND A RETURN EXECUTED. THIS IS LOGICALLY THE RETURN FROM THE
                                                         44 # WAIT SUBROUTINE. IN ALL OTHER CASES, MSFANLZ BRANCHES
                                                         45 # DIRECTLY TO THE MSF TO BE EXECUTED SO THAT THE MSF
                                                         46 # APPEARS TO BE PART OF THE SUBROUTINE. ON COMPLETION,
                                                         47 # THE MSF EXECUTES A RETURN WHICH PASSES CONTROL TO
                                                         48 # THE INSTRUCTION FOLLOWING THE CALL TO MSFANLZ. THE
                                                         49 # REMAINING RETURN CODES ARE THEREFORE PART OF THE
```

```
                                                  01 # MSFC-MSF INTERFACE.

0002315 01 001315 131400 043001 CTSD              03        LAL     R0,MSFMTX,RA1
0002317 01 001317 003401 160000 BLMMA             04        LI      R0,MSFMSK
0002321                                           05        CALL    MSFANLZ             # ONE SEGMENT OF AN MSF MAY BE EXECUTED
                                                                                         BEFORE THE RETURN
0002321 01 001321 037020 002546 0002546  -001-   07        BSA     MSFANLZ
0002323                                           08 MSFRTNWT                           # ENTRY POINT FOR 'WAIT' SUBROUTINE
0002323 01 001323 106140 ------                   09        LR      R6,R0               # SAVE AND SET UP FOR MSFR%SCK
0002324 01 001324 006160 ------                   10        LR      R7,R0               # SET UP FOR MSFAPCTL ENTRY CODE CALCULATION
0002325 01 001325 006256 ------                   11        LR      R10,RA1             # SAVE POINTER TO SUPPLEMENT FOR MSFR%SCK
0002326 01 001326 006277 ------                   12        LR      R11,RA1+1
0002327                                           13        MIMODE  L R1,HG             # SAVE CURRENT 'BASE LEVEL' VALUE OF HG
0002327 01 001327 013000 ------           -001-   14        MIS     0
0002330 01 001330 052465 ------           -002-   15            VFD     8,R1%T 8,HG%F
0002331 01 001331 034420 043022 CTSD              16        STL     R1,HG_IMAGE
0002333 01 001333 031420 043001 CTSD              17        LAL     R1,MSFMTX,RA1
0002335 01 001335 040446 ------                   18        L       R2,CURMSF(RA1)
0002336 01 001336 003060 ------                   19        ZR      R3                  # SET UP FOR ZEROING BITS
0002337 01 001337 003100 ------                   20        ZR      R4
0002340 01 001340 026502 ------                   21        SBR     R4,R2
0002341 01 001341 003402 000007                   22        NI      R0,MSK(3)
0002343 01 001343 056000 ------                   23        BPAX    R0
0002344 01 001344 153046 ------ 0002412           24        B       MSFCDONE            # NO MSF IP OR ABORTING
0002345 01 001345 153007 ------ 0002354           25        B       MSFRTN              # SPACE
0002346 01 001346 153032 ------ 0002400           26        B       MSFRTNC             # CONTINUE THIS MSF
0002347 01 001347 153005 ------ 0002354           27        B       MSFRTN              # FINAL RETURN--NO PRINTING
0002350 01 001350 153004 ------ 0002354           28        B       MSFRTN              # FINAL RETURN--FAIL, PRINT TTY_MFA
0002351 01 001351 153003 ------ 0002354           29        B       MSFRTN              # FINAL RETURN--PASS, PRINT TTY_MFA
0002352 01 001352 106000 ------                   30        NOP                         # FINAL RETURN--FAIL, PRINT TTY_MFA +
                                                                                         SUPPLEMENT
0002353                                           32                                    # FINAL RETURN--PASS, PRINT TTY_MFA +
                                                                                         SUPPLEMENT
0002353 01 001353 104176 ------                   34        SN      R7,2                # CONVERT RETURN CODES 6 AND 7 TO 4 AND 5
                                                                                         FOR MSFAPCTL
                                                  36 # PRINTFLG=1 FOR THE LAST FOUR VECTORS



0002354                                           40 MSFRTN
                                                  41 # BEFORE THE MATRIX IS UPDATED, AN OPTIONAL CALL IS MADE
                                                  42 # TO APPLICATION CODE.
0002354                                           43        CALL    MSFDATA             # GET OPTIONAL CALL FLAG
0002354 01 001354 137020 002651 0002651  -001-   44        BSA     MSFDATA
0002356 01 001356 124304 ------                   45        TBN     R12,S(MSFAPCTLB)
0002357                                           46        IF      CF THEN RGBEGIN
0002357 01 001357 055012 ------ 0002371  -002-   47            BNC     IFS978
0002360 01 001360 006007 ------                   48            LR      R0,R7
0002361 01 001361 004015 ------                   49            SN      R0,3
```

```
0002362 01 001362 040423 ------                    01            L       R1,AB(RA1)
0002363 01 001363 024422 ------                    02            TBR     R1,R2
0002364                                            03            IF      CF THEN LN R0,3 # IF ABORT BIT SET R6=3
0002364 01 001364 055002 ------ 0002366  -002-    04            BNC     IFS980
0002365 01 001365 003003 ------          -002-    05            LN      R0,3            #
0002366                                  -002-    06 IFS980
                                                  07 # R0=0   MSF COMPLETED, NO PASS OR FAIL INDICATION
                                                  08 # R0=1   MSF COMPLETED AND FAILED
                                                  09 # R0=2   MSF COMPLETED AND PASS
                                                  10 # R0=3   MSF WAS ABORTED
0002366 01 001366 106022 ------                    11              LR      R1,R2           # NUMBER OF MSF WHICH IS COMPLETING
0002367                                           12              CALL    MSFAPCTL
0002367 01 001367 037020 147202 BLMMA    -001-    13              BSA     MSFAPCTL
0002371                                           14              RGEND
0002371                                  -001-    15 IFS978
                                                  16 # THE STATUS OF THE RETURNING MSF IS NOW UPDATED IN
                                                  17 # THE MATRIX. THE NEW STATE IS BASED ON THE CURRENT STATE
                                                  18 # AND THE RETURN CODE. SEE THE DIAGRAM IN THE MSFC
                                                  19 # PREAMBLE FOR DETAILS.
0002371 01 001371 106004 ------                    20          LR      R0,R4
0002372 01 001372 063462 ------                    21          STVM    R3,IP(RA1)          # ZERO IP
0002373 01 001373 006004 ------                    22          LR      R0,R4
0002374 01 001374 063463 ------                    23          STVM    R3,AB(RA1)          # ZERO AB
0002375 01 001375 003000 ------                    24          ZR      R0
0002376 01 001376 034400 043463 CTSD               25          STL     R0,MSFPROG          # CLEAR -MSFPROG-


0002400                                           31 MSFRTNC
0002400 01 001400 124044 ------                    32          TBN     R2,S(EXC1ST)
0002401 01 001401 055006 ------ 0002407            33          BNC     NOT1ST
0002402 01 001402 006004 ------                    34          LR      R0,R4               # R4 = MASK OF FUNCTIONS
0002403 01 001403 063460 ------                    35          STVM    R3,RQB(RA1)         # ZERO RQB BIT
0002404 01 001404 006004 ------                    36          LR      R0,R4
0002405 01 001405 063461 ------                    37          STVM    R3,ABB(RA1)         # ZERO ABB BIT
0002406 01 001406 053004 ------ 0002412            38          B       MSFCDONE
0002407                                           39 NOT1ST
0002407 01 001407 140403 ------                    40          L       R0,AB(RA1)
0002410 01 001410 014004 ------                    41          NR      R0,R4
0002411 01 001411 063462 ------                    42          STVM    R3,IP(RA1)
```

```
   MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42    2/05/81  ****

   MAIN ROUTINE                                                                                    CBLM          W77D

0002412                                                  01 MSFCDONE
                                                         02 # MATRIX IS NOW UPDATED
                                                         03 # CHECK FOR SPECIAL WORK ON FINAL RETURN
                                                         04 # MSF UNDER STEP OR REPEAT WILL ALWAYS RAISE PRINTFLG
0002412                                                  05         IF      PRINTFLG THEN RGBEGIN
0002412 01 001412 124142 ------              -004-       06             TBN     PRINTFLG,S(PRINTFLG)
0002413 01 001413 055005 ------ 0002420     -002-       07             BNC     IFS984
0002414 01 001414 006312 ------                          08             LR      RA0,R10         # RESTORE POINTER TO SUPPLEMENT TTY MESSAGE
0002415 01 001415 006333 ------                          09             LR      RA0+1,R11
0002416                                                  10             CALL    MSFR%SCK        # HANDLE STEP/REPEAT AND OR SHOULD WE PRINT
0002416 01 001416 037020 002666 0002666     -001-       11             BSA     MSFR%SCK
0002420                                                  12             RGEND
0002420                                     -001-       13 IFS984
                                                        14 CBLM    OW      0(1420)                 # 3E790112
                                            -001-       15         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 001420 **********


0002420 01 001420 137000 147233 BLMMA                    18         BL      TV_MSFCR
0002422                                                 19         EOW                             # 3E790112
                                            -001-       20         NOTE    ***************** THE LAST ADDRESS OVERWRITTEN IS 001421 *********
                                                                    *
```

```
                        01 # THE NEED ARISES TO SUSPEND THE EXECUTION OF A MSF
                        02 # AT A PARTICULAR POINT, TAKE A REAL TIME BREAK, AND
                        03 # THEN RESUME EXECUTION WITHOUT THE KNOWLEDGE OF THE
                        04 # MSF. THIS NEED ARISES WHEN AN MSF IS A
                        05 # NONRESIDENT PROGRAM AND A PAGE FAULT OCCURS. THE NEED IS FILLED
                        06 # BY THE WAIT SUBROUTINE. WAIT EFFECTIVELY USES THE
                        07 # HOLD-GET AREA AS A BUFFER TO SAVE THE CC STATE BY
                        08 # EXECUTING A HA AND THEN CALLING THE MSFC (A BASE
                        09 # LEVEL ROUTINE) AS A SUBROUTINE. IN FACT, IT IS CALLING
                        10 # THE ENTIRE BASE LEVEL PROGRAMMING SYSTEM AS A SUBROUTINE.
                        11 # THIS HAS THE EFFECT OF REDUCING THE ACTIVE PORTION OF
                        12 # THE HOLD-GET AREA BY REMOVING THOSE LEVELS CONTAINING
                        13 # THE CC STATE. THE IDENTITY OF THE RETURNING MSF
                        14 # IS SAVED SO THAT MSFANLZ CAN DETERMINE THIS WAS
                        15 # THE MECHANISM BY WHICH IT TERMINATED THE NEXT TIME
                        16 # IT IS TO BE EXECUTED. ONCE THIS HAS BEEN DETERMINED,
                        17 # MSFANLZ REENTERS WAIT AT ENTRY MSFRTNCR
                        18 # AND WAIT RETURNS TO THE CALLING PROGRAM.
                        19
0002422                 20 # THE DANGERS INHERENT IN THIS APPROACH ARE:
                        21 #   -THE SYSTEM HAS FEWER LEVELS IN THE HOLD-GET AREA
                        22 #   -THE HOLD-GET AUDIT IS SUSPENDED DURING THIS TIME


                        26 # DESCRIPTION:
                        27 # WAIT IS A VERY SPECIAL PURPOSE SUBROUTINE
                        28 # IT IS CALLED ONLY BY THE PAGE MONITOR FOR A PAGE FAULT
                        29 # OR FOR A PAUSE BY A MSF. WAIT WILL PAUSE
                        30 # FOR ONE BASE LEVEL LOOP AND THEN RETURN.
0002422                 31
                        32 # ENTRY POINT:
                        33 # WAIT
0002422                 34
                        35 # ENTRY CONDITIONS:
                        36 # WORD CURMSF CONTAINS THE NUMBER OF THE MSF WHICH SUFFERED
                        37 # THE PAGE FAULT OR CALLED WAIT
0002422                 38
                        39 # EXIT CONDITIONS:
                        40 # R0 = NORMAL MSF ENTRY CODE
                        41 # SEE MULTISCAN FUNCTION CONTROLLER COMMENTS-SUBSECTION
                        42 # APPLICATION ROUTINES FOR DETAILS.
```

```
0002422                                          01 WAIT
0002422                                          02       BEGIN
0002422 01 001422 171420 ------          -002-   03       HA
0002423 01 001423 031400 043007 CTSD             04       LAL     R0,MSFMTX+CURMSF,RA1
0002425 01 001425 026004 ------                  05       SBN     R0,S(WAITACT)        # ACTIVATE MSF WAIT STATE
0002426 01 001426 044401 ------                  06       ST      R0,1(RA1)            # SAVE IDENTITY OF MSF THAT CALLED WAIT
0002427 01 001427 003002 ------                  07       LN      R0,2                 # SET UP 'CONTINUE' RETURN CODE FOR MSFANLZ
                                                 08 CBLM  OW      0(1430)              # 3E790112
                                        -001-    09       NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 001430 **********


0002430                                          12       CALL    P_MSFRWT             # CALL BASE LEVEL AS A SUBROUTINE
0002430 01 001430 037020 147234 BLMMA    -001-   13       BSA     P_MSFRWT
0002432                                          14 MSFRTNCR
0002432 01 001432 137000 147263 BLMMA            15       BL      P_MSFRCR
0002434                                          16       TAKEOUT 5
0002434 01 001434 006000 ------          -001-   17       LR      0,0
0002435 01 001435 006000 ------          -001-   18       LR      0,0
0002436 01 001436 006000 ------          -001-   19       LR      0,0
0002437 01 001437 006000 ------          -001-   20       LR      0,0
0002440 01 001440 006000 ------          -001-   21       LR      0,0
0002441                                          22       EOW                          # 3E790112
                                        -001-    23       NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 001440 *********
                                                  *
```

```
0002441                                                    01 ALWMSF
0002441 01 001441 106006 ------                            02         LR      R0,R6              # SET UP FOR BCDXBIN
0002442                                                    03         CALL    BCDXBIN
0002442 01 001442 073030 ------                 -001-      04         BSAI    B%CDXBIN           # SUBROUTINE BCDXBIN IS IN PROGRAM CSYSUB
0002443                                                    05 ALWMSFPG
0002443 01 001443 103020 ------                            06         ZR      R1
0002444 01 001444 053005 ------ 0002451                    07         B       MSFMG

0002445                                                    09 INHMSF
0002445 01 001445 106006 ------                            10         LR      R0,R6              # SET UP FOR BCDXBIN
0002446                                                    11         CALL    BCDXBIN
0002446 01 001446 073030 ------                 -001-      12         BSAI    B%CDXBIN           # SUBROUTINE BCDXBIN IS IN PROGRAM CSYSUB
0002447                                                    13 INHMSFPG
0002447 01 001447 103421 177777                            14         LI      R1,MSK(16)
0002451                                                    15 MSFMG
0002451                                                    16         BEGIN
0002451 01 001451 171420 ------                 -002-      17         HA
0002452 01 001452 006040 ------                            18         LR      R2,R0
0002453 01 001453 031400 043006 CTSD                       19         LAL     R0,MSFMTX+N(FORCNA),RA1
0002455 01 001455 003000 ------                            20         ZR      R0
0002456 01 001456 026402 ------                            21         SBR     R0,R2
0002457 01 001457 063420 ------                            22         STVM    R1,0(RA1)
0002460 01 001460 015001 ------                            23         XR      R0,R1              # DID BIT CHANGE STATE
0002461 01 001461 024402 ------                            24         TBR     R0,R2
0002462                                                    25         IF      ¬ CF THEN RETURN TTY_NG
0002462 01 001462 054002 ------ 0002464         -002-      26             BC      IFS1010
0002463 01 001463 056447 ------ TTYTBL          -003-      27             BTSAGN  TTY_NG
0002464                                         -002-      28 IFS1010
0002464                                                    29         RETURN  TTY_OK
0002464 01 001464 156444 ------ TTYTBL          -001-      30         BTSAGN  TTY_OK
```

```
                                          01 # THE ALLOWABLE FORM OF MESSAGE IS:  STOP:RPT&STEP!
                                          02 # THERE ARE NO ARGUMENTS

0002465                                   04 CLRRPT
0002465                                   05         BEGIN
0002465 01 001465 171420 ------  -002-   06         HA
                                          07 R%SCTL =        0
0002466 01 001466 003020 ------  -004-   08              ZR      R1
0002467 01 001467 034420 043011 CTSD -002- 09              STL     R1,R%SCTL
0002471 01 001471 031000 043030 CTSD      10         LAL     R0,SSPMAP,RA0
0002473 01 001473 002020 006040          11         STM     R1,0(RA0),ES(R%SP,R%SF,R%SEXC) # TURN OFF LAMPS
0002475                                   12         CALL    UPDCKEYS              # TURN REPEAT & STEP LAMPS OFF
0002475 01 001475 037020 002140 0002140 -001- 13    BSA     UPDCKEYS
0002477                                   14         RETURN  TTY_OK
0002477 01 001477 156444 ------ TTYTBL   -001- 15    BTSAGN  TTY_OK
```

```
-001- 01        *
-001- 02        *       COMMON SYSTEM SUBROUTINES
-001- 03        *       -------------------------
-001- 04        *
-001- 05        *
-001- 06        *       MSFABT
-001- 07        *       ------
-001- 08        *
      09        *       DESCRIPTION:
      10        *       ABORT ONE OR MORE MSFS THAT ARE EITHER REQUESTED
      11        *       OR IN PROGRESS OR BOTH.
      12        *
      13        *       ENTRY POINT:
      14        *       CURABT (ABORT CURRENTLY ACTIVE MSF)
      15        *       MSFABT
      16        *
      17        *       ENTRY CONDITIONS:
      18        *       R0 = MASK OF MSFS TO BE ABORTED
      19        *       THAT IS, TO ABORT MSF3 AND MSF6 R0 HAS BITS 3 & 6 SET
      20        *       AND THE REST ZERO
      21        *
      22        *       EXIT CONDITIONS:
      23        *       R0 = RETURN CODE
      24        *       0--NO ABORTS TO PERFORM
      25        *       THAT IS, ALL MSFS FOR WHICH ABORTS WERE REQUESTED WERE
      26        *       EITHER INACTIVE OR ALREADY ABORTING
      27        *       1--AT LEAST ONE ABORT WAS ACTUALLY PERFORMED
      28        *
      29        *       RESTRICTIONS:
      30        *       THIS SUBROUTINE DOES NOT PERFORM AN ABORT IN REAL TIME.
      31        *       IT ONLY REQUESTS THE ABORT.  THIS IS TRUE EVEN WHEN
      32        *       ONLY A REQUEST IS BEING ABORTED.  THUS IT IS NOT
      33        *       POSSIBLE TO CALL THIS ROUTINE AND THEN IMMEDIATELY CALL
      34        *       MSFREQ.  THE REQUEST WILL STILL BE DENIED.
      35        *
      36        *


0002500                         40 CURABT
0002500 01 001500 130420 043007 CTSD
                                41          LL      R1,MSFMTX+CURMSF
0002502 01 001502 003000 ------ 42          ZR      R0
0002503 01 001503 026401 ------ 43          SBR     R0,R1

0002504                         45 MSFABT
                                46 # THIS ROUTINE PERFORMS THEN FOLLOWING TRANSITIONS
                                47 # 1000   1101
                                48 # 1100   1101
                                49 # 1110   1111
```

```
                                                    01 # 1010   1111
                                                    02 # 0110   0111
                                                    03 # 0010   0011
0002504                                             04          USING   RA1 FOR MSFMTX
0002504                                             05          BEGIN
0002504 01 001504 171420 ------              -002-  06          HA
0002505 01 001505 031420 043001 CTSD                07          LAL     R1,MSFMTX,RA1       # RA1=BASE ADDRESS OF MATRIX
0002507 01 001507 031040 043011 CTSD                08          LAL     R2,RXSCTL,RA0
                                                    09 R4       =       R0
0002511 01 001511 006100 ------              -004-  10              LR      R4,R0
                                                    11 R3       =       RQB | IP
0002512 01 001512 040460 ------              -005-  12              L       R3,RQB(14)
0002513 01 001513 040402 ------              -005-  13              L       R0,IP(14)
0002514 01 001514 014460 ------              -005-  14              OR      R3,R0
0002515                                             15          IF      RXS_ACT THEN RGBEGIN
0002515 01 001515 024044 ------              -004-  16              TBN     RXS_ACT,S(RXS_ACT)
0002516 01 001516 055016 ------ 0002534      -002-  17              BNC     IFS1044
0002517 01 001517 024502 ------                     18              TBR     R4,R2
0002520                                             19              IF      CF THEN RGBEGIN
0002520 01 001520 055014 ------ 0002534      -002-  20              BNC     IFS1048
0002521                                             21              CALL    ACTMSF
0002521 01 001521 037020 003165 0003165      -001-  22              BSA     ACTMSF
0002523 01 001523 124402 ------                     23              TBR     R0,R2
0002524                                             24              IF      ¬ CF THEN RGBEGIN
0002524 01 001524 054006 ------ 0002532      -002-  25              BC      IFS1051
0002525 01 001525 003020 ------                     26              ZR      R1
0002526 01 001526 026422 ------                     27              SBR     R1,R2
0002527 01 001527 006001 ------                     28              LR      R0,R1
0002530 01 001530 063420 ------                     29              STVM    R1,0(RA1)           # MAKE REQUEST
0002531 01 001531 026462 ------                     30              SBR     R3,R2               # FLAG MSF IN REGISTER ALSO
0002532                                             31              RGEND
0002532                                      -001-  32 IFS1051
0002532                                             33              CALL    CLRRPT
0002532 01 001532 137020 002465 0002465      -001-  34              BSA     CLRRPT
0002534                                             35              RGEND
0002534                                      -001-  36 IFS1048
0002534                                             37              RGEND
0002534                                      -001-  38 IFS1044
0002534 01 001534 114064 ------                     39          NR      R3,R4               # ARE ANY ACTIVE FUNCTIONS BEING ABORTED?
0002535                                             40          IF      CF THEN RETURN 0    # NOTHING TO ABORT
0002535 01 001535 055002 ------ 0002537      -002-  41              BNC     IFS1057
0002536 01 001536 056440 ------              -003-  42              BTSAGN  0
0002537                                      -002-  43 IFS1057
0002537 01 001537 140402 ------                     44          L       R0,IP(RA1)
0002540 01 001540 014004 ------                     45          NR      R0,R4
0002541 01 001541 063503 ------                     46          STVM    R4,AB(RA1)          # SET AB BIT
0002542 01 001542 040400 ------                     47          L       R0,RQB(RA1)
0002543 01 001543 014004 ------                     48          NR      R0,R4
0002544 01 001544 063501 ------                     49          STVM    R4,ABB(RA1)         # SET ABB BIT
```

MULTISCAN FUNCTION CONTROLLER (MSFC) 22:40:42 2/05/81 ****

MSF ABORT--SUBROUTINE CBLM W77D

```
0002545                                    01      DROP    RA1
0002545                                    02      RETURN  1
0002545 01 001545 056441 ------      -001- 03      BTSAGN  1
```

```
# DESCRIPTION:
# MSFANLZ ANALYZES THE RELATIVE PRIORITIES OF ACTIVE MSF'S.
# THE ANALYSIS TAKES INTO ACCOUNT THEIR CURRENT STATE AND
# THE INTER-MSF RELATIONSHIPS AS DEFINED IN THE MSF DATA TABLE.
# BASED ON THE RESULTS, THE STATES OF ACTIVE MSFS ARE UPDATED
# AND (ASSUMING AN ACTIVE ONE EXITS) ONE IS SELECTED FOR
# EXECUTION.

# ENTRY POINT:
# MSFANLZ

# ENTRY CONDITIONS:
# RA1=ADDRESS OF MATRIX
# RO=MASK OF UNDEFINED MSFS

# EXIT CONDITIONS:
# MATRIX UPDATED IN STORE
# NO MSFS IP OR ABORTING:
#     NORMAL RETURN
# OTHERWISE:
#     THE NEXT MSF IS BRANCHED TO DIRECTLY THEREBY BECOMING
#     PART OF THIS SUBROUTINE. IN THIS CASE, THE MSF
#     EXECUTES THE RETURN.
```

```
0002546                                            MSFMTX_PICTURE
MSFMTX                                   -001-  #
00 I-------------------------------------------RQB---------------------------------------I
   I                               REQUEST BUFFER BITS FOR MSFS                           I
01 I-------------------------------------------ABB---------------------------------------I
   I                               REQUEST BITS FOR ABORTING MSFS                         I
02 I-------------------------------------------IP----------------------------------------I
   I                               IN PROGRESS BITS FOR MSFS                              I
03 I-------------------------------------------AB----------------------------------------I
   I                               ABORT BITS FOR MSFS                                    I
04 I-------------------------------------------NA----------------------------------------I
   I                          MASK FOR MSFS NOT ALLOWED BY SYSTEM STATE                   I
05 I-------------------------------------------FORCNA------------------------------------I
   I                          MASK FOR MSFS FORCED NOT ALLOWABLE BY TTY                   I
06 I-----------------------------------------------------IEXCIST I        CURMSF         I
   I                                                     I       I CURRENTLY EXECUTING MSF I
07 I-----------------------------------------------------IWAITACTI        WAITMSF        I
   I*****************************************************I       I                       I
   I 15 I 14 I 13 I 12 I 11 I 10 I 9 I 8 I 7 I 6 I 5 I   4   I 3 I 2 I 1 I 0 I
```

```
0002546                                          01 MSFANLZ
0002546                                          02         USING   RA1 FOR MSFMTX
0002546                                          03         BEGIN
0002546 01 001546 171420 ------          -002-   04         HA
                                                 05 R2      =       R0
0002547 01 001547 006040 ------          -004-   06             LR      R2,R0
0002550 01 001550 003020 ------                  07         ZR      R1
0002551 01 001551 063420 ------                  08         STVM    R1,RQB(RA1)
                                                 09 R0      =       R2
0002552 01 001552 006002 ------          -004-   10             LR      R0,R2
0002553 01 001553 063421 ------                  11         STVM    R1,ABB(RA1)          # CLEAN EXTRANEOUS BITS FROM MATRIX
                                                 12 R0      =       R2
0002554 01 001554 006002 ------          -004-   13             LR      R0,R2
0002555 01 001555 063422 ------                  14         STVM    R1,IP(RA1)           # THIS IS A DEFENSIVE MEASURE
                                                 15 R0      =       R2
0002556 01 001556 006002 ------          -004-   16             LR      R0,R2
0002557 01 001557 063423 ------                  17         STVM    R1,AB(RA1)
0002560 01 001560 040404 ------                  18         L       R0,NA(RA1)
0002561 01 001561 040425 ------                  19         L       R1,FORCNA(RA1)
0002562 01 001562 014401 ------                  20         OR      R0,R1
0002563                                          21         CALL    MSFABT               # ABORT ANY MSFS CURRENTLY REQUESTED OR IP
                                                                                            AND NA
0002563 01 001563 073050 ------          -001-   23         BSAI    M%SFABT              # SUBROUTINE MSFABT IS IN PROGRAM CBLM
0002564 01 001564 140447 ------                  24         L       R2,WAITACT(RA1)
0002565 01 001565 062507 ------                  25         ZBS     WAITACT(RA1),S(WAITACT)
0002566 01 001566 031000 002432 0002432          26         LAL     R0,MSFRTNCR,RA0
0002570 01 001570 024044 ------                  27         TBN     R2,S(WAITACT)
0002571 01 001571 054047 ------ 0002640          28         BC      FORMCODE
                                                 29 CBLM    OW      0(1572)              # 12833
                                         -001-   30         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 001572 **********


0002572                                          33 CHOSNEXT
0002572 01 001572 140460 ------                  34         L       R3,RQB(RA1)          # SET REGISTERS WITH MSFMTX INFORMATION
0002573 01 001573 040501 ------                  35         L       R4,ABB(RA1)
0002574 01 001574 040522 ------                  36         L       R5,IP(RA1)
0002575 01 001575 040543 ------                  37         L       R6,AB(RA1)
0002576 01 001576 014146 ------                  38         TZ      R6
0002577 01 001577 050400 115047 0115047          39         BNCL    EXAB                 # DO INPROGRESS ABORTS 1ST
0002601 01 001601 014104 ------                  40         TZ      R4
0002602 01 001602 055033 ------ 0002635          41         BNC     EXABREQ              # REQUESTED ABORTS 2ND
0002603                                          42 IP_REQ
0002603 01 001603 114465 ------                  43         OR      R3,R5
0002604 01 001604 015463 ------                  44         COM     R3
0002605                                          45 CKAGAIN
0002605 01 001605 120462 ------                  46         FLZ     R3,R2
0002606 01 001606 055026 ------ 0002634          47         BNC     RTNZRO
0002607 01 001607 024522 ------                  48         TBR     R5,R2
0002610 01 001610 050000 115045 0115045          49         BCL     IPEX
```

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   MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42    2/05/81  ****

   MATRIX ANALYSIS--SUBROUTINE                                                                        CBLM          W77D

0002612 01 001612 006165 ------                    01          LR      R7,R5
0002613 01 001613 014566 ------                    02          OR      R7,R6
0002614                                            03          CALL    MSFDATA          # CHECK TO SEE IF THIS MSF IS ALLOWED
0002614 01 001614 037020 002651 0002651  -001-    04          BSA     MSFDATA
0002616 01 001616 114027 ------                    05          NR      R1,R7
0002617 01 001617 055766 ------ 0002605           06          BNC     CKAGAIN
0002620                                            07 EXREQC
0002620 01 001620 126044 ------                    08          SBN     R2,S(EXC1ST)
0002621 01 001621 044446 ------                    09          ST      R2,CURMSF(RA1)   # UPDATE CURMSF WITH MSF ABOUT TO BE ENTERED
0002622 01 001622 003020 ------                    10          ZR      R1
0002623 01 001623 026422 ------                    11          SBR     R1,R2
0002624 01 001624 006001 ------                    12          LR      R0,R1
0002625 01 001625 055004 ------ 0002631           13          BNC     UPDAB
0002626 01 001626 063422 ------                    14          STVM    R1,IP(RA1)       # UPDATE IP WORD IN MSFMTX
0002627 01 001627 003002 ------                    15          LN      R0,2
0002630 01 001630 052400 ------                    16          BR      0(RA0)
0002631                                            17 UPDAB
0002631 01 001631 163423 ------                    18          STVM    R1,AB(RA1)       # UPDATE AB WORD IN MSFMTX
0002632 01 001632 003007 ------                    19          LN      R0,7
0002633 01 001633 052400 ------                    20          BR      0(RA0)
0002634                                            21
0002634                                            22 RTNZRO
0002634                                            23          RETURN  0
0002634 01 001634 156440 ------           -001-    24          BTSAGN  0
0002635                                            25
0002635                                            26 EXABREQ
0002635 01 001635 115504 ------                    27          COM     R4
                                                   28 CPATCH2 BGNP    0(725)           # 12833
0002636 01 001636 037000 115034 0115034  -001-    29          BL      XXX1088
                                         -001-    30          NOTE    CPATCH2 'CSECT'
                                         -001-    31          NOTE    ****************** PATCH AREA BEGINS AT 000725 ****************


0115034                                  -001-    34 XXX1088 PATCHAREA
0115034 06 000725 120502 ------                    35          FLZ     R4,R2
0115035                                            36          CALL    MSFDATA
0115035 06 000726 037020 002651 0002651  -001-    37          BSA     MSFDATA
0115037 06 000730 114025 ------                    38          NR      R1,R5            # IS THIS MSF ALLOWED TO GO IP
0115040 06 000731 050400 002603 0002603           39          BNCL    IP_REQ
                                                   40 CPATCH2 OW      0(733)           # 3E800105
                                         -001-    41          NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000733 **********


0115042 06 000733 004400 ------                    44          ZCF                      # FORCE AN ABORT ON THIS MSF
0115043 06 000734 037000 002620 0002620           45          BL      EXREQC
```

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   MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42    2/05/81  ****

   MATRIX ANALYSIS--SUBROUTINE                                                                 CBLM          W77D

0115045                                          01 IPEX
0115045 06 000736 106165 ------                  02        LR      R7,R5
0115046 06 000737 053002 ------ 0115050          03        B       EXABIP
0115047                                          04        EOW                    # 3E800105
                                        -001-    05        NOTE   ********** THE LAST ADDRESS OVERWRITTEN IS 000737 *********
                                                                   *



0115047                                          10 EXAB
0115047 06 000740 106166 ------                  11        LR      R7,R6
0115050                                          12 EXABIP
0115050 06 000741 115567 ------                  13        COM     R7
0115051 06 000742 040506 ------                  14        L       R4,CURMSF(RA1)
0115052 06 000743 004501 ------                  15        AN      R4,1
0115053 06 000744 011564 ------                  16        RR      R7,R4
0115054 06 000745 020562 ------                  17        FLZ     R7,R2          # LOOK FOR NEXT MSF TO ENTER
0115055 06 000746 001444 ------                  18        AR      R2,R4          # CALCULATE ACTUAL MSF NUMBER
0115056 06 000747 003442 000017                  19        NI      R2,MSK(4)
0115060 06 000751 044446 ------                  20        ST      R2,CURMSF(RA1)
0115061                                          21        CALL    MSFDATA
0115061 06 000752 037020 002651 0002651  -001-  22        BSA     MSFDATA
0115063                                          23        ENDP                   # 12833
0115063 06 000754 137000 002640 0002640  -001-  24        BL      XXX1096
                                         -001-  25        NOTE   ********** LAST PATCH ADDRESS USED IS 000755 **********
                                         -001-  26        NOTE   ***** NUMBER OF PATCH WORDS USED IS 25 (DECIMAL) ********


0002640                                  -001-  29 XXX1096 OWCONTINUE
0002640                                         30        EOW                    # 12833
                                         -001-  31        NOTE   ********** THE LAST ADDRESS OVERWRITTEN IS 001637 *********
                                                                   *



0002640                                          35 FORMCODE
0002640 01 001640 103000 ------                  36        ZR      R0             # SETUP RETURN CODE
0002641 01 001641 040423 ------                  37        L       R1,AB(RA1)
0002642 01 001642 024422 ------                  38        TBR     R1,R2
0002643 01 001643 030000 ------                  39        ICF     ABTB,S(ABTB)
0002644 01 001644 055004 ------ 0002650          40        BNC     MSFGO
0002645 01 001645 040422 ------                  41        L       R1,IP(RA1)
0002646 01 001646 024422 ------                  42        TBR     R1,R2
0002647 01 001647 030001 ------                  43        ICF     1STB,S(1STB)
0002650                                          44 MSFGO
0002650 01 001650 152400 ------                  45        BR      0(RA0)         # CALL MSF AS A SUBROUTINE
0002651                                          46                               # MSF RETURNS DIRECTLY TO
0002651                                          47                               # THE CALLER OF MSFANLZ.
```

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MULTISCAN FUNCTION CONTROLLER (MSFC)                                    22:40:42   2/05/81  ****
MSF DATA ACCESS--SUBROUTINE                                                  CBLM          W77D

                                        01 # DESCRIPTION:
                                        02 # GIVEN AN MSF NUMBER, RETRIEVE THE DATA PERTAINING TO IT.
0002651                                 03
                                        04 # ENTRY POINT:
                                        05 # MSFDATA
0002651                                 06
                                        07 # ENTRY CONDITIONS:
                                        08 # R2(3-0) = MSF NUMBER
0002651                                 09
                                        10 # EXIT CONDITIONS:
                                        11 # R0,R1 = MSF RELATIONAL DATA
                                        12 # RA0 = MSF ENTRY ADDRESS
                                        13 # R12(4) = FLAG TO CALL MSFAPCTL AT COMPLETION OF THIS MSF


0002651                                 17 MSFDATA
0002651                                 18         BEGIN
0002651 01 001651 171420 ------  -002- 19         HA
0002652 01 001652 031400 147041 BLMMA   20         LAL     R0,MSFTBL,RA1
0002654 01 001654 003442 000017         21         NI      R2,M(MSFNUM)
0002656 01 001656 010456 ------         22         RLN     R2,2                  # R2=4*MSFNUM
0002657 01 001657 043702 ------         23         LAX     RA0,R2(RA1)
0002660 01 001660 040721 ------         24         L       RA0+1,1(RA1)
0002661 01 001661 040402 ------         25         L       R0,2(RA1)
0002662 01 001662 040423 ------         26         L       R1,3(RA1)
0002663 01 001663 072714 ------         27         HN      RA0,RA0               # SET UP FOR RETURN
0002664 01 001664 072735 ------         28         HN      RA0+1,RA0+1
0002665                                 29         RETURN
0002665 01 001665 056420 ------  -001- 30         BTSAG
```

```
                                        01 # DESCRIPTION:
                                        02 # CHECK IF THE COMPLETING MSF IS IN THE REPEAT & STEP
                                        03 # MODE AND TAKE APPROPRIATE ACTION.

                                        05 # ENTRY POINTS:
                                        06 # MSFRXSCK

                                        08 # ENTRY CONDITIONS:
                                        09 # R6=MSF RETURN CODE
                                        10 # R2=NUMBER OF MSF COMPLETING
                                        11 # MFA=OUTPUT MESSAGE (1ST HALF OF A SUPPLEMENTAL MESSAGE)
                                        12 # RA0=POINTER TO 2ND HALF OF SUPPLEMENTAL MESSAGE OR 0
                                        13 #     IF IT IS NOT A SUPPLEMENTAL MESSAGE

                                        15 # EXIT CONDITIONS:
                                        16 # IF MSF IS NOT UNDER REPEAT & STEP
                                        17 #     PRINT MESSAGE
                                        18 # IF MSF IS UNDER REPEAT & STEP
                                        19 #     UPDATE R&S CONTROL
                                        20 #     UPDATE PASS & FAIL LAMPS
                                        21 #     PRINT MESSAGE IF IT IS NOT THE SAME AS RESULT OF LAST EXECUTION


0002666                                 25       RXSCTLR_PICTURE
RXSCTLR                        -001-    26 #
001 |                                   |RXS_1ST|RXS_NP |RXS_REQ|RXSBPUS|RXS_RPT|RXS_ACT|          RXS_MSF          |
    |***********************************|       |       |       |       |       |       |       |       |       |       |
    | 15 | 14 | 13 | 12 | 11 | 10 |  9 |  8 |  7 |  6 |  5 |  4 |  3 |  2 |  1 |  0 |

0002666                                 35 MSFRXSCK
0002666                                 36       BEGIN
0002666 01 001666 171420 ------ -002-   37       HA
0002667 01 001667 031460 043011 CTSD    38       LAL     R3,RXSCTL,RA1
0002671 01 001671 040501 ------         39       L       R4,1(RA1)          # CRUNCH WORD
0002672 01 001672 031400 050537 LAYOUT  40       LAL     R0,TTY_MFA,RA1
0002674 01 001674 026044 ------         41       SBN     MSFNUM,S(RXS_ACT)
0002675 01 001675 017043 000037         42       CRM     MSFNUM,R3,M(MSFNUM)|M(RXS_ACT)
                                        43 # THIS BRANCH ASSUMES BITS S(RXSP) AND S(RXSF) OF R2 ARE ZERO.
                                        44 # R2 CONTAINS THE CONTENTS OF CURMSF AND THESE BITS SHOULD BE ZERO.
0002677 01 001677 055076 ------ 0002775 45       BNC     PRINTMESSAGE       # IF NOT R&S,PRINT

                                        47 # THE WORD CRUNCH IN THIS IMMEDIATE CONTEXT REFERS TO
                                        48 # A PROCEDURE USED TO REDUCE THE 13 WORDS (TTY_MFA) OR
                                        49 # THE 26 WORDS (TTY_MFA PLUS SUPPLEMENT) OF THE MESSAGE
                                        50 # TO A SINGLE WORD. THIS IS DONE BY EXCLUSIVE-ORING ALL
                                        51 # OF THE WORDS TOGETHER. THIS WORD IS USED TO DETERMINE
```

MULTISCAN FUNCTION CONTROLLER (MSFC) 22:40:42 2/05/81 ****

REPEAT & STEP CONTROL--SUBROUTINE CBLM W77D

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                                                  01 # IF THE CURRENT MESSAGE IS THE SAME AS A PRECEDING MESSAGE.
                                                  02 # THIS COULD HAVE BEEN DONE BY SAVING THE WHOLE MESSAGE
                                                  03 # AND PERFORMING A WORD BY WORD COMPARISON. THE REDUCTION
                                                  04 # IS DONE TO SAVE SPACE. WITH THE REDUCTION, ONLY
                                                  05 # ONE WORD NEED BE SAVED INSTEAD OF 13 OR 26.

0002700 01 001700 003160 ------                   07         ZR      R7
0002701 01 001701 024140 ------                   08         TBN     R6,S(PASSFLAG)
0002702                                           09         IF      CF THEN RGBEGIN
0002702 01 001702 055003 ------ 0002705  -002-   10             BNC     IFS1111
0002703 01 001703 030173 ------                   11             ICF     R7,S(RXSP)       #SETUP PASS LAMP
0002704 01 001704 053021 ------ 0002725           12             B       NOCRUNCH
0002705                                           13             RGEND
0002705                                  -001-    14 IFS1111
0002705 01 001705 126172 ------                   15         SBN     R7,S(RXSF)           #SETUP FAIL LAMP
                                                  16 # CRUNCH MESSAGE FOR FAILURE ONLY
0002706 01 001706 003401 000014 LAYOUT            17         LI      R0,TBLSIZ(TTY_MFA)-1
0002710 01 001710 003120 ------                   18         ZR      R5                   # INIT CRUNCH WORD
0002711                                           19 CRUNCHLP
0002711 01 001711 142420 ------                   20         LX      R1,R0(RA1)           # CRUNCH BASIC MESSAGE
0002712 01 001712 015121 ------                   21         XR      R5,R1
0002713                                           22         IF      SUPPL THEN RGBEGIN
0002713 01 001713 024141 ------          -004-    23             TBN     SUPPL,S(SUPPL)
0002714 01 001714 055003 ------ 0002717  -002-    24             BNC     IFS1114
0002715 01 001715 042020 ------                   25             LX      R1,R0(RA0)       # CRUNCH SUPPLEMENT
0002716 01 001716 015121 ------                   26             XR      R5,R1
0002717                                           27             RGEND
0002717                                  -001-    28 IFS1114
0002717 01 001717 136000 002711 0002711           29         BX      R0,CRUNCHLP
0002721 01 001721 014104 ------                   30         TZ      R4
0002722                                           31         IF      CF THEN RGBEGIN
0002722 01 001722 055003 ------ 0002725  -002-    32             BNC     IFS1119
0002723 01 001723 034520 043012 CTSD              33             STL     R5,RXSCTL+1      # SAVE 1ST FAILURE CRUNCH WORD
0002725                                           34             RGEND
0002725                                  -001-    35 IFS1119
0002725                                           36 NOCRUNCH
0002725 01 001725 131400 043030 CTSD              37         LAL     R0,SSPMAP,RA1
0002727 01 001727 024065 ------                   38         TBN     R3,S(RXS_RPT)        # IS MSF IN RPT MODE
0002730                                           39         IF      CF THEN RGBEGIN
0002730 01 001730 055010 ------ 0002740  -002-    40             BNC     IFS1122
0002731 01 001731 051520 ------                   41             TBS     N(RXSEXC)(RA1),S(RXSEXC)
0002732                                           42             IF      CF THEN RGBEGIN
0002732 01 001732 055004 ------ 0002736  -002-    43             BNC     IFS1124
0002733                                           44             CALL    MSFREQRXS        # RE-REQUEST MSF
0002733 01 001733 037020 003025 0003025  -001-    45             BSA     MSFREQRXS
0002735 01 001735 153006 ------ 0002743           46             B       1STEXC
0002736                                           47             RGEND
0002736                                  -001-    48 IFS1124
0002736 01 001736 103040 ------                   49             ZR      R2               # INIT PASS/FAIL BOTH OFF FOR RPT STOP CASE
```

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0002737 01 001737 053062 ------ 0003021          01          B       LIGHTLMPS
0002740                                          02          RGEND
0002740                                 -001-    03 IFS1122
0002740 01 001740 162520 ------                  04          ZBS     N(R%SEXC)(RA1),S(R%SEXC) # TURN OFF EXECUTE AFTER STEP COMPLETE
0002741                                          05          CALL    UPDCKEYS
0002741 01 001741 037020 002140 0002140 -001-    06          BSA     UPDCKEYS
0002743                                          07 1STEXC
0002743 01 001743 106047 ------                  08          LR      R2,R7                #SET UP R2 FOR CHGSSP
0002744 01 001744 031420 043011 CTSD             09          LAL     R1,R%SCTL,RA1
0002746 01 001746 024067 ------                  10          TBN     R3,S(R%S_REQ)        # IS THIS THE 1ST EXECUTION OF MSF
0002747 01 001747 055021 ------ 0002770          11          BNC     PRTMSG               # YES, PRINT MESSAGE
0002750 01 001750 024140 ------                  12          TBN     R6,S(PASSFLAG)
0002751 01 001751 054012 ------ 0002763          13          BC      TST1ST
0002752 01 001752 020105 ------                  14          CR      R4,R5                # COMPARE THE 1ST FAILURE WITH PRESENT ONE
0002753 01 001753 054046 ------ 0003021          15          BC      LIGHTLMPS
0002754 01 001754 003441 006000                  16          LI      R2,ES(R%SP,R%SF)     # PASS/FAIL BOTH ON FOR CHANGE IN FAILURE
0002756 01 001756 040502 ------                  17          L       R4,2(RA1)
0002757 01 001757 020105 ------                  18          CR      R4,R5                # COMPARE LATEST FAILURE WITH LAST PREVIOUS
                                                                                            FAILURE
0002760 01 001760 054041 ------ 0003021          20          BC      LIGHTLMPS
0002761 01 001761 044522 ------                  21          ST      R5,2(RA1)            # SAVE LATEST FAILURE CRUNCH WORD
0002762 01 001762 053004 ------ 0002766          22          B       NPSPEC
0002763                                          23 TST1ST
0002763 01 001763 124071 ------                  24          TBN     R3,S(R%S_1STP)       # HAS 1ST PASS MESSAGE BEEN PRINTED
0002764                                          25          IF      CF THEN B LIGHTLMPS
0002764 01 001764 054035 ------ 0003021 -002-    26              BC      LIGHTLMPS
0002765 01 001765 061620 ------                  27          SBS     N(R%S_1STP)(RA1),S(R%S_1STP)
0002766                                          28 NPSPEC
0002766 01 001766 124070 ------                  29          TBN     R3,S(R%S_NP)         # IF NO PRINT OPTION, DON'T PRINT
0002767                                          30          IF      CF THEN B LIGHTLMPS
0002767 01 001767 054032 ------ 0003021 -002-    31              BC      LIGHTLMPS
0002770                                          32 PRTMSG
0002770 01 001770 124140 ------                  33          TBN     R6,S(PASSFLAG)
0002771                                          34          IF      CF THEN RGBEGIN
0002771 01 001771 055004 ------ 0002775 -002-    35              BNC     IFS1134
0002772 01 001772 031420 043011 CTSD             36              LAL     R1,R%SCTL,RA1
0002774 01 001774 061620 ------                  37              SBS     N(R%S_1STP)(RA1),S(R%S_1STP)
0002775                                          38              RGEND
0002775                                 -001-    39 IFS1134
0002775                                          40 PRINTMESSAGE
0002775 01 001775 124142 ------                  41          TBN     R6,2                 # SPECIAL CASE FOR ESS2B TRUNK AND SERVICE
                                                                                            CIRCUIT TEST
0002776 01 001776 055023 ------ 0003021          43          BNC     LIGHTLMPS            # THEY DO THEIR OWN PRINTING AND HENCE IT IS
                                                                                            SKIPPED HERE
0002777 01 001777 031400 050537 LAYOUT           45          LAL     R0,TTY_MFA,RA1       # RE-INIT RA1
                                                 46 R0       =       0                    # REQUIRED BY MFAD
0003001 01 002001 003000 ------          -004-   47              ZR      R0
0003002                                          48          CALL    MFAD
0003002 01 002002 037021 124655 TTYAPP   -001-   49          BSA     MFAD
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MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42   2/05/81  ****

REPEAT & STEP CONTROL--SUBROUTINE                                                                CBLM          W77D

0003004                                                  01        IF      CF THEN RGBEGIN     # ABORT MSF IF WAITING LIST IS FULL
0003004 01 002004 155004 ------ 0003010  -002-  02                BNC     IFS1142
0003005                                          03                CALL    CURABT
0003005 01 002005 037020 002500 0002500  -001-  04                BSA     CURABT
0003007                                          05                RETURN
0003007 01 002007 156420 ------          -001-  06                BTSAG
0003010                                          07                RGEND
0003010                                  -001-  08 IFS1142
                                                 09 R7     =      R0                  # SAVE TTY LINK DATA
0003010 01 002010 106160 ------          -004-  10                LR      R7,R0
0003011                                          11        IF      ¬ SUPPL THEN B LIGHTLMPS # NO SUPPLEMENT TO PRINT
0003011 01 002011 024141 ------          -004-  12                TBN     SUPPL,S(SUPPL)
0003012 01 002012 055007 ------ 0003021  -002-  13                BNC     LIGHTLMPS
0003013 01 002013 003401 000015 LAYOUT           14        LI      R0,TBLSIZ(TTY_MFA)
0003015                                          15        CALL    MOVST               # ASSUMES RA0 & RA1 STILL SET UP
0003015 01 002015 073033 ------          -001-  16        BSAI    MXOVST              # SUBROUTINE MOVST IS IN PROGRAM CSYSUB
                                                 17 R0     =      R7                  # RESTORE TTY LINK DATA
0003016 01 002016 106007 ------          -004-  18                LR      R0,R7
0003017                                          19        CALL    MFAD
0003017 01 002017 037021 124655 TTYAPP   -001-  20        BSA     MFAD
0003021                                          21 LIGHTLMPS
0003021 01 002021 103641 006072                  22        LI      R10,ES(RXSP,RXSF)!SSPCB1 # UPDATE PASS AND FAIL LAMPS AT SSP
0003023                                          23        CALL    CHGSSP
0003023 01 002023 073051 ------          -001-  24        BSAI    CXHGSSP             # SUBROUTINE CHGSSP IS IN PROGRAM CBLM
0003024                                          25        RETURN
0003024 01 002024 156420 ------          -001-  26        BTSAG
```

```
                                -001- 01        *
                                -001- 02        *       MSFREQ
                                -001- 03        *       ------
                                -001- 04        *
                                      05        *       DESCRIPTION:
                                      06        *       REQUEST A MSF TO BE EXECUTED.
                                      07        *       REQUEST WILL BE DENIED IF THE MSF IS CURRENTLY NOT ALLOWED
                                      08        *       EITHER DUE TO SYSTEM STATE OR TTY REQUEST OR IF IT IS
                                      09        *       INCOMPATIBLE WITH OTHER ACTIVE MSFS.  IN PARTICULAR, IT WILL
                                      10        *       BE DENIED IF THE MSF HAS A REQUEST PENDING
                                      11        *
                                      12        *       ENTRY POINT:
                                      13        *       MSFREQ
                                      14        *       MSFREQN
                                      15        *
                                      16        *       ENTRY CONDITIONS:
                                      17        *       R0 = TYPE OF REQUEST (EXCEPT MSFREQN WHICH BEGINS BY ZEROING R0)
                                      18        *       0--NORMAL, SINGLE SHOT
                                      19        *       1--STEP MODE
                                      20        *       2--REPEAT MODE
                                      21        *       3--REPEAT MODE WITH NO PRINT OPTION
                                      22        *       R2 = NUMBER OF MSF BEING REQUESTED
                                      23        *
                                      24        *       EXIT CONDITIONS:
                                      25        *       R0 = RETURN CODE
                                      26        *       0--REQUEST DENIED
                                      27        *       1--REQUEST ACCEPTED


0003025                                 31 MSFREQRXS
0003025                                 32         BEGIN
0003025 01 002025 171420 ------ -002-   33         HA
0003026 01 002026 026047 ------         34         SBN     RXS_REQ,S(RXS_REQ)
0003027 01 002027 053016 ------ 0003045 35         B       MSFREQMERGE


0003030                                 39 REQ_UPD
0003030 01 002030 103040 ------ BLMMA   40         LN      R2,UPD_OMAS


0003031                                 44 MSFREQN
0003031 01 002031 103000 ------         45         ZR      R0              # INIT TO NORMAL ENTRY
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MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42   2/05/81  ****

MSF REQUEST--SUBROUTINE                                                                       CBLM          W77D

0003032                                          01 MSFREQ

0003032                                          03        USING   RA1 FOR MSFMTX
0003032                                          04        ABEGIN
0003032 01 002032 171420 ------          -001-   05        HA
0003033 01 002033 003442 000017                  06        NI      R2,M(MSFNUM)        # CLEAR FLAG BITS--ESPECIALLY RESET R%S_REQ
0003035                                          07        IF      R0 ¬= 0 THEN RGBEGIN # STEP OR REPEAT WAS REQUESTED
0003035 01 002035 014000 ------          -002-   08            TZ      R0
0003036 01 002036 054007 ------ 0003045  -001-   09            BC      IFS1169
0003037 01 002037 026044 ------                  10            SBN     R2,S(R%S_ACT)
0003040 01 002040 024001 ------                  11            TBN     R0,1                # WAS REPEAT REQUESTED
0003041 01 002041 055004 ------ 0003045          12            BNC     MSFREQMERGE
0003042 01 002042 026045 ------                  13            SBN     R2,S(R%S_RPT)
0003043 01 002043 024000 ------                  14            TBN     R0,0
0003044 01 002044 030050 ------                  15            ICF     R2,S(R%S_NP)
0003045                                          16            RGEND
0003045                                  -001-   17 IFS1169
0003045                                          18 MSFREQMERGE
0003045 01 002045 131420 043001 CTSD             19        LAL     R1,MSFMTX,RA1       # RA1=MSFMTX
0003047 01 002047 040404 ------                  20        L       R0,NA(RA1)
0003050 01 002050 040425 ------                  21        L       R1,FORCNA(RA1)
0003051 01 002051 014401 ------                  22        OR      R0,R1
0003052 01 002052 024402 ------                  23        TBR     R0,R2               # IS REQUESTED MSF CURRENTLY NOT ALLOWED
0003053 01 002053 054013 ------ 0003066         24        BC      DENYRQ              # B IF YES



                                                 28 # CHECK IF REQUESTED MSF SHOULD BE DENIED DUE TO CONFLICT WITH OTHER MSFS
0003054                                          29        CALL    MSFDATA             # GET RELATION WORDS
0003054 01 002054 037020 002651 0002651  -001-   30        BSA     MSFDATA
                                                 31 R4     =       ¬ R1 & R0           # SAVE MASK FOR ABORTING LOWER PRIORITY MSFS
                                                                                        IF THIS REQUEST IS ACCEPTED
0003056 01 002056 115501 ------          -004-   33            COM     R4,R1
0003057 01 002057 014100 ------          -004-   34            NR      R4,R0
0003060 01 002060 014020 ------                  35        NR      R1,R0
                                                 36 R3     =       IP ! RQB & R1
0003061 01 002061 040462 ------          -005-   37            L       R3,IP(14)
0003062 01 002062 040400 ------          -005-   38            L       R0,RQB(14)
0003063 01 002063 014460 ------          -005-   39            OR      R3,R0
0003064 01 002064 014061 ------          -004-   40            NR      R3,R1
0003065 01 002065 054002 ------ 0003067         41        BC      SETRQ
0003066                                          42 DENYRQ
0003066                                          43        RETURN  0.
0003066 01 002066 156440 ------          -001-   44        BTSAGN  0
```

MSF REQUEST--SUBROUTINE

```
0003067
0003067 01 002067 103120 ------                    01 SETRQ
0003070 01 002070 003140 ------                    02         ZR      R5                  # SET UP FOR STVM'S BELOW
0003071 01 002071 026542 ------                    03         ZR      R6
0003072 01 002072 031000 043011 CTSD               04         SBR     R6,R2
0003074                                            05         LAL     R0,RXSCTL,RA0
0003074 01 002074 024047 ------          -004-     06         IF      RXS_REQ THEN RGBEGIN
0003075 01 002075 055005 ------ 0003102  -002-     07             TBN     RXS_REQ,S(RXS_REQ)
0003076 01 002076 006006 ------                    08             BNC     IFS1190
0003077 01 002077 063540 ------                    09             LR      R0,R6
0003100 01 002100 061160 ------                    10             STVM    R6,0(RA1)       # MAKE REQUEST
0003101 01 002101 053036 ------ 0003137            11             SBS     0(RA0),S(RXS_REQ)
0003102                                            12             B       REQACCEPTED
0003102                                  -001-     13             RGEND
0003102 01 002102 124004 ------                    14 IFS1190
0003103                                            15         TBN     R0,S(RXS_ACT)
0003103 01 002103 055004 ------ 0003107  -002-     16         IF      CF THEN RGBEGIN
0003104 01 002104 017002 000017                    17             BNC     IFS1195
0003106 01 002106 054760 ------ 0003066            18             CRM     R0,R2,M(MSFNUM)
0003107                                            19             BC      DENYRQ
0003107                                  -001-     20             RGEND
0003107 01 002107 106006 ------                    21 IFS1195
0003110 01 002110 063540 ------                    22         LR      R0,R6
0003111 01 002111 024402 ------                    23         STVM    R6,0(RA1)           # MAKE REQUEST
0003112 01 002112 054754 ------ 0003066            24         TBR     R0,R2               # DENY IF THIS MSF IS ALREADY REQUESTED
0003113                                            25         BC      DENYRQ
0003113 01 002113 024044 ------          -004-     26         IF      RXS_ACT THEN RGBEGIN
0003114 01 002114 055023 ------ 0003137  -002-     27             TBN     RXS_ACT,S(RXS_ACT)
0003115 01 002115 002040 177777                    28             BNC     IFS1198
0003117 01 002117 024004 ------                    29             STM     R2,0(RA0),MSK(16)
0003120                                            30             TBN     R0,S(RXS_ACT)
0003120 01 002120 055007 ------ 0003127  -002-     31             IF      CF THEN RGBEGIN
0003121 01 002121 006020 ------                    32             BNC     IFS1202
0003122 01 002122 002020 177777                    33             LR      R1,R0
0003124 01 002124 006006 ------                    34             STM     R1,0(RA0),MSK(16) # RESTORE RXSCTL WORD
0003125 01 002125 063520 ------                    35             LR      R0,R6
0003126                                            36             STVM    R5,0(RA1)       # CANCEL REQUEST
0003126 01 002126 056440 ------          -001-     37             RETURN  0
0003127                                            38             BTSAGN  0
0003127                                  -001-     39             RGEND
0003127 01 002127 103000 ------                    40 IFS1202
0003130 01 002130 044001 ------                    41             ZR      R0
                                                   42             ST      R0,1(RA0)       # ZERO CRUNCHMSG WORD TO FORCE PRINTOUT FIRST
0003131 01 002131 044002 ------                                                              TIME THRU.
                                                   44             ST      R0,2(RA0)
                                                   45 # THIS IS NOT FOOLPROOF, BUT THE PROBABILITY IS AS GOOD AS THAT
                                                   46 # FOR TWO DIFFERENT MESSAGES CRUNCHING TO THE SAME CONSTANT
0003132 01 002132 031400 043030 CTSD               47             LAL     R0,SSPMAP,RA1
0003134 01 002134 061520 ------                    48             SBS     0(RA1),S(RXSEXC)
0003135                                            49             CALL    UPDCKEYS        # TURN EXECUTE BUTTON LIGHT ON TO REFLECT
```

```
MULTISCAN FUNCTION CONTROLLER (MSFC)                                    22:40:42   2/05/81  ****
MSF REQUEST--SUBROUTINE                                                       CBLM          M77D

                                                                  AUTOMATIC FIRST REQUEST
0003135 01 002135 037020 002140 0002140  -001- 02          BSA     UPDCKEYS
0003137                                      03          RGEND
0003137                                 -001- 04 IFS1198
0003137                                      05       DROP    RA1
0003137                                      06 REQACCEPTED                  # NOW MARK LOWER PRIORITY MSFS TO BE ABORTED
0003137 01 002137 106004 ------              07       LR      R0,R4
0003140                                      08       CALL    MSFABT
0003140 01 002140 073050 ------         -001- 09       BSAI    M%SFABT         # SUBROUTINE MSFABT IS IN PROGRAM CBLM
0003141                                      10       RETURN  1
0003141 01 002141 156441 ------         -001- 11       BTSAGN  1
```

```
                                                    01          *       DESCRIPTION:
                                                    02          *       DETERMINE STATE OF A GIVEN MULTISCAN FUNCTION
                                                    03          *
                                                    04          *       ENTRY POINTS:
                                                    05          *       MSFCHK
                                                    06          *
                                                    07          *       ENTRY CONDITIONS:
                                                    08          *       R2(3-0)=MSF NUMBER OF INTEREST
                                                    09          *
                                                    10          *       EXIT CONDITIONS:
                                                    11          *       R0(3-0)=MSF STATE (RQB,RQ,IP,AB) IN PARTICULAR 0 MEANS IDLE
                                                    12          *       R0(5,4)=STATE OF MSF STEP & REPEAT
                                                    13          *       0-NOT UNDER STEP OR REPEAT CONTROL
                                                    14          *       1-STEP
                                                    15          *       2-UNUSED
                                                    16          *       3-REPEAT


0003142                                             20 MSFCHK
0003142                                             21          BEGIN
0003142 01 002142 171420 ------          -002-      22          HA
0003143 01 002143 003000 ------                     23          ZR      R0
0003144 01 002144 031420 043000 CTSD                24          LAL     R1,MSFMTX-1,RA1
0003146 01 002146 003063 ------                     25          LN      R3,3
0003147                                             26 MSFCHKLP
0003147 01 002147 141421 ------                     27          LA      R1,1(RA1)
0003150 01 002150 024422 ------                     28          TBR     R1,R2
0003151                                             29          IF      CF THEN SBR R0,R3
0003151 01 002151 055002 ------ 0003153 -002-       30              BNC     IFS1215
0003152 01 002152 026403 ------         -002-       31              SBR     R0,R3           #
0003153                                 -002-       32 IFS1215
0003153 01 002153 136060 003147 0003147             33          BX      R3,MSFCHKLP
0003155 01 002155 030420 043011 CTSD                34          LL      R1,RXSCTL
0003157 01 002157 017022 000017                     35          CRM     R1,R2,M(MSFNUM)
0003161                                             36          IF      CF THEN IRM R0,R1,M(RXS_ACT)!M(RXS_RPT)
0003161 01 002161 055003 ------ 0003164 -002-       37              BNC     IFS1217
0003162 01 002162 016001 000060         -002-       38              IRM     R0,R1,M(RXS_ACT)!M(RXS_RPT) #
0003164                                 -002-       39 IFS1217
0003164                                             40          RETURN
0003164 01 002164 156420 ------          -001-      41          BTSAG
```

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MULTISCAN FUNCTION CONTROLLER (MSFC)                                    22:40:42   2/05/81  ****
MASK OF ACTIVE MSF IP & AB--SUBROUTINE                                          CBLM          W77D

                                                  01          *       DESCRIPTION:
                                                  02          *       IDENTIFY ALL IN PROGRESS AND ABORTING MSF'S
                                                  03          *
                                                  04          *       ENTRY POINTS:
                                                  05          *       ACTMSF
                                                  06          *
                                                  07          *       ENTRY CONDITIONS
                                                  08          *       NONE
                                                  09          *
                                                  10          *       EXIT CONDITIONS:
                                                  11          *       RO=MASK OF IN PROGRESS AND ABORTING MSF'S
                                                  12          *
0003165                                           13 ACTMSF
0003165                                           14          BEGIN   ()
0003165 01 002165 130400 043003 CTSD               15          LL      RO,MSFMTX+N(IP)
0003167 01 002167 030420 043004 CTSD               16          LL      R1,MSFMTX+N(AB)
0003171 01 002171 014401 ------                    17          OR      RO,R1
0003172                                           18          RETURN
0003172 01 002172 056400 ------              -001- 19          BTSA
```

```
                                    01 # OMASUPD IS A MULTISCAN FUNCTION
                                    02 # UPDATE MUST BE REQUESTED ANYTIME THE DOUBLE STORE
                                    03 # WRITE MODE HAS BEEN DISABLED. IT IS REQUESTED PRIOR
                                    04 # TO PLACING THE SYSTEM BACK IN NORMAL.
                                    05 # OMASUPD DOES NOT ASSUME ANY CONDITIONS IN THE OFF-LINE
                                    06 # STORE OR PROCESSOR. IN PARTICULAR, SUBROUTINE BGNSTUPD
                                    07 # IS CALLED TO INITIALIZE THE OFF-LINE STORE INCLUDING
                                    08 # THE SETTING UP OF THE CORRECT WRITE PROTECT BLOCKS TO
                                    09 # INSURE TEMPORARY STORE AREAS TO BE UPDATED ARE NOT ACCIDENTALLY
                                    10 # PROTECTED. THE ISOLATE BIT IN THE OFF-LINE CC
                                    11 # IS RESET. THE UPDATE BIT IN THE ON-LINE CC IS SET.
                                    12 # THE STORE OUT OF SYNC (SOS) WORD IS STILL SET AT THIS
                                    13 # TIME. IN FACT IT IS GUARANTEED SET BEFORE UPDATE BIT
                                    14 # IS SET AND IS CLEARED ONLY AT THE END OF OMASUPD .
0003173                             15
                                    16 # OTSUPD IS AN ALTERNATE ENTRY TO THIS ROUTINE TO UPDATE ONLY
                                    17 # THE TEMPORARY STORE. SINCE THE WRITE-PROTECTED STORE IS NOT
                                    18 # UPDATED, THE MAS AUDIT IS LEFT INHIBITED AND DOUBLE STORE
                                    19 # READ BLOCKED. (SEE CALL STOPPSAU)



0003173                             23 OTSUPD
0003173                             24         BEGIN   ()
0003173                             25         LI      R2,ES(UPD_IP,OTS_UPD)
0003173 01 002173 103441 000401
0003175 01 002175 053003 ------ 0003200     26         B       UPDMERGE


0003176                             30 OMASUPD
0003176                             31         ABEGIN  ()
0003176                             32         LI      R2,ES(UPD_IP)
0003176 01 002176 103441 000001

                                    35 CBLM    OW      0(2200)              # 12913
                                -001- 36       NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 002200 **********


                                    39 UPDMERGE
0003200                             40 CPATCH4 BGNP    0(66)                # 12913
0003200 01 002200 137000 116145 0116145 -001- 41       BL      XXX1231
                                -001- 42       NOTE    CPATCH4 'CSECT'
                                -001- 43       NOTE    ****************** PATCH AREA BEGINS AT 000066 ****************
```

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   MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42    2/05/81  ****

   UPDATE OFF-LINE STORE--MULTISCAN FUNCTION                                                        CBLM          W77D

0116145                                    -001- 01 XXX1231 PATCHAREA
0116145 10 000066 130420 043020 CTSD            02       LL      R1,AUMASCTL+1
0116147 10 000070 024031 ------                 03       TBN     R1,S(MCH_UPD)       # TEST FOR A MAINTENANCE CHANNEL UPDATE
0116150 10 000071 050000 003244 0003244         04       BCL     UPDLOOP
0116152 10 000073 031500 043026 CTSD            05       LAL     R4,SYSTATE,RA1
0116154                                         06       ENDP                        # 12913
0116154 10 000075 037000 003202 0003202 -001- 07         BL      XXX1233
                                        -001- 08         NOTE    ************ LAST PATCH ADDRESS USED IS 000076 ***************
                                        -001- 09         NOTE    ***** NUMBER OF PATCH WORDS USED IS 9 (DECIMAL) ********


0003202                                 -001- 12 XXX1233 OWCONTINUE
0003202                                       13         EOW                         # 12913
                                        -001- 14         NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 002201 *********
                                                          *


0003202                                       18         IF      ¬ SW_IP THEN RGBEGIN
0003202 01 002202 124116 ------         -004- 19             TBN     SW_IP,S(SW_IP)
0003203 01 002203 054006 ------ 0003211 -002- 20             BC      IFS1238
0003204                                       21             IF      ABTB THEN B ABORTUPD
0003204 01 002204 024000 ------         -004- 22             TBN     ABTB,S(ABTB)
0003205 01 002205 054015 ------ 0003222 -002- 23             BC      ABORTUPD
                                              24 CBLM        OW      0(2206)             # 12913
                                        -001- 25             NOTE    ************ THE FIRST ADDRESS OVERWRITTEN IS 002206
                                                              **********


                                              29 CPATCH4     BGNP    0(101)              # 12913
0003206 01 002206 037000 116160 0116160 -001- 30             BL      XXX1247
                                        -001- 31             NOTE    CPATCH4 'CSECT'
                                        -001- 32             NOTE    ***************** PATCH AREA BEGINS AT 000101 ***************
                                                              *


0116160                                 -001- 36 XXX1247     PATCHAREA
0116160 10 000101 124032 ------               37             TBN     R1,S(UCL_UPD)       # UCL UPDATE REQUESTED ?
0116161 10 000102 050000 003211 0003211       38             BCL     UPDUCL              # IF SO SKIP TEST
0116163 10 000104 003502 112640               39             NI      R4,NO_UPD           # SHOULD SYSTEM BE IN UPDATE?
0116165                                       40             ENDP                        # 12913
0116165 10 000106 037000 003210 0003210 -001- 41             BL      XXX1249
                                        -001- 42             NOTE    ************ LAST PATCH ADDRESS USED IS 000107 ***************
                                                              *
                                        -001- 44             NOTE    ***** NUMBER OF PATCH WORDS USED IS 7 (DECIMAL) ********
```

```
0003210     '                                  -001- 01 XXX1249    OWCONTINUE
0003210 01 002210 155012 ------ 0003222             02           BNC     ABORTUPD
0003211                                             03           EOW                  # 12913
                                           -001- 04              NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 002210
                                                                   **********


                                                    08           RGEND
0003211
0003211                                    -001- 09 IFS1238
0003211                                             10 UPDUCL
0003211                                             11       IF    1STB THEN RGBEGIN
0003211 01 002211 124001 ------            -004- 12              TBN     1STB,S(1STB)
0003212 01 002212 055030 ------ 0003242    -002- 13              BNC     IFS1255
0003213                                             14           CALL    WPOST                # INITIALIZE THE OTHER MAS
0003213 01 002213 037020 110453 CSYSUB     -001- 15              BSA     WPOST
                                                    16 CBLM      OW      0(2215)              # 12913
                                           -001- 17              NOTE    ********** THE FIRST ADDRESS OVERWRITTEN IS 002215
                                                                   **********


0003215                                             21           CALL    INHMASAU
0003215 01 002215 137020 003705 0003705    -001- 22              BSA     INHMASAU
                                                    23 CPATCH4   BGNP    0(110)               # 12913
0003217 01 002217 137000 116167 0116167    -001- 24              BL      XXX1262
                                           -001- 25              NOTE    CPATCH4 'CSECT'
                                           -001- 26              NOTE    ********** PATCH AREA BEGINS AT 000110 **********
                                                                   *


0116167                                    -001- 30 XXX1262     PATCHAREA
0116167 10 000110 131000 043020 CTSD                31           LAL     R0,AUMASCTL+1,RA0
0116171 10 000112 024004 ------                     32           TBN     R0,S(PKEYM)
0116172 10 000113 055002 ------ 0116174             33           BNC     NORUPD
0116173 10 000114 061240 ------                     34           SBS     0(RA0),S(UCL_UPD) # DO AN UCL UPDATE IF JUST POWERED UP
0116174                                             35 NORUPD
0116174 10 000115 124012 ------                     36           TBN     R0,S(UCL_UPD)
0116175 10 000116 050000 003227 0003227             37           BCL     1STUPDC
0116177                                             38           CALL    OMASTEST
0116177 10 000120 037020 006554 CINIT      -001- 39              BSA     OMASTEST
0116201                                             40           ENDP                 # 12913
0116201 10 000122 137000 003221 0003221    -001- 41              BL      XXX1265
                                           -001- 42              NOTE    ********** LAST PATCH ADDRESS USED IS 000123 **********
                                                                   *
                                           -001- 44              NOTE    ***** NUMBER OF PATCH WORDS USED IS 12 (DECIMAL) ********
```

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MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42    2/05/81  ****

UPDATE OFF-LINE STORE--MULTISCAN FUNCTION                                                        CBLM          W77D

0003221                                  -001- 01 XXX1265    OWCONTINUE
0003221 01 002221 154006 ------ 0003227       02             BC      1STUPDC_
0003222                                       03             EOW                     # 12913
                                         -001- 04             NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 002221
                                                               **********


0003222                                       08 ABORTUPD
0003222 01 002222 162740 ------               09             ZBS     0(RA1),S(SW_IP)
0003223                                       10             CALL    STPSTUPD
0003223 01 002223 037020 110610 CSYSUB   -001- 11             BSA     STPSTUPD
                                              12 CBLM         OW      0(2225)         # 12913
                                         -001- 13             NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 002225
                                                               **********


0003225 01 002225 137000 003324 0003324       17             BL      STOPUPD
0003227                                       18 1STUPDC_
0003227 01 002227 131400 043026 CTSD          19             LAL     R0,SYSTATE,RA1
0003231 01 002231 062540 ------               20             ZBS     N(UPD_DON)(RA1),S(UPD_DON)
0003232                                       21             TAKEOUT 2
0003232 01 002232 006000 ------          -001- 22             LR      0,0
0003233 01 002233 006000 ------          -001- 23             LR      0,0
0003234                                       24             EOW                     # 12913
                                         -001- 25             NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 002233
                                                               **********


0003234 01 002234 003020 ------               29             ZR      R1
0003235 01 002235 035420 043017 CTSD          30             STAL    R1,AUMASCTL,RA1 # INITIALIZE CONTROL BLOCK
                                              31 CBLM         OW      0(2237)         # 13208
                                         -001- 32             NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 002237
                                                               **********


0003237 01 002237 002441 010757               36             STM     R2,N(UPD_IP)(RA1),ES(UPD_ERR,OTS_UPD,NPUCOR,OFL_AU,DGNUPD,EOS
                                                                      T,NODSR,AU_IP,UPD_IP)
0003241                                       38             EOW                     # 13208
                                         -001- 39             NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 002240
                                                               **********


0003241                                       43             RETURN  2
0003241 01 002241 056462 ------          -001- 44             BTSAN   2
0003242                                       45             RGEND
0003242                                  -001- 46 IFS1255


COMMON BASE LEVEL MONITOR                                                                    PR-1C950-50

 22:40:42   2/05/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CBLM      ISSUE  07      PAGE   122
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                                                 01          LI      R2,3              # DO 64 WORDS PER MSF ENTRY
                                                 02 UPDLOOP
                                                 03          CALL    AUUPDMAS
0003242 01 002242 103441 000003                  04          BSA     AUUPDMAS
0003244                                          05 CBLM     OW      0(2246)           # 12913
0003244                                  -001-   06          NOTE    ********** THE FIRST ADDRESS OVERWRITTEN IS 002246 **********
0003244 01 002244 137020 003361 0003361

                                                 09          RLN     R0,1
0003246 01 002246 110417 ------                  10          BPAX    R0
0003247 01 002247 056000 ------                  11          BL      UPDDONE           # UPDATE COMPLETED
0003250 01 002250 137000 003256 0003256          12          BL      CONTUPD           # CONTINUE UPDATE
0003252 01 002252 137000 116203 0116203          13          BL      MCHUPDER          # MCH UPDATE ERROR
0003254 01 002254 137000 116212 0116212          14          EOW                       # 12913
0003256                                  -001-   15          NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 002255 *********
                                                                     *

                                                 22 CPATCH4  BGNP    0(124)            # 12913
                                         -001-   23          NOTE    CPATCH4 'CSECT'
                                         -001-   24          NOTE    ********** PATCH AREA BEGINS AT 000124 **********

                                                 27 CONTUPD
0116203                                          28          BX      R2,UPDLOOP
0116203 10 000124 136040 003244 0003244          29          LL      R0,AUMASCTL
0116205 10 000126 030400 043017 CTSD             30          STL     R0,MSFPROG        # RECORD MESSAGE IN -MSFPROG-
0116207 10 000130 034400 043463 CTSD             31          RETURN  2
0116211                                  -001-   32          BTSAN   2
0116211 10 000132 056462 ------

                                                 36 MCHUPDER
0116212                                          37 # SET UP FOR PRINTING OF MCH MESSAGE
                                                 38          LI      R5,0%MAS
0116212 10 000133 103521 000177 TTYTBL           39          LI      R6,S%TOPPED
0116214 10 000135 003541 000346 TTYTBL           40          B       MCHCOMPL
0116216 10 000137 053002 ------ 0116220          41          ENDP    NR                # 12913
0116217                                  -001-   42          NOTE    ********** LAST PATCH ADDRESS USED IS 000137 **********
                                         -001-   43          NOTE    ***** NUMBER OF PATCH WORDS USED IS 12 (DECIMAL) ********
```

```
                                                    CBLM    OW      0(2256)                 # 12913
                                          -001-             NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 002256 **********

                                                    # SET UPD FOR THE PRINTING OF THE CORRECT UPD MESSAGE
0003256                                             UPDDONE
0003256 01 002256 130400 043020 CTSD                        LL      R0,AUMASCTL+1
                                                            SPELL   R5,(O,M,A,S)
0003260 01 002260 003521 000177 TTYTBL    -001-             LI      R5,O%MAS
                                                            SPELL   R6,(C,O,M,P,L)
0003262 01 002262 003541 000302 TTYTBL    -001-             LI      R6,C%OMPL
0003264 01 002264 024011 ------                             TBN     R0,S(MCH_UPD)           # MCH UPDATE ?
0003265 01 002265 003160 ------                             ZR      R7
                                                    CPATCH4 BGNP    0(140)                  # 12913
0003266 01 002266 037000 116217 0116217   -001-             BL      %%%1299
                                          -001-             NOTE    CPATCH4 'CSECT'
                                          -001-             NOTE    ****************** PATCH AREA BEGINS AT 000140 ****************

0116217                                   -001-     %%%1299 PATCHAREA
0116217 10 000140 155003 ------ 0116222                     BNC     NOTMCH
0116220                                             MCHCOMPL
                                                            SPELL   R7,(M,C,H)
0116220 10 000141 103561 000154 TTYTBL    -001-             LI      R7,M%CH
0116222                                             NOTMCH
0116222 10 000143 124010 ------                             TBN     R0,S(OTS_UPD)
0116223 10 000144 055003 ------ 0116226                     BNC     ERRCHK
                                                            SPELL   R5,(O,T,S)
0116224 10 000145 003521 001522 TTYTBL    -001-             LI      R5,O%TS
0116226                                             ERRCHK
0116226 10 000147 124014 ------                             TBN     R0,S(UPD_ERR)           # TEST FOR UPDATE ERROR
0116227 10 000150 055003 ------ 0116232                     BNC     PRTUPD
                                                            SPELL   R7,(E,R,R)
0116230 10 000151 003561 000307 TTYTBL    -001-             LI      R7,E%RR
0116232                                             PRTUPD
                                                    CPATCH4 OW      0(153)                  # 3E800105
                                          -001-             NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000153 **********

                                                    CBLM    BGNP    0(2555)                 # 3E800105
0116232 10 000153 137000 003555 0003555   -001-             BL      %%%1312
                                          -001-             NOTE    CBLM 'CSECT'
                                          -001-             NOTE    ****************** PATCH AREA BEGINS AT 002555 ****************
```

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MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42   2/05/81  ****

UPDATE OFF-LINE STORE--MULTISCAN FUNCTION                                                        CBLM          W77D

0003555                                  -001- 01 XXX1312 PATCHAREA
0003555 01 002555 124003 ------                02        TBN     R0,S(EOST)          # DID UPDATE COMPLETE ?
0003556                                        03        IF      CF = 1 THEN RGBEGIN
0003556 01 002556 055011 ------ 0003567 -001- 04            BNC     IFS1314
0003557 01 002557 062500 ------               05            ZBS     0(RA1),S(PKEYM) # RESET POWER KEY MEMORY
0003560 01 002560 024012 ------               06            TBN     R0,S(UCL_UPD)   # DID AN UNCONDITIONAL UPDATE JUST COMPLETE
                                                                                     (I.E. ALL COMPLEMENT-CORRECTED LOCATIONS
                                                                                     REWRITTEN) ?
0003561                                       09            IF      CF = 1 THEN RGBEGIN
0003561 01 002561 055006 ------ 0003567 -001- 10            BNC     IFS1315
0003562 01 002562 031420 043026 CTSD          11            LAL     R1,SYSTATE,RA1
0003564 01 002564 003020 ------               12            ZR      R1
0003565 01 002565 002421 000026               13            STM     R1,N(COROFL)(RA1),M(COROFL)|M(UCORDSR)|M(UCOROFL) # RESET
                                                                                     OFFLINE MAS ERROR FLAGS AFTER UNCONDITIONAL
                                                                                     UPDATE
0003567                                       16            RGEND
0003567                                  -001- 17 IFS1315
0003567                                       18            RGEND
0003567                                  -001- 19 IFS1314
                                              20 DPATCH NOTE    REMOVE FOLLOWING BL COMMAND
0003567 01 002567 137000 003270 0003270       21        BL      PATCH_LINKUP
0003571                                       22        ENDP    NR                  # 3E800105
                                         -001- 23        NOTE    ************ LAST PATCH ADDRESS USED IS 002570 ***************
                                         -001- 24        NOTE    ***** NUMBER OF PATCH WORDS USED IS 12 (DECIMAL) ********


                                              27        EOW                         # 3E800105
0116234                                  -001- 28        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000154 *********
                                                                  *


                                              32        ENDP    NR                  # 12913
0116234                                  -001- 33        NOTE    ************ LAST PATCH ADDRESS USED IS 000154 ***************
                                         -001- 34        NOTE    ***** NUMBER OF PATCH WORDS USED IS 13 (DECIMAL) ********


                                              37 DPATCH NOTE    REMOVE FOLLOWING LABEL
0003270                                       38 PATCH_LINKUP
0003270                                       39        PRINT   FMT=(WRD(U,P,D),WRD,WRD,WRD)

                                         -001- 41 #  MESSAGE PROTOTYPE
                                         -001- 42 #      mm      UPD WRD WRD WRD
0003270 01 002270 173053 ------          -002- 43        BSAI    P%MRY               # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
0003271 01 002271 100200 ------          -002- 44        VFD     1,1 2,0 1,0 3,0 1,0 1,1 1,0 2,0 1,0 3,0
0003272 01 002272 021000 ------          -002- 45        VFD     4,TTYO_ 4,TTYO_ 4,TTYO_WRD 4,TTYO_WRD
0003273 01 002273 021042 ------          -002- 46        VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_
0003274 01 002274 004047 137000 TTYTBL   -002- 47        VFD     5,1 11,U%PD
                                         -001- 48        NOTE    THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
                                                                   CONTAINED IN GENERAL REGISTERS R5,R6,R7,

COMMON BASE LEVEL MONITOR                                                                        PR-1C950-50

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MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42    2/05/81  ****

UPDATE OFF-LINE STORE--MULTISCAN FUNCTION                                                    CBLM          W77D

                                                 01 CPATCH4 BGNP   0(155)              # 12913
0003275 01 002275 137000 116234 0116234  -001-   02        BL     XXX1331
                                        -001-   03        NOTE   CPATCH4 'CSECT'
                                        -001-   04        NOTE   ****************** PATCH AREA BEGINS AT 000155 ****************


0116234                                 -001-   07 XXX1331 PATCHAREA
                                                08 # SET UPD_DON AND ZERO SW_IP UPON COMPLETION OF AN UPDATE
0116234 10 000155 103401 040100                 09        LI     R0,E(S(UPD_DON),S(SW_IP))
0116236 10 000157 003421 000100                 10        LI     R1,E(S(UPD_DON))
0116240                                         11        ENDP                        # 12913
0116240 10 000161 037000 003277 0003277 -001-   12        BL     XXX1333
                                        -001-   13        NOTE   ************ LAST PATCH ADDRESS USED IS 000162 ***************
                                        -001-   14        NOTE   ***** NUMBER OF PATCH WORDS USED IS 6 (DECIMAL) ********


0003277                                 -001-   17 XXX1333 OWCONTINUE
0003277                                         18        CALL   UPDSTATE
0003277 01 002277 137020 001726 0001726 -001-   19        BSA    UPDSTATE
0003301                                         20        EOW                         # 12913
                                        -001-   21        NOTE   *************** THE LAST ADDRESS OVERWRITTEN IS 002300 **********
                                                           *


0003301 01 002301 124016 ------                 25        TBN    R0,S(SW_IP)
0003302                                         26        IF     CF THEN RGBEGIN
0003302 01 002302 055014 ------ 0003316 -002-   27            BNC     IFS1339
0003303                                         28            CALL    OSANUCL
0003303 01 002303 037020 007244 CINIT   -001-   29            BSA     OSANUCL
                                                30 # OSANUCL HAS CHANGED OMAS BUT NOT MAS. THEREFORE THE TWO
                                                31 # MAS ARE NOW OUT-OF-DATE AGAIN. THEY ARE OUT-OF-DATE IN AN
                                                32 # AREA THAT WILL NOT AFFECT PROCESSING. HOWEVER, IF A CORRECTION IS NOT
                                                33 # MADE, MAS AUDIT ERRORS WILL RESULT. THE AFFECTED AREA IS THEREFORE
                                                34 # UPDATED AGAIN.
                                                35 CBLM       OW      0(2305)         # 12913
                                        -001-   36            NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 002305
                                                                       **********


                                                40 CPATCH4    BGNP    0(163)          # 12913
0003305 01 002305 137000 116242 0116242 -001-   41            BL      XXX1343
                                        -001-   42            NOTE    CPATCH4 'CSECT'
                                        -001-   43            NOTE    ****************** PATCH AREA BEGINS AT 000163 ***************
                                                               *
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   MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42   2/05/81  ****

   UPDATE OFF-LINE STORE--MULTISCAN FUNCTION                                                  CBLM          W77D

0116242                                  -001- 01 XXX1343    PATCHAREA
0116242 10 000163 131400 042000 LAYOUT        02            LAL     R0,HGAREA,RA1
0116244 10 000165 003000 ------               03            ZR      R0                  # SPECIFY NORMAL UPDATE
0116245                                       04            ENDP                        # 12913
0116245 10 000166 037000 003307 0003307  -001- 05            BL      XXX1345
                                         -001- 06            NOTE    ************ LAST PATCH ADDRESS USED IS 000167 **************
                                                                      *
                                         -001- 08            NOTE    ***** NUMBER OF PATCH WORDS USED IS 5 (DECIMAL) ********


0003307                                  -001- 11 XXX1345    OWCONTINUE
0003307 01 002307 103441 000160 CINIT         12            LI      R2,OFL_HG
0003311                                       13            EOW                         # 12913
                                         -001- 14            NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 002310
                                                                       **********


0003311                                       18            CALL    MASONOFF
0003311 01 002311 037021 014412 MASACS   -001- 19            BSA     MASONOFF
0003313                                       20            IF      CF THEN CALL SWCCUCL # SWITCH ONLY IF SANITY TEST PASSES
0003313 01 002313 155003 ------ 0003316  -002- 21            BNC     IFS1351
0003314 01 002314 037020 006415 CINIT    -003- 22            BSA     SWCCUCL
0003316                                  -002- 23 IFS1351
0003316                                       24            RGEND
0003316                                  -001- 25 IFS1339
                                              26 # SUBROUTINE BGNPSAU IS CALLED TO ALSO TURN ON THE
                                              27 # DOUBLE STORE READ HARDWARE.
                                              28 CBLM    OW       0(2316)                # 12913
                                         -001- 29         NOTE   ************** THE FIRST ADDRESS OVERWRITTEN IS 002316 **********


0003316 01 002316 130400 043020 CTSD           32         LL     R0,AUMASCTL+1
0003320 01 002320 024014 ------               33         TBN    R0,S(UPD_ERR)          # DON'T CHANGE DSR IF AN ERROR IN UPDATE
0003321 01 002321 054003 ------ 0003324       34         BC     STOPUPD
                                              35 CPATCH4 BGNP   0(170)                  # 12913
0003322 01 002322 037000 116247 0116247  -001- 36         BL     XXX1356
                                         -001- 37         NOTE   CPATCH4 'CSECT'
                                         -001- 38         NOTE   ****************** PATCH AREA BEGINS AT 000170 *****************


0116247                                  -001- 41 XXX1356 PATCHAREA
0116247 10 000170 130400 043026 CTSD          42         LL     R0,SYSTATE
0116251 10 000172 003402 112640               43         NI     R0,NO_UPD              # SHOULD SYSTEM BE IN UPDATE
0116253 10 000174 050400 003324 0003324       44         BNCL   STOPUPD
0116255                                       45         CALL   BGNPSAU_NOTEST         # UPDATE DSR & MASID IF NO UPDATE ERRORS AND
                                                                                        ¬ NO_UPD
0116255 10 000176 037020 003713 0003713  -001- 47         BSA    BGNPSAU_NOTEST
0116257                                       48         ENDP                          # 12913
0116257 10 000200 137000 003324 0003324  -001- 49         BL     XXX1359
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MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42   2/05/81  ****

UPDATE OFF-LINE STORE--MULTISCAN FUNCTION                                                      CBLM          W77D

                                        -001- 01        NOTE    ************ LAST PATCH ADDRESS USED IS 000201 ***************
                                        -001- 02        NOTE    ***** NUMBER OF PATCH WORDS USED IS 10 (DECIMAL) ********


0003324                                 -001- 05 XXX1359 OWCONTINUE
0003324                                       06 STOPUPD
0003324 01 002324 131400 043020 CTSD          07        LAL     R0,AUMASCTL+1,RA1
                                              08 CPATCH4 BGNP   0(202)                  # 12913
0003326 01 002326 037000 116261 0116261 -001- 09        BL      XXX1361
                                        -001- 10        NOTE    CPATCH4 'CSECT'
                                        -001- 11        NOTE    ****************** PATCH AREA BEGINS AT 000202 ************.****


0116261                                 -001- 14 XXX1361 PATCHAREA
0116261                                       15        TAKEOUT 3                       # 3E800105
0116261 10 000202 106000 ------         -001- 16        LR      0,0
0116262 10 000203 006000 ------         -001- 17        LR      0,0
0116263 10 000204 006000 ------         -001- 18        LR      0,0
0116264 10 000205 003020 ------               19        ZR      R1
0116265 10 000206 002420 017401               20        STM     R1,0(RA1),ES(UPD_IP,OTS_UPD,MCH_UPD,UCL_UPD,COMP_UPD,UPD_ERR)
0116267                                       21        CALL    ALWMASAU
0116267 10 000210 037020 003732 0003732 -001- 22        BSA     ALWMASAU
0116271                                       23        RETURN  3
0116271 10 000212 156463 ------         -001- 24        BTSAN   3
0116271                                       25        ENDP    NR                      # 12913
                                        -001- 26        NOTE    ************ LAST PATCH ADDRESS USED IS 000212 ***************
                                        -001- 27        NOTE    ***** NUMBER OF PATCH WORDS USED IS 9 (DECIMAL) ********


0003330                                       30        EOW                             # 12913
                                        -001- 31        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 002327 *********
                                                                 *


0003330                                       35        TAKEOUT 2                       # 3E800105
0003330 01 002330 006000 ------         -001- 36        LR      0,0
0003331 01 002331 006000 ------         -001- 37        LR      0,0
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MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42    2/05/81  ****
REQUEST UPDATE--TTY INPUT SUBROUTINE                                                                CBLM          W77D

                                                 01 # DESCRIPTION:
                                                 02 # RESPOND TO THE TTY INPUT MESSAGE UPD:OMAS!
                                                 03 # REQUESTS THE EXECUTION OF THE MSF UPD_OMAS
0003332                                          04
                                                 05 # ENTRY POINT:
                                                 06 # UPDOMAS
0003332                                          07
                                                 08 # ENTRY CONDITIONS:
                                                 09 # R4-R13 CORRESPONDS TO TTY INPUT FORMATS 1 AND 1.
0003332                                          10
                                                 11 # EXIT CONDITIONS:
                                                 12 # TTY_IP--REQUEST WAS ACCEPTED
                                                 13 # TTY_NG--SYSTEM STATE IS SUCH THAT UPDATE MAY NOT OCCUR



                                                 17 CBLM    OW      0(2332)              # 12913
                                          -001-  18         NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 002332 **********


0003332                                          21
0003332                                          22
0003332                                          23
0003332                                          24 UPDOMAS
0003332 01 002332 103040 ------                  25         ZR      R2
0003333 01 002333 024254 ------ TTYTBL           26         TBN     R10,S(UCL)
0003334 01 002334 030052 ------                  27         ICF     R2,S(UCL_UPD)        # SET THE UNCONDITIONAL UPDATE BIT
0003335 01 002335 024251 ------ TTYTBL           28         TBN     R10,S(COMP)
0003336 01 002336 030053 ------                  29         ICF     R2,S(COMP_UPD)       # SET THE COMPLEMENT UPDATE BIT
                                                 30 CPATCH5 BGNP    0(0)                 # 12913
0003337 01 002337 037000 116272 0116272  -001-  31         BL      %%%1374
                                         -001-  32         NOTE    CPATCH5 'CSECT'
                                         -001-  33         NOTE    ****************** PATCH AREA BEGINS AT 000000 ****************


0116272                                  -001-  36 %%%1374 PATCHAREA
0116272 11 000000 103665 000154 TTYTBL           37         CI      R11,M%CH
0116274 11 000002 030051 ------                  38         ICF     R2,S(MCH_UPD)        # SET MAINTENANCE CHANNEL UPDATE BIT
0116275 11 000003 010451 ------                  39         RRN     R2,S(MCH_UPD)        # RIGHT ADJUST FOR THE BPAX
0116276 11 000004 056002 ------                  40         BPAX    R2                   # BRANCH TO MAKE CORRECT CHECKS FOR THE
                                                                                           DIFFERENT
0116277 11 000005 153032 ------ 0116331          42         B       CKALL
0116300 11 000006 153007 ------ 0116307          43         B       CKMCHPWR
0116301 11 000007 153012 ------ 0116313          44         B       CKPWR
0116302 11 000010 153005 ------ 0116307          45         B       CKMCHPWR
0116303 11 000011 153026 ------ 0116331          46         B       CKALL
0116304 11 000012 153030 ------ 0116334          47         B       REQNG
0116305 11 000013 153006 ------ 0116313          48         B       CKPWR
0116306 11 000014 153026 ------ 0116334          49         B       REQNG

COMMON BASE LEVEL MONITOR                                                                       PR-1C950-50
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MULTISCAN FUNCTION CONTROLLER (MSFC) 22:40:42 2/05/81 ****

REQUEST UPDATE--TTY INPUT SUBROUTINE CBLM W77D

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0116307                                                  01
0116307                                                  02
0116307                                                  03 CKMCHPWR
0116307 11 000015 130400 043026 CTSD                     04        LL      R0,SYSTATE
0116311 11 000017 024014 ------                          05        TBN     R0,S(MCH_OOS)       # CHECK TO SEE IF MCH CAN BE USED
0116312 11 000020 054022 ------ 0116334                  06        BC      REQNG
0116313                                                  07 CKPWR
0116313 11 000021 130400 043026 CTSD                     08        LL      R0,SYSTATE
0116315 11 000023 024017 ------                          09        TBN     R0,S(PKEY)          # CHECK OFF LINE POWER KEY STATUS
0116316 11 000024 054016 ------ 0116334                  10        BC      REQNG
0116317                                                  11 REQOK
0116317 11 000025 110447 ------                          12        RLN     R2,S(MCH_UPD)       # POSITION BITS FOR ORING OPERATION
0116320 11 000026 031400 043017 CTSD                     13        LAL     R0,AUMASCTL,RA1
0116322 11 000030 002441 007000                          14        STM     R2,N(MCH_UPD)(RA1),E(S(MCH_UPD),S(UCL_UPD),S(COMP_UPD))
0116324 11 000032 003020 ------                          15        ZR      R1
0116325 11 000033 044420 ------                          16        ST      R1,N(UPD_PTR)(RA1)  # ZERO UPDATE POINTER WORD
0116326                                                  17        CALL    REQ_UPD
0116326 11 000034 037020 003030 0003030  -001-          18        BSA     REQ_UPD
0116330                                                  19        RETURN  TTY_IP
0116330 11 000036 156465 ------ TTYTBL   -001-          20        BTSAN   TTY_IP
0116331                                                  21 CKALL
0116331                                                  22        CALL    CK_OST
0116331 11 000037 137020 001750 0001750  -001-          23        BSA     CK_OST
0116333 11 000041 155764 ------ 0116317                  24        BNC     REQOK
0116334                                                  25 REQNG
0116334                                                  26        RETURN  TTY_NG
0116334 11 000042 156467 ------ TTYTBL   -001-          27        BTSAN   TTY_NG
0116335                                                  28        ENDP    NR                  # 12913
                                         -001-           29        NOTE    ************ LAST PATCH ADDRESS USED IS 000042 ***************
                                         -001-           30        NOTE    ***** NUMBER OF PATCH WORDS USED IS 35 (DECIMAL) ********


0003341                                                  33        EOW                         # 12913
                                         -001-           34        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 002340 *********
                                                                            *
```

```
                                    01 # DESCRIPTION:
                                    02 # REQUESTS THE EXECUTION OF ONE MAS AUDIT PASS IN WHICH THE BAD
                                    03 # PLANES ARE PRINTED.
0003341                             04
                                    05 # ENTRY POINT:
                                    06 # AUMAS
0003341                             07
                                    08 # ENTRY CONDITIONS:
                                    09 # R6 = 0 AUDIT THE ON-LINE MAS
                                    10 #      1 AUDIT THE OFF-LINE MAS
0003341                             11
                                    12 # EXIT CONDITIONS:
                                    13 # TTY_IP--REQUEST WAS ACCEPTED
                                    14 # TTY_NG--SYSTEM IS NOT UP-TO-DATE AND HENCE AUDIT CAN NOT BE RUN


                                    18 CBLM   OW      0(2341)              # 3E790058
                                -001- 19      NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 002341 **********


0003341                             22 AUMAS
0003341                             23      BEGIN   ()
0003341 01 002341 124234 ------ TTYTBL  24      TBN     R9,S(UCL)            # UNCONDITIONAL AUDIT REQUEST
0003342 01 002342 054007 ------ 0003351 25      BC      AUMASC
0003343                             26      CALL    CK_OST
0003343 01 002343 037020 001750 0001750 -001- 27      BSA     CK_OST
0003345 01 002345 103405 000002     28      CI      R0,2
0003347 01 002347 054002 ------ 0003351 29      BC      AUMASC
0003350                             30      RETURN  TTY_NG
0003350 01 002350 056467 ------ TTYTBL -001- 31      BTSAN   TTY_NG
0003351                             32 AUMASC
                                    33 CPATCH BGNP    0(223)               # 3E790058
0003351 01 002351 137000 111655 0111655 -001- 34      BL      XXX1392
                                -001- 35      NOTE    CPATCH 'CSECT'
                                -001- 36      NOTE    ****************** PATCH AREA BEGINS AT 000223 ******************


                                -001- 39 XXX1392 PATCHAREA
0111655                             40 # SINCE A MAS AUDIT WAS REQUESTED, KNOCK OUT THE 3ACC UTILITY MATCHERS
                                    41 # SO THAT THE AUDIT CAN RUN.
                                    42      LI      R0,ES(AME,DME)
0111655 04 000223 103401 000021     43      LSR     SS_R,R0              # DISABLE MATCH CIRCUITS
0111657 04 000225 007760 ------     44      ENDP                         # 3E790058
0111660
0111660 04 000226 037000 003353 0003353 -001- 45      BL      XXX1394
                                -001- 46      NOTE    ************* LAST PATCH ADDRESS USED IS 000227 ***************
                                -001- 47      NOTE    ***** NUMBER OF PATCH WORDS USED IS 5 (DECIMAL) ********
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MULTISCAN FUNCTION CONTROLLER (MSFC)                                    22:40:42   2/05/81  ****

REQUEST MAS AUDIT--TTY INPUT SUBROUTINE                                          CBLM          W77D

0003353                                -001- 01 XXX1394 OWCONTINUE
0003353                                      02       EOW                    # 3E790058
                                       -001- 03       NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 002352 *********
                                                               *


0003353 01 002353 103020 ------                       07       ZR      R1
0003354 01 002354 035420 043017 CTSD                 08       STAL    R1,AUMASCTL,RA1
0003356 01 002356 061421 ------                      09       SBS     N(AU_IP)(RA1),S(AU_IP)
0003357 01 002357 061541 ------                      10       SBS     N(OFL_AU)(RA1),S(OFL_AU)
0003360                                              11       RETURN  TTY_IP
0003360 01 002360 056465 ------ TTYTBL    -001- 12       BTSAN   TTY_IP
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```
                                            01 # DESCRIPTION:
                                            02 # AUDIT OR UPDATE A VARIABLE NUMBER OF 16-WORD BLOCKS
                                            03 # OF MAIN STORE. THE ACTION OF THIS SUBROUTINE IS CONTROLLED
                                            04 # BY THE AUMASCTL CONTROL BLOCK.
0003361                                     05
                                            06 # ENTRY POINT:
                                            07 # AUUPDMAS
0003361                                     08
                                            09 # ENTRY CONDITIONS:
                                            10 # NONE
0003361                                     11
                                            12 # EXIT CONDITIONS:
                                            13 # RO = RETURN CODE
                                            14 #   0--END OF EQUIPPED STORE
                                            15 #   1--SEQUENCE THROUGH STORE CONTINUES


0003361                                     19        AUMASCTLR_PICTURE
AUMASCTLR_____________________________-001- 20 #______________________________________________________________________________
00|                                                            UPD_PTR                                                        |
  |                                           POINTER TO CURRENT 16-WORD BLOCK                                                |
01|----------------------------|UPD_ERR|COMP_UP|UCL_UPD|MCH_UPD|OTS_UPD|NPUCOR |OFL_AU |DGNUPD | PKEYM | EOST  | NODSR | AU_IP |UPD_IP |
  |*************************** |       |       |       |       |       |       |       |       |       |       |       |       |       |
  |   15   |   14   |   13     |  12   |  11   |  10   |   9   |   8   |   7   |   6   |   5   |   4   |   3   |   2   |   1   |   0   |
0003361                                     29 AUUPDMAS
0003361                                     30        BEGIN
0003361 01 002361 171420 ------       -002- 31        HA
0003362 01 002362 031340 043017 CTSD        32        LAL     R14,AUMASCTL,RA0    # CURRENT BLOCK POINTER
                                            33 # FIRST THE AUDIT IS AUDITED. IF THE SYSTEM IS NOT IN THE HARDWARE
                                            34 # UPDATE MODE, THE AUDIT SHOULD NOT BE RUNNING
                                            35 CBLM   OW      0(2364)             # 12913
                                      -001- 36        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 002364 **********


0003364 01 002364 051221 ------             39        TBS     1(RA0),S(MCH_UPD)
0003365 01 002365 050000 116442 0116442     40        BCL     MCH_UPD_            # BRANCH DIRECTLY TO THE MCH UPDATE FUNCTION
0003367                                     41        TAKEOUT 1
0003367 01 002367 006000 ------       -001- 42        LR      0,0
0003370                                     43        EOW                         # 12913
                                      -001- 44        NOTE    **************** THE LAST ADDRESS OVERWRITTEN IS 002367 *********
                                                               *


                                            48 DDELETE NOTE   1
0003370 01 002370 140161 ------             49        L       AU_IP,N(AU_IP)(RA0)
0003371 01 002371 017560 004411             50        CIRM    UPD_IP,ES(UPD_IP,EOST),0,ES(UPD_IP,EOST)
0003373                                     51        IF      CF THEN RETURN 0    # WAIT FOR UPD_OMAS TO DETECT  THE END OF
                                                                                    UPDATE
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   MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42    2/05/81  ****

   AUDIT/UPDATE MAIN STORE                                                                          CBLM           W77D

0003373 01 002373 055002 ------ 0003375  -002- 01            BNC     IFS1410
0003374 01 002374 056440 ------          -003- 02            BTSAGN  0
0003375                                  -002- 03 IFS1410
0003375 01 002375 110754 ------                04          RLN     R14,4                   # ADDRESS=16*POINTER
0003376 01 002376 016776 177760                05          LRM     R15,R14,MSK(12,4)
0003400                                        06          CALL    RGCHKADR                # IF ADDRESS IS OUT-OF-RANGE, STOP AND
                                                                                             RECYCLE
0003400 01 002400 073036 ------          -001- 08          BSAI    rgchkAdr                # SUBROUTINE RGCHKADR IS IN PROGRAM CSYSUB
0003401                                        09          IF      CF THEN RGBEGIN
0003401 01 002401 155020 ------ 0003421  -002- 10              BNC     IFS1414
0003402                                        11 ADROOR
0003402 01 002402 103020 ------                12              ZR      R1
0003403 01 002403 044020 ------                13              ST      R1,0(RA0)           # RECYCLE UPD_PTR
0003404 01 002404 002021 000140                14              STM     R1,N(DGNUPD)(RAD),ES(DGNUPD,OFL_AU)
0003406 01 002406 061061 ------                15              SBS     N(EOST)(RAO),S(EOST) # REMEMBER THAT THE END-OF-STORE WAS
                                                                                             REACHED
0003407 01 002407 024006 ------                17              TBN     RO,S(OFL_AU)
0003410                                        18              IF      CF THEN RGBEGIN
0003410 01 002410 055010 ------ 0003420  -002- 19              BNC     IFS1416
0003411                                        20              PRINT   FMT=(WRD(A,U),WRD(M,A,S),WRD(C,O,M,P,L))

                                         -001- 22 #  MESSAGE PROTOTYPE
                                         -001- 23 #     mm       AU MAS COMPL
0003411 01 002411 073053 ------          -002- 24              BSAI    P%MRY               # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
0003412 01 002412 100200 ------          -002- 25              VFD     1,1 2,0 1,0 3,0 1,0 1,1 1,0 2,0 1,0 3,0
0003413 01 002413 021040 ------          -002- 26              VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_WRD
0003414 01 002414 021042 ------          -002- 27              VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_
0003415 01 002415 014006 ------ TTYTBL   -002- 28              VFD     5,3 11,A%U
0003416 01 002416 000151 ------ TTYTBL   -002- 29              VFD     5, 11,M%AS
0003417 01 002417 000302 ------ TTYTBL   -002- 30              VFD     5, 11,C%OMPL
                                         -001- 31              NOTE    THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
                                                                        CONTAINED IN GENERAL REGISTERS
0003420                                        33              RGEND
0003420                                  -001- 34 IFS1416
0003420                                        35              RETURN  0
0003420 01 002420 156440 ------          -001- 36              BTSAGN  0
0003421                                        37              RGEND
0003421                                  -001- 38 IFS1414
0003421                                        39          IF      RO = 1 THEN RGBEGIN # CHECK FOR PROTECTED STORE
0003421 01 002421 103405 000001          -002- 40              CI      RO,1
0003423 01 002423 055006 ------ 0003431  -001- 41              BNC     IFS1433
0003424                                        42              IF      OTS_UPD THEN RGBEGIN
0003424 01 002424 024170 ------          -004- 43              TBN     OTS_UPD,S(OTS_UPD)
0003425 01 002425 055004 ------ 0003431  -002- 44              BNC     IFS1436
0003426 01 002426 003441 010000                45              LI      R2,E(12)            # ADVANCE TO NEXT 4K MAS BLOCK, SKIP PS
0003430 01 002430 053066 ------ 0003516        46              B       EXITAUUPDMAS
0003431                                        47              RGEND
0003431                                  -001- 48 IFS1436
0003431                                        49              RGEND
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MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42   2/05/81  ****

AUDIT/UPDATE MAIN STORE                                                                          CBLM          W77D

0003431                                  -001- 01 IFS1433

                                              03 # R7=SECOND WORD OF AUDIT/UPDATE CONTROL BLOCK
                                              04 # RA0=ADDRESS OF MAS AUDIT/UPDATE CONTROL BLOCK
                                              05 # RA1=ADDRESS OF NEXT WORD TO PROCESS
                                              06 CBLM   OW      0(2431)              # 13714
                                         -001- 07       NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 002431 **********


0003431 01 002431 103441 000020                10       LI      R2,1*16              # R2 = NO. OF WORDS TO AUDIT OR UPDATE AND
                                                                                        MUST BE A MULTIPLE OF 16
0003433                                         12       EOW                          # 13714
                                         -001- 13       NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 002432 *********
                                                                 *


0003433 01 002433 017560 020400                 17       CIRM    UPD_IP,0,0,ES(UPD_IP,DGNUPD)
0003435                                         18       IF      ¬ CF THEN RGBEGIN    # PROGRAM UPDATE IN PROGRESS
0003435 01 002435 054013 ------ 0003450  -002- 19           BC      IFS1446
                                              20 CBLM      OW      0(2436)              # 12913
                                         -001- 21           NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 002436
                                                                      **********


                                              25 CPATCH5   BGNP    0(43)                # 12913
0003436 01 002436 037000 116335 0116335  -001- 26           BL      XXX1449
                                         -001- 27           NOTE    CPATCH5 'CSECT'
                                         -001- 28           NOTE    ****************** PATCH AREA BEGINS AT 000043 ***************
                                                                     *


0116335                                  -001- 32 XXX1449   PATCHAREA
0116335 11 000043 131000 043351 CTSD             33         LAL     R0,MASTATE,RA0
0116337                                          34         LOS     0(RA0)
0116337 11 000045 076000 ------          -001- 35         STAF    0(RA0)
0116340 11 000046 136160 ------          -001- 36         DATA    B(1011110001110000)
0116341 11 000047 006220 ------                  37         LR      R9,R0                # SAVE THE OFF LINE MASID WORD
0116342 11 000050 016407 006000                  38         LRM     R0,R7,MSK(2,10) # R7 = AUMASBLK+1
0116344 11 000052 010412 ------                  39         RRN     R0,S(UCL_UPD)
                                                 40 CPATCH5 OW      0(53)                # 13320
                                         -001- 41           NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000053
                                                                      **********


0116345                                          45         CALL    KASONFOP
0116345 11 000053 037021 014413 MASACS   -001- 46         BSA     MASONFOP
0116347                                          47         EOW                          # 13320
                                         -001- 48           NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000054
                                                                      **********


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AUDIT/UPDATE MAIN STORE                                                                          CBLM          W77D


 0116347 11 000055 106120 ------                    03          LR      R5,R0          # SAVE THE RETURN CODE
 0116350 11 000056 006011 ------                    04          LR      R0,R9
 0116351                                            05          STOS    0(RA0)         # RESTORE ORIGINAL CONTENTS OF MASID
E0116351 11 000057 000400 ------              -001- 06          MSTF    0(RA0)
 0116352 11 000060 136100 ------              -001- 07          DATA    B(1011110001000000)
 0116353 11 000061 031000 043017 CTSD               08          LAL     R0,AUMASCTL,RA0 # RESTORE RA0
 0116355 11 000063 031400 043026 CTSD               09          LAL     R0,SYSTATE,RA1
 0116357 11 000065 024120 ------                    10          TBN     R5,0           # R5 = MASONOFF RETURN CODE
 0116360 11 000066 055006 ------ 0116366            11          BNC     DSROK
                                                    12 # IF UNCORDSR SET BIT AND BLOCK DSR
 0116361 11 000067 061041 ------                    13          SBS     N(UCORDSR)(RA0),S(UCORDSR)
 0116362 11 000070 003401 030000                    14          LI      R0,E(S(BDSR1),S(BDSR0))
 0116364                                            15          CALL    MMSRS
 0116364 11 000072 037020 116420 0116420      -001- 16          BSA     MMSRS
 0116366.                                           17 DSROK
 0116366 11 000074 124121 ------                    18          TBN     R5,1
 0116367 11 000075 050400 003447 0003447            19          BNCL    NOERR
 0116371 11 000077 061441 ------                    20          SBS     N(UCORDSR)(RA1),S(UCORDSR)
 0116372                                            21          ENDP                   # 12913
 0116372 11 000100 037000 003440 0003440      -001- 22          BL      XXX1459
                                              -001- 23          NOTE    ************ LAST PATCH ADDRESS USED IS 000101 ***************
                                                                         *
                                              -001- 25          NOTE    ***** NUMBER OF PATCH WORDS USED IS 31 (DECIMAL) ********


 0003440                                      -001- 28 XXX1459  OWCONTINUE
 0003440 01 002440 161701 ------                    29          SBS     N(UPD_ERR)(RA1),S(UPD_ERR)
E0003441 01 002441 021064 ------                    30          LRS     R3,MMSR
 0003442 01 002442 015463 ------                    31          COM     R3
 0003443 01 002443 003462 031400                    32          NI      R3,E(S(UPD1),S(UPD0),S(BDSR1),S(BDSR0))
 0003445 01 002445 055002 ------ 0003447            33          BNC     NOERR
 0003446 01 002446 061421 ------                    34          SBS     N(UCOROFL)(RA1),S(UCOROFL)
 0003447                                            35 NOERR
 0003447 01 002447 153047 ------ 0003516            36          B       EXITAUUPDMAS
 0003450                                            37          EOW                    # 12913
                                              -001- 38          NOTE    ************** THE LAST ADDRESS OVERWRITTEN IS 002447
                                                                         **********


 0003450                                            42          RGEND
 0003450                                      -001- 43 IFS1446
 0003450                                            44        IF      AU_IP THEN RGBEGIN  # MAS AUDIT IN PROGRESS
 0003450 01 002450 124161 ------              -004- 45          TBN     AU_IP,S(AU_IP)
 0003451 01 002451 055053 ------ 0003524      -002- 46          BNC     IFS1465
                                                    47 CBLM     OW      0(2452)        # 3E790058
                                              -001- 48          NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 002452
                                                                         **********

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                                                  03 CPATCH     BGNP    0(230)           # 3E790058
0003452 01 002452 037000 111662 0111662  -001- 04               BL      %%%1470
                                         -001- 05               NOTE    CPATCH 'CSECT'
                                         -001- 06               NOTE    ****************** PATCH AREA BEGINS AT 000230 ****************
                                                                         *

0111662                                  -001- 10 %%%1470       PATCHAREA
                                                  11 # DO NOT PERFORM THE MAS AUDIT IF THE MATCHERS ARE ENABLED
0111662 04 000230 106002 ------                   12            LR      R0,R2            # SAVE R2
0111663 04 000231 012417 ------                   13            UNPK    SS
0111664 04 000232 003462 000021                   14            NI      R3,ES(AME,DME)
0111666                                           15            IF      CF = 0 THEN BL EXITRTN
0111666 04 000234 050400 003524 0003524  -001- 16               BNCL    EXITRTN
0111670 04 000236 006040 ------                   17            LR      R2,R0            # RESTORE LENGTH
0111671                                           18            CALL    AUMASBLK
0111671 04 000237 037021 014606 MASACS   -001- 19               BSA     AUMASBLK
0111673                                           20            ENDP                     # 3E790058
0111673 04 000241 137000 003454 0003454  -001- 21               BL      %%%1474
                                         -001- 22               NOTE    ************* LAST PATCH ADDRESS USED IS 000242 ***************
                                                                         *
                                         -001- 24               NOTE    ***** NUMBER OF PATCH WORDS USED IS 11 (DECIMAL) ********

0003454                                  -001- 27 %%%1474       OWCONTINUE
0003454                                           28            EOW                      # 3E790058
                                         -001- 29               NOTE    **************** THE LAST ADDRESS OVERWRITTEN IS 002453
                                                                           ***********

                                                  33 # R0(0)=1 IF ON-LINE IS UNCORRECTABLE BY COMPLEMENT CORRECTION
                                                  34 # R0(1)=1 IF OFF-LINE IS UNCORRECTABLE BY COMPLEMENT CORRECTION
                                                  35 # R0(2)=1 IF SYSTEM IS UNCORRECTABLE BY DOUBLE STORE READ
                                                  36 # R0(3)=1 IF ON-LINE CONTAINS A COMPLEMENT CORRECTED LOCATION
                                                  37 # R0(4)=1 IF OFF-LINE CONTAINS A COMPLEMENT CORRECTED LOCATION

0003454 01 002454 106120 ------                   39            LR      UCORONL,R0       # SAVE RETURN CODE
0003455 01 002455 031400 043027 CTSD              40            LAL     R0,SYSTATE+N(UCORONL),RA1 # GET RECORD OF MAS ERRORS
0003457 01 002457 014520 ------                   41            OR      UCORONL,R0       # MERGE NEW ERRORS INTO PERMANENT RECORD
0003460 01 002460 044520 ------                   42            ST      UCORONL,0(RA1)   # UPDATE PERMANENT RECORD
0003461 01 002461 062161 ------                   43            ZBS     N(NPUCOR)(RA0),S(NPUCOR) # INITIALIZE FLAG TO PRINT UNCORRECT
                                                                                           ABLE ERRORS
0003462 01 002462 017520 001400                   45            CIRM    UCORONL,0,0,ES(UCORONL,UCOROFL) # ANY UNCORRECTABLE LOCATIONS
                                                                                                  ?
0003464                                           47            IF      ¬ CF THEN SBS N(NPUCOR)(RA0),S(NPUCOR) # CHANGE FLAG IF YES
0003464 01 002464 054002 ------ 0003466  -002- 48               BC      IFS1479
0003465 01 002465 061161 ------          -002- 49               SBS     N(NPUCOR)(RA0),S(NPUCOR) #
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MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42   2/05/81  ****

AUDIT/UPDATE MAIN STORE                                                                          CBLM          W77D

0003466                                          -002- 01 IFS1479
0003466 01 002466 120005 ------                        02            CR      RO,UCORONL
0003467                                               03            IF      ¬ CF THEN RGBEGIN # DO RANGE IF THERE WAS  A CHANGE IN ERROR
                                                                                STATUS
0003467 01 002467 054027 ------ 0003516          -002- 05            BC      IFS1481
0003470                                               06            IF      UCORDSR THEN CALL LOD_BDSR
0003470 01 002470 024122 ------                  -004- 07            TBN     UCORDSR,S(UCORDSR)
0003471 01 002471 055003 ------ 0003474          -002- 08            BNC     IFS1483
0003472 01 002472 037020 003750 0003750          -003- 09            BSA     LOD_BDSR
0003474                                          -002- 10 IFS1483
0003474 01 002474 117520 015400                       11            CIRM    UCORONL,0,0,ES(UCORONL,UCOROFL,CORONL,COROFL) # ANY COMPLEMEN
                                                                                T CORRECTION ERRORS?
0003476                                               13            IF      ¬ CF THEN RGBEGIN # DO RANGE ON YES
0003476 01 002476 054020 ------ 0003516          -002- 14            BC      IFS1488
0003477 01 002477 017520 011000                       15            CIRM    UCORONL,0,0,ES(UCOROFL,COROFL) # ANY OFF-LINE ERRORS?
0003501                                               16            IF      CF THEN CALL SWITCHCC # ATTEMPT SWITCH ON NO
0003501 01 002501 055003 ------ 0003504          -002- 17            BNC     IFS1490
0003502 01 002502 037020 006401 CINIT            -003- 18            BSA     SWITCHCC
0003504                                          -002- 19 IFS1490
0003504 01 002504 117520 011421                       20            CIRM    UCORONL,ES(UCORONL,COROFL),0,ES(UCORONL,UCOROFL,COROFL) # IS
                                                                                THERE AN UNCORRECTABLE ON-LINE ERROR FACING
                                                                                A CORRECTABLE OFF-LINE ERROR?
0003506                                               23            IF      CF THEN RGBEGIN
0003506 01 002506 055010 ------ 0003516          -002- 24            BNC     IFS1493
0003507 01 002507 030400 043026 CTSD                  25            LL      RO,SYSTATE
                                                      26 CBLM       OW      0(2511)          # 12913
                                                 -001- 27            NOTE    ************ THE FIRST ADDRESS OVERWRITTEN IS 002511
                                                                               **********



                                                      31 CPATCH5    BGNP    0(102)           # 12913
0003511 01 002511 037000 116374 0116374          -001- 32            BL      XXX1496
                                                 -001- 33            NOTE    CPATCH5 'CSECT'
                                                 -001- 34            NOTE    ***************** PATCH AREA BEGINS AT 000102 ***************
                                                                              *


0116374                                          -001- 38 XXX1496    PATCHAREA
0116374 11 000102 103402 112634                       39            NI      RO,ES(PKEY,MCH_OOS,MAS_OOS,OSM_OFL,OSA_TBLA,OSA_FALT,OFL_UAV,
                                                                                INITQ_IP)
0116376 11 000104 050400 003516 0003516               41            BNCL    EXITAUUPDMAS
0116400                                               42            CALL    ACTMSF
0116400 11 000106 037020 003165 0003165          -001- 43            BSA     ACTMSF
0116402 11 000110 124000 ------ BLMMA                 44            TBN     RO,UPD_OMAS
0116403                                               45            ENDP             # 12913
0116403 11 000111 037000 003513 0003513          -001- 46            BL      XXX1499
                                                 -001- 47            NOTE    ************ LAST PATCH ADDRESS USED IS 000112 **************
                                                                              *
                                                 -001- 49            NOTE    ***** NUMBER OF PATCH WORDS USED IS 9 (DECIMAL) ********

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0003513                                  -001- 03 XXX1499    OWCONTINUE
0003513 01 002513 154003 ------ 0003516        04            BC      EXITAUUPDMAS
0003514                                        05            EOW                    # 12913
                                         -001- 06            NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 002513
                                                               **********


0003514                                        10            CALL    SWCCACHK
0003514 01 002514 037020 006407 CINIT    -001- 11            BSA     SWCCACHK
0003516                                        12            RGEND
0003516                                  -001- 13 IFS1493
                                               14 # GETTING UNCORRECTABLE ERRORS OFF-LINE TAKES PRECEDENCE OVER CORRECTABLE ERRORS
0003516                                        15            RGEND
0003516                                  -001- 16 IFS1488
0003516                                        17            RGEND
0003516                                  -001- 18 IFS1481


0003516                                        22 EXITAUUPDMAS
0003516 01 002516 140000 ------                23            L       R0,0(RA0)
0003517 01 002517 006340 ------                24            LR      R14,R0          # SAVE ORIGINAL DATA FOR PRTMASER SUBROUTINE
0003520 01 002520 010444 ------                25            RRN     R2,4            # CONVERT WORDS TO THE NUMBER OF 16 WORD
                                                                                         BLOCKS
0003521 01 002521 001402 ------                27            AR      R0,R2
0003522 01 002522 054660 ------ 0003402        28            BC      ADROOR          # CROSSED E(20) BOUNDARY, THEREFORE END OF
                                                                                         MAS
0003523 01 002523 044000 ------                30            ST      R0,0(RA0)
0003524                                        31            RGEND
0003524                                  -001- 32 IFS1465
0003524                                        33 EXITRTN
0003524                                        34        RETURN  1
0003524 01 002524 156441 ------          -001- 35        BTSAGN  1
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MULTISCAN FUNCTION CONTROLLER (MSFC)                                    22:40:42   2/05/81  ****

AUDIT/UPDATE MAIN STORE                                                          CBLM          W77D

                                                01 DPATCH NOTE    REMOVE "ORG" LINE BELOW
0003571                                         02        ORG     0(2571)          # SKIPPED LOCATIONS (ABOVE) USED FOR PATCH
                                                                                     AREA
0003571                                         04        TAKEOUT 0(77)            # 3E800105
0003571 01 002571 106000 ------          -001- 05        LR      0,0
0003572 01 002572 006000 ------          -001- 06        LR      0,0
0003573 01 002573 006000 ------          -001- 07        LR      0,0
0003574 01 002574 006000 ------          -001- 08        LR      0,0
0003575 01 002575 006000 ------          -001- 09        LR      0,0
0003576 01 002576 006000 ------          -001- 10        LR      0,0
0003577 01 002577 006000 ------          -001- 11        LR      0,0
0003600 01 002600 006000 ------          -001- 12        LR      0,0
0003601 01 002601 006000 ------          -001- 13        LR      0,0
0003602 01 002602 006000 ------          -001- 14        LR      0,0
0003603 01 002603 006000 ------          -001- 15        LR      0,0
0003604 01 002604 006000 ------          -001- 16        LR      0,0
0003605 01 002605 006000 ------          -001- 17        LR      0,0
0003606 01 002606 006000 ------          -001- 18        LR      0,0
0003607 01 002607 006000 ------          -001- 19        LR      0,0
0003610 01 002610 006000 ------          -001- 20        LR      0,0
0003611 01 002611 006000 ------          -001- 21        LR      0,0
0003612 01 002612 006000 ------          -001- 22        LR      0,0
0003613 01 002613 006000 ------          -001- 23        LR      0,0
0003614 01 002614 006000 ------          -001- 24        LR      0,0
0003615 01 002615 006000 ------          -001- 25        LR      0,0
0003616 01 002616 006000 ------          -001- 26        LR      0,0
0003617 01 002617 006000 ------          -001- 27        LR      0,0
0003620 01 002620 006000 ------          -001- 28        LR      0,0
0003621 01 002621 006000 ------          -001- 29        LR      0,0
0003622 01 002622 006000 ------          -001- 30        LR      0,0
0003623 01 002623 006000 ------          -001- 31        LR      0,0
0003624 01 002624 006000 ------          -001- 32        LR      0,0
0003625 01 002625 006000 ------          -001- 33        LR      0,0
0003626 01 002626 006000 ------          -001- 34        LR      0,0
0003627 01 002627 006000 ------          -001- 35        LR      0,0
0003630 01 002630 006000 ------          -001- 36        LR      0,0
0003631 01 002631 006000 ------          -001- 37        LR      0,0
0003632 01 002632 006000 ------          -001- 38        LR      0,0
0003633 01 002633 006000 ------          -001- 39        LR      0,0
0003634 01 002634 006000 ------          -001- 40        LR      0,0
0003635 01 002635 006000 ------          -001- 41        LR      0,0
0003636 01 002636 006000 ------          -001- 42        LR      0,0
0003637 01 002637 006000 ------          -001- 43        LR      0,0
0003640 01 002640 006000 ------          -001- 44        LR      0,0
0003641 01 002641 006000 ------          -001- 45        LR      0,0
0003642 01 002642 006000 ------          -001- 46        LR      0,0
0003643 01 002643 006000 ------          -001- 47        LR      0,0
0003644 01 002644 006000 ------          -001- 48        LR      0,0
0003645 01 002645 006000 ------          -001- 49        LR      0,0

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AUDIT/UPDATE MAIN STORE CBLM W77D

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0003646 01 002646 006000 ------          -001- 01      LR      0,0
0003647 01 002647 006000 ------          -001- 02      LR      0,0
0003650 01 002650 006000 ------          -001- 03      LR      0,0
0003651 01 002651 006000 ------          -001- 04      LR      0,0
0003652 01 002652 006000 ------          -001- 05      LR      0,0
0003653 01 002653 006000 ------          -001- 06      LR      0,0
0003654 01 002654 006000 ------          -001- 07      LR      0,0
0003655 01 002655 006000 ------          -001- 08      LR      0,0
0003656 01 002656 006000 ------          -001- 09      LR      0,0
0003657 01 002657 006000 ------          -001- 10      LR      0,0
0003660 01 002660 006000 ------          -001- 11      LR      0,0
0003661 01 002661 006000 ------          -001- 12      LR      0,0
0003662 01 002662 006000 ------          -001- 13      LR      0,0
0003663 01 002663 006000 ------          -001- 14      LR      0,0
0003664 01 002664 006000 ------          -001- 15      LR      0,0
0003665 01 002665 006000 ------          -001- 16      LR      0,0
0003666 01 002666 006000 ------          -001- 17      LR      0,0
0003667 01 002667 006000 ------          -001- 18      LR      0,0
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                                        01 # DESCRIPTION:
                                        02 # TWO SUBROUTINES ARE INCLUDED IN THIS SECTION:ONE TO STOP
                                        03 # THE AUDIT OF MAIN STORE AND THE OTHER TO BEGIN THE AUDIT AGAIN.
                                        04 # ANY TIME THE AUDIT IS IN THE STOPPED MODE, THE DOUBLE
                                        05 # STORE READ CAPABILITY IS ALSO BLOCKED.
0003670                                 06
                                        07 # ENTRY POINTS:
                                        08 # PROGRAM ENTRY POINTS:
                                        09 #   STOPPSAU--STOP THE MAS AUDIT AND MARK OFF-LINE OUT-OF-DATE
                                        10 #   STPSAUON--STOP THE MAS AUDIT AND MARK ON-LINE OUT-OF-DATE
                                        11 #   BGNPSAU--BEGIN THE MAS AUDIT
                                        12 #   BGNPSAU_NOTEST--BGNPSAU EXCEPT SKIP INITIAL VALIDITY TEST
                                        13 #   LOD_BDSR--SET OR ZERO BDSR BITS
                                        14 # TTY INPUT MESSAGE ENTRY POINTS:
                                        15 #   INHMASAU--INHIBIT THE MAS AUDIT
                                        16 #   ALWMASAU--ALLOW THE MAS AUDIT
0003670                                 17
                                        18 # ENTRY CONDITIONS:
                                        19 # CF = NEW STATE OF BDSR BITS (LOD_BDSR ONLY)
0003670                                 20
                                        21 # EXIT CONDITIONS:
                                        22 # R0 = RETURN CODE
                                        23 #   TTY_OK--BDSR=0
                                        24 #   TTY_NG--REQUEST REJECTED BECAUSE OMAS IS NOT UP TO DATE (ALWMASAU ONLY)


0003670                                 28 STPSAUON
0003670 01 002670 103020 ------         29         ZR      R1
0003671 01 002671 003401 121334         30         LI      R0,MASID
0003673 01 002673 053004 ------ 0003677 31         B       STOPPSAUMG

0003674                                 33 STOPPSAU
0003674 01 002674 103000 ------         34         ZR      R0
0003675 01 002675 003421 121334         35         LI      R1,MASID

0003677                                 37 STOPPSAUMG
0003677                                 38         BEGIN
0003677 01 002677 171420 ------ -002-   39         HA
0003700 01 002700 035420 043351 CTSD    40         STAL    R1,MASTATE,RA1
0003702                                 41         STOS    0(RA1)
E0003702 01 002702 000420 ------ -001-  42         MSTF    0(RA1)
 0003703 01 002703 136100 ------ -001-  43         DATA    B(1011110001000000)
                                        44 CBLM    OW      0(2704)          # 13320
                                -001-   45         NOTE    ********** THE FIRST ADDRESS OVERWRITTEN IS 002704 **********
```

```
0003704 01 002704 053004 ------ 0003710        01         B       BDSRMG
0003705                                        02 INHMASAU
0003705                                        03         ABEGIN
0003705 01 002705 171420 ------           -001- 04         HA
                                               05 CPATCH5 BGNP    0(113)              # 13320
0003706 01 002706 037000 116405 0116405   -001- 06         BL      XXX1518
                                          -001- 07         NOTE    CPATCH5 'CSECT'
                                          -001- 08         NOTE    ****************** PATCH AREA BEGINS AT 000113 ****************


0116405                                   -001- 11 XXX1518 PATCHAREA
0116405 11 000113 131400 043017 CTSD             12         LAL     R0,AUMASCTL,RA1
0116407 11 000115 062421 ------                  13         ZBS     N(AU_IP)(RA1),S(AU_IP) # TURN AUDIT OFF
0116410 11 000116 062541 ------                  14         ZBS     N(OFL_AU)(RA1),S(OFL_AU) # ZERO BIT STOP FLOOD OF AUDIT MESSAGES
0116411                                          15         RETURN  TTY_OK
0116411 11 000117 056444 ------ TTYTBL    -001- 16         BTSAGN  TTY_OK
0116412                                          17         ENDP    NR                  # 13320
                                          -001- 18         NOTE    ************ LAST PATCH ADDRESS USED IS 000117 ***************
                                          -001- 19         NOTE    ***** NUMBER OF PATCH WORDS USED IS 5 (DECIMAL) ********


0003710                                          22 BDSRMG
0003710 01 002710 162421 ------                  23         ZBS     N(AU_IP)(RA1),S(AU_IP) # TURN AUDIT OFF
0003711                                          24         EOW                         # 13320
                                          -001- 25         NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 002710 *********
                                                                    *


0003711 01 002711 020000 ------                  29         SCF                         # FLAG--TURN BDSR READ OFF ALSO
0003712 01 002712 053037 ------ 0003751.        30         B       PSAUMERGE




0003713                                          36 BGNPSAU_NOTEST
0003713                                          37         ABEGIN
0003713 01 002713 171420 ------           -001- 38         HA
0003714 01 002714 053007 ------ 0003723         39         B       BGNPSAUMG

0003715                                          41 BGNPSAU
0003715                                          42         ABEGIN
0003715 01 002715 171420 ------           -001- 43         HA
0003716                                          44         CALL    CK_OST
0003716 01 002716 037020 001750 0001750   -001- 45         BSA     CK_OST
0003720 01 002720 104016 ------                  46         SN      R0,2
0003721                                          47         IF      ¬ CF THEN RETURN TTY_NG
0003721 01 002721 054002 ------ 0003723   -002- 48             BC      IFS1529
0003722 01 002722 056447 ------ TTYTBL    -003- 49             BTSAGN  TTY_NG
```

```
   MULTISCAN FUNCTION CONTROLLER (MSFC)                                                    22:40:42   2/05/81  ****

   PROTECTED STORE AUDIT CONTROL--SUBROUTINES                                                      CBLM          W77D

 0003723                                  -002- 01 IFS1529
 0003723 ,                                      02 BGNPSAUMG
 0003723 01 002723 103401 121334                03         LI       R0,MASID
 0003725 01 002725 035400 043351 CTSD           04         STAL     R0,MASTATE,RA1
 0003727                                        05         STOS     0(RA1)
E0003727 01 002727 000420 ------          -001- 06         MSTF     0(RA1)
 0003730 01 002730 136100 ------          -001- 07         DATA     B(1011110001000000)
 0003731 01 002731 053010 ------ 0003741        08         B        ALWMASAUMG

 0003732                                        10 ALWMASAU
 0003732                                        11         ABEGIN
 0003732 01 002732 171420 ------          -001- 12         HA
                                                13 CBLM     OW       0(2733)                 # 12913
                                          -001- 14         NOTE     ************** THE FIRST ADDRESS OVERWRITTEN IS 002733 **********


 0003733 01 002733 031400 043017 CTSD           17         LAL      R0,AUMASCTL,RA1
 0003735 01 002735 061421 ------                18         SBS      N(AU_IP)(RA1),S(AU_IP) # TURN AUDIT ON
 0003736                                        19         RETURN   TTY_OK
 0003736 01 002736 056444 ------ TTYTBL   -001- 20         BTSAGN   TTY_OK
 0003737                                        21         TAKEOUT  2
 0003737 01 002737 006000 ------          -001- 22         LR       0,0
 0003740 01 002740 006000 ------          -001- 23         LR       0,0
 0003741                                        24         EOW                              # 12913
                                          -001- 25         NOTE     *************** THE LAST ADDRESS OVERWRITTEN IS 002740 *********
                                                            *


 0003741                                        29 ALWMASAUMG
 0003741 01 002741 103000 ------                30         ZR       R0
 0003742 01 002742 007520 ------                31         LSR      AK,R0                   # CLEAR AK (USED A3 DSR OCCURRENCE FLAG)
                                                                                              BEFORE TURNING CIRCUIT ON
                                                33 CBLM     OW       0(2743)                 # 12913
                                          -001- 34         NOTE     ************** THE FIRST ADDRESS OVERWRITTEN IS 002743 **********


 0003743 01 002743 031400 043026 CTSD           37         LAL      R0,SYSTATE,RA1
 0003745 01 002745 051441 ------                38         TBS      N(UCORDSR)(RA1),S(UCORDSR)
 0003746                                        39         TAKEOUT  1
 0003746 01 002746 006000 ------          -001- 40         LR       0,0
 0003747                                        41         EOW                              # 12913
                                          -001- 42         NOTE     *************** THE LAST ADDRESS OVERWRITTEN IS 002746 *********
                                                            *
```

```
0003747 01 002747 053002 ------ 0003751        01        B       PSAUMERGE

0003750                                        03 LOD_BDSR
0003750                                        04        ABEGIN
0003750 01 002750 171420 ------          -001- 05        HA
0003751                                        06 PSAUMERGE
0003751 01 002751 112404 ------                07        UNPK    MMSR
0003752 01 002752 030075 ------                08        ICF     R3,S(BDSR1)
0003753 01 002753 030074 ------                09        ICF     R3,S(BDSR0)
0003754                                        10        MIMODE                  # CHANGE DOUBLE STORE READ MODE
0003754 01 002754 013400 ------          -001- 11        MI      0
0003755                                        12        L       BR,R3           # AND THE ACTIVE STATUS OF THE MAS AUDIT
0003755 01 002755 070531 ------          -001- 13              VFD     8,BR%T 8,R3%F
0003756                                        14        BRXMMS
0003756 01 002756 145312 ------          -001- 15              DATA    BRXMMS%
0003757                                        16        ZMINT
0003757 01 002757 026750 ------          -001- 17              DATA    ZMINT%
0003760                                        18        RETURN  TTY_OK
0003760 01 002760 056444 ------ TTYTBL   -001- 19        BTSAGN  TTY_OK
```

TIME MONITOR 22:40:42 2/05/81 ****

COMMENTS CBLM W77D

```
21 ##############################################################################
22 #*****************************************************************************
23 #*                                                                           *
24 #*                                                                           *
25 #*                        TIME MONITOR (TIMEM)                               *
26 #*                                                                           *
27 #*                                                                           *
28 #*****************************************************************************
29 ##############################################################################
```

COMMENTS

```
          01  HEADER
-001-     02  *
-001-     03  * TIME MONITOR
-001-     04  * ------------
-001-     05  *
-001-     06  *
-001-     07  * OVERVIEW
-001-     08  * --------
-001-     09  *
          10  * THE TIME MONITOR MAINTAINS A SOFTWARE CLOCK REGISTERING SECONDS, MINUTES,
          11  * HOURS, DAYS, MONTHS, AND YEARS.  IT ALSO INITIATES TIME PERIODIC
          12  * FUNCTIONS RELATIVE TO THIS CLOCK.
-001-     13  *
-001-     14  * TIMEM
-001-     15  * -----
-001-     16  *
          17  * TIMEM FIRST UPDATES THE SOFTWARE CLOCK IN STORE.
          18  * THEN, USING THIS CLOCK, DETERMINES WHICH, IF ANY,
          19  * TIME PERIODIC FUNCTIONS SHOULD BE ENTERED.
          20  * THE FUNCTIONS TO BE ENTERED ON A PERIODIC BASIS ARE LISTED IN THREE
          21  * TABLES NAMED SECTBL, MINTBL, AND HRTBL.  EACH ENTRY IN ALL
          22  * THREE TABLES CONSISTS OF TWO WORDS CONTAINING THE ENTRY POINT ADDRESS IN
          23  * STANDARD ADDRESS FORMAT PLUS A 12-BIT CONSTANT IN THE REMAINDER
          24  * OF THE FIRST WORD OF THE ENTRY.  THE CONSTANT SPECIFIES WHICH SECOND
          25  * PAST THE MINUTE(SECTBL), WHICH MINUTE PAST THE HOUR(MINTBL), OR
          26  * WHICH HOUR OF THE DAY(HRTBL) THE FUNCTION IS TO BE ENTERED.
          27  * ALL TIMES ARE SPECIFIED IN BCD.
          28  * IF THE FUNCTION IS TO BE ENTERED EVERY SECOND(SECTBL),
          29  * EVERY MINUTE (MINTBL) OR EVERY HOUR (HRTBL) A CONSTANT OF
          30  * ALL ONES MUST BE USED.  THE NUMBER OF ENTRIES IN EACH TABLE MUST
          31  * BE SPECIFIED BY THE ENTRIES ATTRIBUTE.
          32  *
          33  * A TABLE FOR A QUARTERLY HOUR PRINTOUT COULD BE SPECIFIED AS FOLLOWS.
          34  * MINTBL
          35  *       ADDR   PRINT,BCD(0)
          36  *       ADDR   PRINT,BCD(15)
          37  *       ADDR   PRINT,BCD(30)
          38  *       ADDR   PRINT,BCD(45)
          39  * ENTRIES(MINTBL) EQU (*-MINTBL)/2
          40  *
          41  * WHERE BCD(X) IS A USER DEFINED SWAP FUNCTION WHICH MAY BE
          42  * DEFINED AS FOLLOWS: D DFN BCD(X) = X/10*16 + MOD(X,10).
-001-     43  *
-001-     44  * SUMMARY OF INTERFACES
-001-     45  * --------------------
-001-     46  *
-001-     47  *
-001-     48  * APPLICATION ROUTINES
-001-     49  * --------------------
```

```
-001- 01  *
      02  * DESCRIPTION:
      03  * APPLICATION SUBROUTINE. TIME PERIODIC FUNCTIONS WHICH ARE
      04  * INITIATED ON THE SECOND, MINUTE, OR HOUR.
      05  *
      06  * ENTRY POINTS:
      07  * AS DEFINED IN SECTBL, MINTBL, AND HRTBL RESPECTIVELY.
      08  *
      09  * ENTRY CONDITIONS:
      10  * NONE
      11  *
      12  * RETURN POINT:
      13  * VIA RETURN MACRO
      14  *
      15  * RETURN CONDITIONS:
      16  * R0 = RETURN CODE
      17  *   0--FOR ALL APPLICATION RETURNS
      18  *   1 AND ABOVE--RESERVED FOR INTERNAL CONTROL
-001- 19  *
-001- 20  * COMMON SYSTEM SUBROUTINES
-001- 21  * ------------------------
-001- 22  *
-001- 23  *
-001- 24  * MISCELLANEOUS
-001- 25  * -------------
-001- 26  *
      27  * SOFTWARE CLOCK WORDS MAINTAINED IN TEMPORARY STORE
      28  *   SECONDS IN CTSD--CURRENT SECOND COUNT IN BINARY (0-59)
      29  *   MINUTES IN CTSD--CURRENT MINUTE COUNT IN BINARY (0-59)
      30  *   HOURS   IN CTSD--CURRENT HOUR COUNT IN BINARY (0-23)
      31  *   DAYS    IN CTSD--CURRENT DAY COUNT IN BINARY (1-31)
      32  *   MONTHS  IN CTSD--CURRENT MONTH COUNT IN BINARY (1-12)
      33  *   YEARS   IN CTSD--CURRENT YEAR IN BINARY
```

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   TIME MONITOR                                                                    22:40:42    2/05/81  ****

   MAINTAIN MILLISECOND CLOCK                                                                  CBLM          W77D

0003761                                                 01 TIMEM
                                                        02 # THE TEMPORARY STORE WORDS SYSTIM AND COUNT ARE USED
                                                        03 # TO DETERMINE WHEN ONE SECOND (40 25-MS INTERVALS)
                                                        04 # HAS PAST. COUNT IS INITIALLY SET EQUAL TO THE CONTENTS
                                                        05 # OF SYSTIM PLUS 40. THEN THE TWO WORDS ARE COMPARED
                                                        06 # EACH TIME TIMEM IS ENTERED. WHEN SYSTIM SURPASSES
                                                        07 # COUNT, AT LEAST ONE SECOND HAS PAST.
                                                        08 # WHEN THIS OCCURS, SUBROUTINE TIMINC IS CALLED TO
                                                        09 # UPDATE THE SOFTWARE CLOCK.
0003761 01 002761 131560 043461 CTSD                    10         LAL     SYSTIMR,SYSTIM,RA1
0003763 01 002763 040601 ------                         11         L       COUNTR,1(RA1)
0003764 01 002764 017170 100000                         12         CRM     SYSTIMR,COUNTR,E(15) # DID EITHER RECYCLE
0003766 01 002766 054004 ------ 0003772                 13         BC      CHKTIM               # CF=1--NO RECYCLE
0003767 01 002767 024176 ------                         14         TBN     SYSTIMR,14           # DID SYSTIM RECYCLE
                                                        15 # NOTE BIT 14 AND NOT BIT 15 IS TESTED.  THIS IS NECESSARY
                                                        16 # FOR THE CASE WHERE COUNT CROSSES THE E(15) BOUNDARY
                                                        17 # BEFORE SYSTIM CROSSES IT.
0003770 01 002770 055017 ------ 0004007                 18         BNC     UPDTIM               # B IF IT DID
0003771                                                 19                                      # SYSTIM RECYCLING MEANS IT BYPASSED COUNT
0003771 01 002771 053004 ------ 0003775                 20         B       AUDTIM
0003772                                                 21 CHKTIM
0003772                                                 22         IF      SYSTIMR >= COUNTR THEN B UPDTIM # B IF 1 SEC HAS PASSED
0003772 01 002772 106007 ------                 -003-   23             LR      R0,SYSTIMR
0003773 01 002773 005010 ------                 -003-   24             SR      R0,COUNTR
0003774 01 002774 054013 ------ 0004007        -001-   25             BC      UPDTIM



0003775                                                 31 AUDTIM
                                                        32 # THIS IS AN AUDIT OF THE SYSTIM AND COUNT TS WORDS.
                                                        33 # SYSTIM SHOULD BE WITHIN 40 COUNTS OF COUNT.
                                                        34 # THE DIFFERENCE COUNT-SYSTIM IS FIRST DETERMINED.  THIS METHOD
                                                        35 # ALLOWS FOR THE POSSIBILITY THAT COUNT, BUT NOT SYSTIM, HAS
                                                        36 # RECYCLED.
                                                        37 R0      =       COUNTR - SYSTIMR
0003775 01 002775 106010 ------                 -004-   38             LR      R0,COUNTR
0003776 01 002776 005007 ------                 -004-   39             SR      R0,SYSTIMR
0003777 01 002777 003400 177727                         40         SI      R0,41
0004001 01 003001 055076 ------ 0004077                 41         BNC     TIMMONDONE



0004002                                                 45 TIMFAIL
                                                        46         SPELL   R6,(C,L,K)
0004002 01 003002 103541 000070 TTYTBL         -001-   47         LI      R6,C%LK
0004004                                                 48         CALL    REPT_ERR             # PRINT ERROR MESSAGE
0004004 01 003004 037020 111423 CSYSUB         -001-   49         BSA     REPT_ERR

   COMMON BASE LEVEL MONITOR                                                                   PR-1C950-50

    22:40:42   2/05/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CBLM      ISSUE 07      PAGE   149
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TIME MONITOR 22:40:42 2/05/81 ****

MAINTAIN MILLISECOND CLOCK CBLM W77D

```
                                                  01 # CORRECT THE COUNT/SYSTIM RELATIONSHIP BY FORCING
                                                  02 # COUNT TO FOLLOW SYSTIM
                                                  03 COUNTR =       SYSTIMR
0004006 01 003006 106207 ------          -004-  04          LR     COUNTR,SYSTIMR



0004007                                           10 UPDTIM
                                                  11 COUNTR =       COUNTR + 40
0004007 01 003007 103600 000050          -004-  12          AI     COUNTR,40
0004011 01 003011 044601 ------                 13       ST       COUNTR,1(RA1)       # UPDATE COUNT
0004012 01 003012 054010 ------ 0004022         14       BC       SKPAUD              # SKIP AUDIT IF COUNT RECYCLES


                                                  18 # NOW AUDIT SYSTIM AGAINST NEW COUNT
                                                  19 # THE AUDIT ASSUMES THE TIME MONITOR WILL BE ENTERED
                                                  20 # AT LEAST EVERY THREE SECONDS.
                                                  21 R1     =       COUNTR + 80         # ALLOW BASE LEVEL LOOPS UP TO 3 SECONDS
0004013 01 003013 006030 ------          -004-  22          LR     R1,COUNTR
0004014 01 003014 003420 000120          -004-  23          AI     R1,80
0004016 01 003016 054004 ------ 0004022         24       BC       SKPAUD
0004017                                         25       IF       SYSTIMR >= R1 THEN B TIMFAIL
0004017 01 003017 006007 ------          -003-  26          LR     R0,SYSTIMR
0004020 01 003020 005001 ------          -003-  27          SR     R0,R1
0004021 01 003021 054761 ------ 0004002 -001-  28          BC     TIMFAIL


0004022                                           32 SKPAUD
0004022                                           33       CALL     TIMINC              # UPDATE TIME OF DAY
0004022 01 003022 137020 004231 0004231 -001-  34       BSA      TIMINC
```

```
                                                01 # R1 HAS BITS SET FROM TIMINC INDICATING WHICH TIME UNITS RECYCLED.
                                                02 # BY VIRTUE OF THE FACT THAT WE ARE HERE, SECONDS
                                                03 # HAVE RECYCLED AND SECTBL SHOULD BE SCANNED. FOR MINTBL
                                                04 # AND HRTBL THE APPROPRIATE BIT (SAVED IN SAVINC) IS TESTED
                                                05 # TO DETERMINE WHETHER THEY SHOULD BE SCANNED.
0004024                                         06
                                                07 # EACH TABLE IS SCANNED BY SUBROUTINE SCTIMTBL WHICH
                                                08 # RETURNS WITH R0=1 IF THAT TABLE IS FINISHED.
                                                09 # IF A MATCH IS FOUND IN A TABLE, SCTIMTBL BRANCHES
                                                10 # DIRECTLY TO THE FUNCTION. THUS THE FUNCTION APPEARS TO
                                                11 # BE PART OF SCTIMTBL AND IT IS THE FUNCTION WHICH EXECUTES
                                                12 # THE RETURN. R0 MUST BE ZERO IN THIS CASE TO ALLOW
                                                13 # THE SCAN TO CONTINUE WITH THE SAME TABLE.


0004024 01 003024 134420 043016 CTSD             17        STL     R1,MININC           # SAVE INFO ON WHICH TABLES TO PROCESS
0004026 01 003026 003421 000041 BLMMA           18        LI      R1,ENTRIES(SECTBL)  # SET UP LENGTH OF SECTBL FOR SCTIMTBL
0004030 01 003030 034420 043015 CTSD             19        STL     R1,CURFCN
0004032                                         20 SECRTN
0004032 01 003032 131400 146512 BLMMA           21        LAL     R0,SECTBL,RA1       # SET UP ADDRESS OF SECTBL FOR SCTIMTBL
0004034 01 003034 030400 043457 CTSD             22        LL      R0,SECONDS
0004036                                         23        CALL    SCTIMTBL
0004036 01 003036 037020 004221 0004221 -001-   24        BSA     SCTIMTBL
0004040 01 003040 154772 ------ 0004032         25        BC      SECRTN


0004041 01 003041 003421 000055 BLMMA           29        LI      R1,ENTRIES(MINTBL)  # SET UP LENGTH OF MINTBL FOR SCTIMTBL
0004043 01 003043 034420 043015 CTSD             30        STL     R1,CURFCN
0004045                                         31        IF      ¬ MININC THEN B TIMMONDONE
0004045 01 003045 030400 043016 CTSD     -003-  32            LL      R0,MININC
0004047 01 003047 024005 ------          -004-  33            TBN     R0,S(MININC)
0004050 01 003050 055027 ------ 0004077 -002-  34            BNC     TIMMONDONE
0004051                                         35 MINRTN
0004051 01 003051 131400 146626 BLMMA           36        LAL     R0,MINTBL,RA1       # SET UP ADDRESS OF MINTBL FOR SCTIMTBL
0004053 01 003053 030400 043456 CTSD             37        LL      R0,MINUTES
0004055                                         38        CALL    SCTIMTBL
0004055 01 003055 037020 004221 0004221 -001-   39        BSA     SCTIMTBL
0004057 01 003057 154772 ------ 0004051         40        BC      MINRTN


0004060 01 003060 003421 000007 BLMMA           44        LI      R1,ENTRIES(HRTBL)   # SET UP LENGTH OF HRTBL FOR SCTIMTBL
0004062 01 003062 034420 043015 CTSD             45        STL     R1,CURFCN
0004064                                         46        IF      ¬ HRINC THEN B TIMMONDONE
0004064 01 003064 030400 043016 CTSD     -003-  47            LL      R0,HRINC
0004066 01 003066 024004 ------          -004-  48            TBN     R0,S(HRINC)
0004067 01 003067 055010 ------ 0004077 -002-  49            BNC     TIMMONDONE
```

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TIME MONITOR                                                          22:40:42   2/05/81  ****

INITIATE TIME PERIODIC FUNCTIONS                                                 CBLM          M77D

0004070                                                 01 HRRTN
0004070 01 003070 131400 146772 BLMMA                   02       LAL    RD,HRTBL,RA1     # SET UP ADDRESS OF HRTBL FOR SCTIMTBL
0004072 01 003072 030400 043455 CTSD                    03       LL     RD,HOURS
0004074                                                 04       CALL   SCTIMTBL
0004074 01 003074 037020 004221 0004221  -001-          05       BSA    SCTIMTBL
0004076 01 003076 154772 ------ 0004070                 06       BC     HRRTN



0004077                                                 12 TIMMONDONE
0004077 01 003077 137000 001060 0001060                 13       BL     TIMEMRTN
```

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   TIME MONITOR                                                                                    22:40:42    2/05/81  ****
   SET CLOCK--TTY INPUT SUBROUTINE                                                                                CBLM          W77D

                                                  01 # THE SET:CLK INPUT MESSAGE IS USED TO INITIALIZE THE SOFTWARE CLOCK.
0004101                                           02
                                                  03 # THE GENERAL FORM OF THE MESSAGE IS:
                                                  04 #   SET:CLK:TIME(HH,MM,SS),DATE(MM,DD,YYYY)!
                                                  05 # SEE THE INPUT/OUTPUT MANUAL FOR VARIATIONS.
0004101                                           06
                                                  07 # TTY INPUT FORMATS 07 AND 09 ARE USED.
                                                  08 # R4='SET'
                                                  09 # R5='CLK'
                                                  10 # R6='TIME'
                                                  11 # R7=HH---HOURS (0-23)
                                                  12 # R8=MM---MINUTES (0-59)
                                                  13 # R9=SS---SECONDS (0-59)
                                                  14 # R10='DATE'              OR     0     IF DATE GROUP WAS OMITTED
                                                  15 # R11=MM---MONTHS (1-12)
                                                  16 # R12=DD---DAYS (1-31)
                                                  17 # R13=YYYY---YEARS (1961-2100)


0004101                                           21 SETCLK
0004101                                           22         BEGIN   ()
                                                  23 # USE WL AS SCRATCH AREA--MUST AVOID CONTROL WORDS WHICH
                                                  24 # MAY NOT CHANGE.
0004101 01 003101 145723 ------                   25         STA     R13,3(RA1)          # YEARS
0004102 01 003102 044661 ------                   26         ST      R11,1(RA1)          # MONTHS
0004103 01 003103 044702 ------                   27         ST      R12,2(RA1)          # DAYS
0004104 01 003104 044563 ------                   28         ST      R7,3(RA1)           # HOURS
0004105 01 003105 044604 ------                   29         ST      R8,4(RA1)           # MINUTES
0004106 01 003106 044625 ------                   30         ST      R9,5(RA1)           # SECONDS

                                                  32 # RANGE CHECK THE INPUT DATA
0004107 01 003107 003045 ------                   33         LN      R2,6-1
0004110                                           34 SETCLKLP
0004110 01 003110 142402 ------                   35         LX      R0,R2(RA1)
0004111                                           36         IF      R0 = 0 THEN RGBEGIN # IF VALUE WAS DEFAULTED, USE OLD VALUE
0004111 01 003111 014000 ------          -002-    37             TZ      R0
0004112 01 003112 055004 ------ 0004116 -001-    38             BNC     IFS1607
0004113 01 003113 031000 043452 CTSD              39             LAL     R0,YEARS,RA0
0004115 01 003115 042002 ------                   40             LX      R0,R2(RA0)
0004116                                           41             RGEND
0004116                                  -001-    42 IFS1607
0004116                                           43         CALL    TENZERO             # CONVERT BCD ZEROS TO REAL ZEROS
0004116 01 003116 137020 110072 CSYSUB   -001-    44         BSA     TENZERO
0004120 01 003120 146402 ------                   45         STX     R0,R2(RA1)
0004121 01 003121 031020 001006 0001006           46         LAL     R1,TIMRCYL,RA0      # TIMRCYL CONTAINS MAXIMUM LEGAL VALUE FOR
                                                                                         EACH UNIT IN BCD
0004123 01 003123 042022 ------                   48         LX      R1,R2(RA0)
0004124                                           49         IF      R0 = 0 THEN RGBEGIN # CHECK LOW END OF RANGE

   COMMON BASE LEVEL MONITOR                                                                                  PR-1C950-50
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   TIME MONITOR                                                                                    22:40:42    2/05/81  ****

   SET CLOCK--TTY INPUT SUBROUTINE                                                                                 CBLM          M77D

0004124 01 003124 014000 ------          -002- 01            TZ      R0
0004125 01 003125 055003 ------ 0004130  -001- 02            BNC     IFS1611
0004126 01 003126 024030 ------                03            TBN     R1,S(RCYLINIT)
0004127 01 003127 054023 ------ 0004152        04            BC      SETCLKERR
0004130                                        05            RGEND
0004130                                -001- 06 IFS1611
0004130 01 003130 103422 000377                07        NI      R1,M(RCYLMAX)
0004132 01 003132 005020 ------                08        SR      R1,R0                 # CHECK HIGH END OF RANGE
0004133 01 003133 055017 ------ 0004152        09        BNC     SETCLKERR
0004134 01 003134 036040 004110 0004110        10        BX      R2,SETCLKLP

                                               12 # NUMBER PARAMETERS ARE OK. NOW CHECK DAY-OF-WEEK
                                               13 # R10=DAY-OF-WEEK TTY DICTIONARY WORD
0004136 01 003136 030420 043460 CTSD           14        LL      R1,DAYOWEEK           # SET UP IN CASE RANGE IS SKIPPED
0004140                                        15        IF      R10 ¬= 0 THEN RGBEGIN # SKIP RANGE IF DAY-OF-WEEK IS DEFAULTED
0004140 01 003140 014252 ------          -002- 16            TZ      R10
0004141 01 003141 054013 ------ 0004154  -001- 17            BC      IFS1614
0004142 01 003142 031000 001014 0001014        18            LAL     R0,DAYNAMES,RA0
0004144 01 003144 003026 ------                19            LN      R1,7-1
0004145                                        20 DAYOFWEEKLP
0004145 01 003145 142001 ------                21            LX      R0,R1(RA0)
0004146                                        22            IF      R0 = R10 THEN B DAYFOUND
0004146 01 003146 020012 ------          -002- 23            CR      R0,R10
0004147 01 003147 054004 ------ 0004153  -001- 24            BC      DAYFOUND
0004150 01 003150 036020 004145 0004145        25            BX      R1,DAYOFWEEKLP
0004152                                        26 SETCLKERR
0004152                                        27            RETURN  TTY_NG
0004152 01 003152 156467 ------ TTYTBL   -001- 28            BTSAN   TTY_NG
0004153                                        29 DAYFOUND
0004153 01 003153 104421 ------                30            AN      R1,1                  # DAYOWEEK NUMBER RANGES FROM 1 TO 7, NOT 0
                                                                                               TO 6
0004154                                        32            RGEND
0004154                                -001- 33 IFS1614
0004154 01 003154 144426 ------                34        ST      R1,6(RA1)

                                               36 # ALL PARAMETERS ARE OK NOW NOTIFY APPLICATION PROGRAMS AND UPDATE CLOCK.
0004155                                        37        CALL    CLKCHGD               # NOTIFY APPLICATION
0004155 01 003155 037020 147170 BLMMA    -001- 38        BSA     CLKCHGD
0004157                                        39        IF      ¬ CF THEN RETURN TTY_RL # APPLICATION REJECT OF SET:CLK
0004157 01 003157 154002 ------ 0004161  -002- 40            BC      IFS1622
0004160 01 003160 056466 ------ TTYTBL   -003- 41            BTSAN   TTY_RL
0004161                                -002- 42 IFS1622
0004161 01 003161 131000 043452 CTSD           43        LAL     R0,YEARS,RA0
0004163 01 003163 003026 ------                44        LN      R1,7-1
0004164                                        45 MOVCLKLP
0004164 01 003164 142401 ------                46        LX      R0,R1(RA1)
0004165 01 003165 046001 ------                47        STX     R0,R1(RA0)
0004166 01 003166 036020 004164 0004164        48        BX      R1,MOVCLKLP
0004170                                        49        RETURN  TTY_OK

   COMMON BASE LEVEL MONITOR                                                                                    PR-1C950-50

    22:40:42   2/05/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CBLM      ISSUE 07      PAGE   154
```

```
   TIME MONITOR                                                                22:40:42    2/05/81  ****
   SET CLOCK--TTY INPUT SUBROUTINE                                                    CBLM          W77D
0004170 01 003170 056464 ------ TTYTBL   -001- 01        BTSAN   TTY_OK
```

```
                                                01 # OP:CLK IS USED TO REQUEST THE PRINTOUT OF THE SOFTWARE CLOCK.
0004171                                         02
                                                03 # THE ONLY ALLOWABLE FORM OF THIS INPUT MESSAGE IS
                                                04 # OP:CLK!



0004171                                         08 OPCLK
0004171                                         09         BEGIN    ()
0004171 01 003171 131400 001013 0001013         10         LAL      R0,DAYNAMES-1,RA1
0004173 01 003173 030400 043460 CTSD            11         LL       R0,DAYOWEEK
0004175 01 003175 042540 ------                 12         LX       R6,R0(RA1)
0004176                                         13         PRINT    FMT=(WRD(O,P),WRD(C,L,K),WRD),PACTION=M,TIME=YES,CHAN=R1

                                       -001- 15 #  MESSAGE PROTOTYPE
                                       -001- 16 #          M mm        OP CLK WRD
0004176 01 003176 037021 124601 TTYAPP -002- 17         BSA      PMRYR
0004200 01 003200 102301 ------        -002- 18         VFD      1,1 2,0 1,0 3,2 1,0 1,1 1,1 2,0 1,0 3,R1
0004201 01 003201 021040 ------        -002- 19         VFD      4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_WRD
0004202 01 003202 021042 ------        -002- 20         VFD      4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_
0004203 01 003203 010027 ------ TTYTBL -002- 21         VFD      5,2 11,0XP
0004204 01 003204 000070 ------ TTYTBL -002- 22         VFD      5, 11,CXLK
                                       -001- 23         NOTE     THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
                                                                   CONTAINED IN GENERAL REGISTERS R6,
0004205                                         25         RETURN   TTY_PF
0004205 01 003205 156463 ------ TTYTBL -001- 26         BTSAN    TTY_PF
```

SCAN TIME TABLE FOR NEXT PERIODIC FUNCTION--SUBROUTINE

```
                                    01 # DESCRIPTION:
                                    02 # SCAN ENTRIES IN A TIME TABLE FOR MATCH OF TIME UNIT
                                    03 # OR AN UNCONDITIONAL EXECUTION. IF EXECUTABLE ENTRY IS
                                    04 # FOUND, IT IS INITIATED DIRECTLY.

                                    06 # ENTRY POINT:
                                    07 # SCTIMTBL

                                    09 # ENTRY CONDITIONS:
                                    10 # TS WORD CURFCN=NUMBER OF ENTRIES LEFT TO PROCESS
                                    11 # R0=CURRENT VALUE OF TIME UNIT FOR TIMTBL BEING SCANNED
                                    12 # RA1=BASE ADDRESS OF THE TIMTBL BEING SCANNED

                                    14 # EXIT CONDITIONS:
                                    15 # R0 = RETURN CODE
                                    16 #   0--MATCH FOUND, FUNCTION HAS COMPLETED EXECUTION AND IT
                                    17 #      HAS EXECUTED THE RETURN, IE, THIS ROUTINE BRANCHED DIRECTLY TO THE
                                       FUNCTION.
                                    19 #   1--NO MATCH FOUND, CURFCN=0
                                    20 # R2 HAS BEEN DESTROYED


                                    24         BEGIN   ()
0004206                             25 SCTIMTBLLP
0004206                             26         STL     R2,CURFCN
0004206 01 003206 134440 043015 CTSD 27         RLN     R2,1              # CURFCN * 2 BECAUSE OF 2 WORD ENTRIES
0004210 01 003210 010457 ------     28         LX      R1,R2(RA1)        # GET TIME CONSTANT
0004211 01 003211 042422 ------     29         CIRM    R1,-0,4,MSK(8)    # SHOULD ENTRY BE MADE EVERY TABLE SCAN
0004212 01 003212 017424 177777     30         BC      ENTERFCN
0004214 01 003214 054012 ------ 0004226.
                                    31         RRN     R1,4
0004215 01 003215 010424 ------     32         CRM     R0,R1,MSK(8)      # DOES TIME CONSTANT MATCH CURRENT TIME
0004216 01 003216 017001 000377     33         BC      ENTERFCN
0004220 01 003220 054006 ------ 0004226
0004221                             34 SCTIMTBL
0004221 01 003221 130440 043015 CTSD 35         LL      R2,CURFCN
0004223 01 003223 036040 004206 0004206
                                    36         BX      R2,SCTIMTBLLP
0004225                             37         RETURN  1                 # TABLE SCAN IS COMPLETE
0004225 01 003225 056461 ------ -001- 38        BTSAN   1
                                    39 ENTERFCN
0004226                             40         LAX     RA0,R2(RA1)       # GET STARTING ADDRESS OF FUNCTION
0004226 01 003226 143702 ------     41         L       RA0+1,1(RA1)
0004227 01 003227 040721 ------     42         BR      0(RA0)
0004230 01 003230 052400 ------
```

```
                                    01 # DESCRIPTION:
                                    02 # ENTERED AT INTERVALS OF ONE SECOND, THIS SUBROUTINE WILL
                                    03 # INCREMENT AND RECYCLE THE COUNTS FOR EACH UNIT OF TIME
                                    04 # INCLUDING SECONDS, MINUTES, HOURS, DAYS, MONTHS,  AND YEARS.

                                    06 # ENTRY POINT:
                                    07 # TIMINC

                                    09 # ENTRY CONDITIONS:
                                    10 # NONE

                                    12 # EXIT CONDITIONS:
                                    13 # R0=0
                                    14 # R1(0)=0
                                    15 # R1(1)=1 IF MONTHS RECYCLED
                                    16 # R1(2)=1 IF DAYS RECYCLED
                                    17 # R1(3)=1 IF HOURS RECYCLED
                                    18 # R1(4)=1 IF MINUTES RECYCLED
                                    19 # R1(5)=1 IF SECONDS RECYCLED,IE, MINUTES INCREMENTED
                                    20 # R1(6-15)=0

0004231                             24      TIMRCYL_PICTURE
TIMRCYL                      -001-  25 #
```

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
00	**********							RCYLINI	RCYLMAX								
01									ONLY TWO DIGITS OF YEAR KEPT								
02									12 MONTHS IN A YEAR								
03									31 DAYS MAX IN A MONTH								
04									23 HOURS IN A DAY								
05									59 MINUTES IN AN HOUR								
	**********								59 SECONDS IN A MINUTE								

```
0004231                             48 TIMINC
                                    49 # EACH UNIT OF THE SOFTWARE CLOCK IS COMPARED TO THE MAXIMUM
                                    50 # VALUE IT IS ALLOWED TO ATTAIN AS STORED IN DATA TABLE
                                    51 # 'TIMRCYL'. IF IT EXCEEDS THIS VALUE, IT IS RECYCLED TO
                                    52 # 0 OR 1 AS ALSO STORED IN THE TABLE AND THE NEXT HIGHER
                                    53 # UNIT IS INCREMENTED. A SPECIAL CHECK IS NECESSARY
                                    54 # WHEN DAYS IS INCREMENTED BECAUSE
                                    55 # IT CAN RECYCLE AT ANY OF FOUR POSSIBLE VALUES.
0004231                             56      BEGIN
```

```
0004231 01 003231 171420 ------          -002- 01        HA
0004232 01 003232 003140 ------                02        ZR      R6                  #INIT FLAG WORD TO ACCUMULATE TIME UNITS
                                                                                        INCREMENTED
0004233 01 003233 031020 043452 CTSD           04        LAL     R1,YEARS,RA0        #POINT RA0 AT TIME BLOCK
0004235 01 003235 031400 001006 0001006        05        LAL     R0,TIMRCYL,RA1      #POINT RA1 AT TIME RECYCLING DATA TABLE
0004237                                        06                                    #CONTAINS VALUES AT WHICH EACH UNIT RECYCLES
                                                                                        AND TO WHAT
0004237 01 003237 003045 ------                08        LN      R2,6-1              # SET UP FOR LOOP COVERING SEC,MIN,HR,DAY,MO
                                                                                       NTH, AND YEAR
0004240 01 003240 003100 ------                10        ZR      R4                  #SET UP RECYCLE VALUE, LOW BIT WILL CHANGE
                                                                                        FOR 0 OR 1
0004241                                        12 TIMINCLP
0004241 01 003241 142122 ------                13        LX      R5,R2(RA0)          #GET CURRENT VALUE OF UNIT
0004242 01 003242 042462 ------                14        LX      R3,R2(RA1)          #GET RECYCLE CONSTANTS
0004243 01 003243 024070 ------                15        TBN     R3,S(RCYLINIT)      # INSERT INIT VALUE TO GIVE 0 OR 1
0004244 01 003244 030100 ------                16        ICF     R4,0
0004245 01 003245 003462 000377                17        NI      R3,M(RCYLMAX)       # ISOLATE MAX VALUE FOR COMPARISON
0004247                                        18        IF      R2 = 2 THEN RGBEGIN
0004247 01 003247 003445 000002          -002- 19            CI      R2,2
0004251 01 003251 055037 ------ 0004310  -001- 20            BNC     IFS1650
0004252 01 003252 030400 043460 CTSD           21            LL      R0,DAYOWEEK
0004254 01 003254 004401 ------                22            AN      R0,1
0004255                                        23            IF      R0 = 8 THEN R0 = 1
0004255 01 003255 003405 000010          -002- 24            CI      R0,8
0004257 01 003257 055002 ------ 0004261  -001- 25            BNC     IFS1652
0004260 01 003260 003001 ------          -005- 26            LN      R0,1
0004261                                  -001- 27 IFS1652
0004261 01 003261 134400 043460 CTSD           28            STL     R0,DAYOWEEK
                                               29 # R5 = VALUE OF DAYS
0004263 01 003263 040001 ------                30            L       R0,1(RA0)       # GET MONTHS
0004264 01 003264 024004 ------                31            TBN     R0,4            # CONVERT TO A BINARY NUMBER IN BITS 3-0
0004265                                        32            IF      CF THEN AN R0,10
0004265 01 003265 055002 ------ 0004267  -002- 33            BNC     IFS1659
0004266 01 003266 004412 ------          -002- 34            AN      R0,10           #
0004267                                  -002- 35 IFS1659
0004267 01 003267 103461 000050                36            LI      R3,2*E(4)+8     # BASE LENGTH OF MONTH IN BCD
0004271 01 003271 024024 ------                37            TBN     R1,4            # CONVERT LOW 5 BITS FROM BCD TO DECIMAL
0004272                                        38            IF      CF THEN AN R1,10
0004272 01 003272 055002 ------ 0004274  -002- 39            BNC     IFS1661
0004273 01 003273 004432 ------          -002- 40            AN      R1,10           #
0004274                                  -002- 41 IFS1661
0004274 01 003274 117420 001400                42            CIRM    R1,0,0,MSK(2)   # IS YEARS DIVISABLE BY 4,IE, IS THIS A LEAP
                                                                                       YEAR
                                               44 # FLAG MONTHS WITH 31 DAYS-WILL CAUSE AN EFFECTIVE +1
0004276 01 003276 003421 172657                45            LI      R1,¬E(APRIL,JUNE,SEPT,NOV)
0004300 01 003300 030022 ------                46            ICF     R1,FEB          # FLAG FEB FOR THE +1 IF THIS IS A LEAP YEAR
0004301 01 003301 024420 ------                47            TBR     R1,R0           # DOES THIS MONTH GET A +1
0004302 01 003302 030060 ------                48            ICF     R3,0            # DO +1 BY INSERT
0004303 01 003303 017400 007402                49            CIRM    R0,FEB,0,MSK(4)
```

```
0004305                                                  01            IF      ¬ CF THEN RGBEGIN
0004305 01 003305 054003 ------ 0004310          -002- 02            BC      IFS1663
0004306 01 003306 026064 ------                         03            SBN     R3,4            # CONVERT BCD 28(29) TO BCD 30(31)
0004307 01 003307 022063 ------                         04            ZBN     R3,3
0004310                                                  05            RGEND
0004310                                          -001- 06 IFS1663
                                                         07 # MAXIMUM VALUE FOR DAYS FOR THIS MONTH
0004310                                                  08            RGEND
0004310                                          -001- 09 IFS1650
                                                         10 # WILL THE COMING INCREMENT CAUSE UNIT TO EXCEED ITS MAX VALUE
0004310                                                  11        IF      R5 < R3 THEN B INCUNIT
0004310 01 003310 106005 ------                  -003- 12            LR      R0,R5
0004311 01 003311 005003 ------                  -003- 13            SR      R0,R3
0004312 01 003312 055006 ------ 0004320         -001- 14            BNC     INCUNIT
0004313 01 003313 026542 ------                         15        SBR     R6,R2               # FLAG THE FACT THAT THIS UNIT RECYCLE
0004314 01 003314 046102 ------                         16        STX     R4,R2(RA0)          # REINITIALIZE COUNT FOR THIS UNIT
0004315 01 003315 036040 004241 0004241                 17        BX      R2,TIMINCLP
0004317 01 003317 053013 ------ 0004332                 18        B       TIMINCRTN

0004320                                                  20 INCUNIT
0004320 01 003320 104521 ------                         21        AN      R5,1
0004321 01 003321 003401 176000                         22        LI      R0,E(15,14,13,12,11,10)
0004323 01 003323 024405 ------                         23        TBR     R0,R5
0004324                                                  24        IF      CF THEN RGBEGIN
0004324 01 003324 055005 ------ 0004331         -002- 25            BNC     IFS1670
0004325 01 003325 003522 000360                         26            NI      R5,MSK(4,4)
0004327 01 003327 003520 000020                         27            AI      R5,16
0004331                                                  28            RGEND
0004331                                          -001- 29 IFS1670
0004331 01 003331 146122 ------                         30        STX     R5,R2(RA0)
0004332                                                  31 TIMINCRTN
0004332 01 003332 106026 ------                         32        LR      R1,R6
0004333                                                  33        RETURN  0
0004333 01 003333 056440 ------                  -001- 34        BTSAGN  0
```

```
                                                  01 # DESCRIPTION:
                                                  02 # WHILE THE INTERNAL OSCILLATOR OF THE CC IS VERY ACCURATE,
                                                  03 # IT CAN DRIFT RELATIVE TO SOME EXTERNAL TIMING SOURCE.
                                                  04 # THIS SUBROUTINE PROVIDES A MEANS OF CORRECTING FOR THIS
                                                  05 # DRIFT.
0004334                                           06
                                                  07 # ENTRY POINT:
                                                  08 # TIMSYNC
0004334                                           09
                                                  10 # ENTRY CONDITIONS:
                                                  11 # TIMSYNC MUST BE CALLED FREQUENTLY ENOUGH TO GUARANTEE THAT
                                                  12 # THE TOTAL DRIFT BETWEEN THE EXTERNAL SOURCE AND THE SOFTWARE
                                                  13 # CLOCK PLUS THE LATENCY OF THE PROGRAM IN CALLING IT, IS
                                                  14 # LESS THAN 500MS.
0004334                                           15
                                                  16 # EXIT CONDITIONS:
                                                  17 # NONE


0004334                                           21 TIMSYNC
0004334                                           22         BEGIN
0004334 01 003334 171420 ------          -002-    23         HA
                                                  24         ZR       R0                  # SET UP FOR TIMOUTX
0004335 01 003335 003000 ------                   25         CALL     TIMOUTX             # GET CORRECTED VALUE OF SYSTIM
0004336                                           26         BSA      TIMOUTX
0004336 01 003336 037020 111373 CSYSUB   -001-    27         LR       R1,R0
0004340 01 003340 106020 ------                   28         LR       R3,R0
0004341 01 003341 006060 ------                   29         LAL      R2,COUNT,RA1
0004342 01 003342 031440 043462 CTSD              30 # IF SYSTIM(CORRECTED)+20 > COUNT THEN COUNT = SYSTIM
                                                  31 # IF SYSTIM(CORRECTED)+20 < COUNT THEN COUNT = SYSTIM+40
0004344 01 003344 003460 000024                   32         AI       R3,20                # R3=SYSTIM+20
0004346                                           33         IF       R3 < R2 THEN AI R1,40
0004346 01 003346 006003 ------          -003-    34             LR       R0,R3
0004347 01 003347 005002 ------          -003-    35             SR       R0,R2
0004350 01 003350 054003 ------ 0004353 -001-    36             BC       IFS1678
0004351 01 003351 003420 000050          -001-    37             AI       R1,40            #
0004353                                  -001-    38 IFS1678
0004353 01 003353 144420 ------                   39         ST       R1,0(RA1)
0004354                                           40         RETURN
0004354 01 003354 056420 ------          -001-    41         BTSAG
```

```
0004355                                01 CBLM1   CSECT
                                       02 CDGNOF EXTERN  SSPINIT
                                       03 CDGNOF EXTERN  KEEPCLR
                                       04 CTSD   EXTERN  SSPEXWRD
                                       05 CUTIL  EXTERN  EXSSPF
                                       06 CUTIL  EXTERN  STPUTIL
                                       07 CUTIL  EXTERN  UREQ


                                       11 SSPEXWD LAYOUT 1
                                       12 EXIP   ITEM    1                # EXCERCISE IN PROGRESS BIT
                                       13 BITP   ITEM    3                # BIT POSITION IN BUFFER BEING TESTED
                                       14 TBLIDX ITEM    4                # TABLE INDEX
                                       15 LEDON  ITEM    1                # SINGLE TEST LED ON/OFF BIT
                                       16 DCNT   ITEM    7                # DELAY COUNT
                                       17        LOEND
SSPEXWD                          -003- 18 #
00|                DCNT                      | LEDON |           TBLIDX             |          BITP          | EXIP |
  |             DELAY COUNT                  |       |         TABLE INDEX          |                        |      |
  | 15 | 14 | 13 | 12 | 11 | 10 | 9          |   8   |  7  |  6  |  5  |  4         |  3   |  2   |  1      |  0   |
0004355                                24


0004355                                28 SSPEXTBL
                                       29 CBLM1  OW      0(0)             # 3E790032
                                 -001- 30        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000000 ***********


0004355 02 000000 000007 ------        33        DATA    3X6_0
0004356 02 000001 000016 ------        34        DATA    3X6_3
0004357 02 000002 000026 ------        35        DATA    3X6_6
0004360 02 000003 000025 ------        36        DATA    3X6_5
0004361 02 000004 000013 ------        37        DATA    3X6_1
0004362 02 000005 000034 ------        38        DATA    3X6_9
0004363 02 000006 000015 ------        39        DATA    3X6_2
0004364 02 000007 000023 ------        40        DATA    3X6_4
0004365 02 000010 000031 ------        41        DATA    3X6_7
0004366 02 000011 000032 ------        42        DATA    3X6_8
0004367 02 000012 000043 ------        43        DATA    3X6_10
0004370 02 000013 000045 ------        44        DATA    3X6_11
```

```
                                        01 # THE EX:SSP XXX! INPUT MESSAGE IS PROVIDED TO GIVE MAINTENANCE
                                        02 # PERSONNEL A METHOD OF EXERCISING THE OPERATION OF ALL PROGRAM
                                        03 # ACCESSABLE SYSTEM STATUS PANEL FUNCTIONS.  THIS MESSAGE WILL
                                        04 # REMOVE THE SSP FROM SERVICE.  IF THE DATA FIELD IS OMITTED,
                                        05 # ALL THE LAMPS WILL BE MADE ACTIVE INDIVIDUALLY FOR 5.5 SECONDS.
                                        06 # THE PROGRAM WILL ADVANCE TO THE NEXT FUNCTION IF THE SSP -EXECUTE- KEY
                                        07 # IS MANUALLY ACTIVATED AT ANY POINT DURING THE EXERCISE.
                                        08 # NOTE: NOT ALL FUNCTIONS HAVE ASSOCIATED VISUAL INDICATORS AT
                                        09 # THE SSP OR AT A SCC CRITICAL INDICATOR PANNEL.  THE SEQUENCE
                                        10 # OF THE EXERCISE IS DEFINED BY THE TWO DIGIT NUMBER AT THE RIGHT
                                        11 # IN THE TABLES OF THE INPUT MANUAL DESCRIPTION.
0004371                                 12
                                        13 # A TROUBLE SHOOTING FEATURE IS PROVIDED WHICH WILL REPETITIVELY
                                        14 # TOGGLE AN INDIVIDUAL FUNCTION.  THE IDENTITY OF
                                        15 # THE FUNCTION TO BE REPETITIVELY TOGGLED IS SPECIFIED BY
                                        16 # THE XXX FIELD IN THE INPUT MESSAGE.  THE VALUE OF XXY SHOULD
                                        17 # BE OBTAINED FROM THE TABLES WITH THE IM DESCRIPTION.  TO
                                        18 # TERMINATE THE FUNCTION, ENTER STOP:EX SSP!
0004371                                 19
                                        20 # THE GENERAL FORM OF THE MESSAGE IS
                                        21 #  EX:SSP XXX!
0004371                                 22
                                        23 #    XXX-- VALUE SSP FUNCTION TO BE TESTED
0004371                                 24
                                        25 # TTY INPUT FORMATS 13 AND 01 ARE USED.
                                        26 # R4='EX'
                                        27 # R5='SSP'
                                        28 # R6=XXX OR 0


0004371                                 32 EXSSP
0004371                                 33         BEGIN   ()
0004371 02 000014 103441 000011 CUTIL   34         LI      R2,EXSSPF
0004373 02 000016 010454 ------         35         RLN     R2,4                # S(FCN) IN CUTIL
0004374                                 36         CALL    UREQ
0004374 02 000017 037020 133235 CUTIL   -001- 37   BSA     UREQ
0004376                                 38         IF      CF = 0 THEN RETURN TTY_RL
0004376 02 000021 154002 ------ 0004400 -001- 39      BC      IFS1707
0004377 02 000022 056466 ------ TTYTBL  -002- 40      BTSAN   TTY_RL
0004400                                 -001- 41 IFS1707
0004400                                 42         EOW                         # 3E790032
                                        -001- 43   NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 000022 *********
                                                    *
```

```
   SSP EXERCISE                                                                                    22:40:42    2/05/81  ****

   SSP INPUT AND PROCESSING ROUTINES                                                                          CBLM          W77D

0004400 02 000023 131400 043505 CTSD          01          LAL     R0,SSPEXWRD,RA1
0004402 02 000025 014146 ------               02          TZ      R6
                                              03 CBLM1    OW      0(26)                 # 11517
                                    -001-     04          NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000026 **********


                                              07 CPATCH   BGNP    0(323)                # 11517
0004403 02 000026 037000 111755 0111755 -001- 08          BL      XXX1713
                                    -001-     09          NOTE    CPATCH 'CSECT'
                                    -001-     10          NOTE    ****************** PATCH AREA BEGINS AT 000323 *****************


0111755                             -001-     13 XXX1713  PATCHAREA
0111755 04 000323 154003 ------ 0111760       14          BC      RUNCOMPL
0111756 04 000324 044540 ------               15          ST      R6,0(RA1)             # SET UP DATA IN SSPEXWD TO TOGGLE A GIVEN
                                                                                          LAMP
0111757                                       17          RETURN  TTY_IP
0111757 04 000325 056465 ------ TTYTBL -001-  18          BTSAN   TTY_IP
0111760                                       19 RUNCOMPL
0111760                                       20          ENDP                          # 11517
0111760 04 000326 137000 004405 0004405 -001- 21          BL      XXX1716
                                    -001-     22          NOTE    ************** LAST PATCH ADDRESS USED IS 000327 ***************
                                    -001-     23          NOTE    ***** NUMBER OF PATCH WORDS USED IS 5 (DECIMAL) ********


0004405                             -001-     26 XXX1716  OWCONTINUE
0004405                                       27          EOW                           # 11517
                                    -001-     28          NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000027 *********
                                                                   *


0004405 02 000030 161400 ------               32          SBS     0(RA1),S(EXIP)        # SET UP TO RUN COMPLETE TEST
0004406                                       33          RETURN  TTY_IP
0004406 02 000031 056465 ------ TTYTBL -001-  34          BTSAN   TTY_IP
```

```
                                    01 # THE STOP:EX MESSAGE IS USED TO TERMINATE THE SYSTEM
                                    02 # STATUS PANEL EXERCISE.  IT ZEROS THE CONTROL BLOCK WHICH
                                    03 # ALLOWS THE PANEL TO BE USED (UREQBUF).  ALSO ZEROED IS THE
                                    04 # WORD USED TO TELL WHICH FUNCTION IS BEING TESTED (SSPEXWRD).
                                    05
0004407                             06 # THE FORM OF THE MESSAGE IS
                                    07 #   STOP:EX SSP!
                                    08
0004407                             09 # TTY INPUT FORMATS 08 AND 01 ARE USED
                                    10 # R4='STOP'
                                    11 # R5='EX'
                                    12 # R6='SSP'



                                    16 STOPEX
0004407                             17          CALL    STPUTIL
0004407                             18          BSAI    S%TPUTIL            # SUBROUTINE STPUTIL IS IN PROGRAM CUTIL
0004407 02 000032 173052 ------ -001- 19        LAL     R0,SSPEXWRD,RA1
0004410 02 000033 131400 043505 CTSD 20         ZR      R0
0004412 02 000035 003000 ------      21         ST      R0,0(RA1)           # ZERO THE FUNCTION CONTROL WORD
0004413 02 000036 044400 ------      22         CALL    RST_SSP             # RESTORE THE SSP TO SERVICE
0004414                             23          BSA     RST_SSP
0004414 02 000037 037020 002255 0002255 -001- 24 RETURN TTY_OK
0004416                             25          BTSAN   TTY_OK
0004416 02 000041 156464 ------ TTYTBL -001-
```

```
0004417                                          01 SSPEX
0004417                                          02        BEGIN   ()
0004417 02 000042 131400 043505 CTSD             03        LAL     R0,SSPEXWRD,RA1
0004421 02 000044 014000 ------                  04        TZ      R0
0004422                                          05        IF      CF THEN RETURN
0004422 02 000045 055002 ------ 0004424  -002-   06            BNC     IFS1728
0004423 02 000046 056400 ------          -003-   07            BTSA
0004424                                  -002-   08 IFS1728
0004424 02 000047 103402 177000                  09        NI      R0,M(DCNT)          # CHECK FOR FIRST ENTRY
0004426                                          10        IF      CF THEN RGBEGIN
0004426 02 000051 055015 ------ 0004443  -002-   11            BNC     IFS1731
0004427                                          12            CALL    RMV_SSP
0004427 02 000052 037020 002250 0002250  -001-   13            BSA     RMV_SSP
0004431 02 000054 103621 016160                  14            LI      R9,SSPIOADR     # SSP 3 OUT OF 6 ADDRESS
0004433 02 000056 003641 000036                  15            LI      R10,SSPCB0
0004435                                          16            CALL    SIO
0004435 02 000060 037020 111025 CSYSUB   -001-   17            BSA     SIO
0004437                                          18            TAKEOUT 2               # 3E790032
0004437 02 000062 106000 ------          -001-   19            LR      0,0
0004440 02 000063 006000 ------          -001-   20            LR      0,0
0004441 02 000064 054030 ------ 0004471          21            BC      NEXTLED         # SSP WAS SUCCESSFULLY ACCESSED
0004442                                          22            RETURN                  # SSP WAS NOT ACCESSED
0004442 02 000065 056400 ------          -001-   23            BTSA
0004443                                          24            RGEND
0004443                                  -001-   25 IFS1731
0004443 02 000066 130500 043026 CTSD             26        LL      SSP_OOS,SYSTATE
                                                 27 # IF ¬ SSP_OOS THEN RETURN
0004445 02 000070 024113 ------                  28        TBN     SSP_OOS,S(SSP_OOS)
0004446 02 000071 054002 ------ 0004450          29        BC      SSPSERV
0004447                                          30        RETURN
0004447 02 000072 056400 ------          -001-   31        BTSA
0004450                                          32 SSPSERV
0004450 02 000073 103020 ------                  33        LN      R1,0
0004451 02 000074 003621 016160                  34        LI      R9,SSPIOADR
0004453                                          35        CALL    KEPCLR
0004453 02 000076 037020 112145 0112145  -001-   36        BSA     KEPCLR
0004455 02 000100 141400 ------                  37        LA      R0,0(RA1)
0004456 02 000101 003400 001000                  38        AI      R0,E(9)             # INCREMENT THE DELAY COUNT
0004460                                          39        IF      ¬ CF THEN RGBEGIN   # BRANCH IF DELAY TIMEDOUT
0004460 02 000103 054011 ------ 0004471  -002-   40            BC      IFS1740
0004461 02 000104 044400 ------                  41            ST      R0,0(RA1)
0004462 02 000105 003641 000036                  42            LI      R10,SSPCB0
0004464                                          43            CALL    SIO
0004464 02 000107 037020 111025 CSYSUB   -001-   44            BSA     SIO
0004466 02 000111 124275 ------                  45            TBN     R11,13          # BIT POSITION OF EXECUTE KEY IN BUFFER
0004467                                          46            IF      ¬ CF THEN RETURN # DELAY ONE MORE BASE LEVEL
0004467 02 000112 054002 ------ 0004471  -002-   47            BC      IFS1743
0004470 02 000113 056400 ------          -003-   48            BTSA
0004471                                  -002-   49 IFS1743
```

```
0004471                                          01          RGEND
0004471                                 -001-    02 IFS1740


                                                 06 # NOTE: IF THE EXECUTE KEY WAS ACTIVATED, THE TEST CONTINUES
0004471                                          07 NEXTLED
0004471                                          08          CALL    SSPINT
0004471 02 000114 137020 112132 0112132  -001-  09          BSA     SSPINT
0004473 02 000116 141400 ------                  10          LA      R0,0(RA1)
0004474 02 000117 010404 ------                  11          RRN     R0,4
0004475                                          12          TAKEOUT 1                       # 3E790032
0004475 02 000120 006000 ------          -001-   13          LR      0,0
0004476 02 000121 016440 000017                  14          LRM     R2,R0,MSK(W(TBLIDX))
0004500 02 000123 031240 004355 0004355          15          LAL     R10,SSPEXTBL,RA0
0004502 02 000125 042242 ------                  16          LX      R10,R2(RA0)             # OBTAIN THE SSP BUFFER ADDRESS
0004503 02 000126 010656 ------                  17          RLN     R10,2
0004504 02 000127 026240 ------                  18          SBN     R10,0                   # 01 = WRITE READ OPERATION
0004505 02 000130 010415 ------                  19          RLN     R0,3
0004506 02 000131 026003 ------                  20          SBN     R0,3                    # FORCE BIT = 15-8
0004507 02 000132 026640 ------                  21          SBR     R10,R0                  # SET BIT OF INTREST TO LIGHT INDICATOR
0004510 02 000133 041400 ------                  22          LA      R0,0(RA1)
0004511 02 000134 003400 000400                  23          AI      R0,E(S(LEDON))          # COMPLIMENT BIT 8
0004513 02 000136 003402 000777                  24          NI      R0,-M(DCNT)
0004515 02 000140 003403 110000                  25          OI      R0,E(15)+E(12)          # JAM IN NEW DELAY
0004517 02 000142 044400 ------                  26          ST      R0,0(RA1)
0004520 02 000143 024000 ------                  27          TBN     R0,0
0004521 02 000144 054005 ------ 0004526          28          BC      ADDONE                  # BRANCH IF NOT A SINGLE REQUEST
0004522 02 000145 024010 ------                  29          TBN     R0,S(LEDON)
0004523                                          30          IF      CF = 1 THEN B SENDIT
0004523 02 000146 054015 ------ 0004540  -001-   31              BC      SENDIT
0004524                                          32          RETURN                          # INDICATOR SHOULD BE OFF
0004524 02 000147 056400 ------          -001-   33          BTSA
0004525                                          34          TAKEOUT 1                       # 3E790032
0004525 02 000150 006000 ------          -001-   35          LR      0,0

                                                 37 ADDONE
0004526                                          38          AN      R0,2
0004526 02 000151 104402 ------                  39          ST      R0,0(RA1)               # INCREMENT TO NEXT INDICATOR
0004527 02 000152 044400 ------                  40          CIRM    R0,12*E(S(TBLIDX))+1*E(S(BITP))+1*E(S(EXIP)),0,M(EXIP)!M(BITP)!M
0004530 02 000153 017400 177703                                    (TBLIDX)
                                                 42          IF      CF THEN RGBEGIN         # DO RANGE IF EXERCISE IS COMPLETED
0004532                                  -002-   43              BNC     IFS1752
0004532 02 000155 055006 ------ 0004540  -002-   44              ZR      R0
0004533 02 000156 003000 ------                  45              ST      R0,0(RA1)
0004534 02 000157 044400 ------                  46 CBLM1        OW      0(160)                  # 11516
                                         -001-   47              NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000160
                                                                          **********
```

```
SSP EXERCISE                                                                    22:40:42   2/05/81  ****

SSP INPUT AND PROCESSING ROUTINES                                                        CBLM          W77D

                                        01 CPATCH     BGNP    0(301)          # 11516
0004535 02 000160 037000 111733 0111733 -001- 02            BL      XXX1755
                                        -001- 03            NOTE    CPATCH 'CSECT'
                                        -001- 04            NOTE    ****************** PATCH AREA BEGINS AT 000301 ***************
                                                                     *


0111733                                 -001- 08 XXX1755    PATCHAREA
0111733                                       09            CALL    RST_SSP         # RESTORE SSP TO SERVICE
0111733 04 000301 137020 002255 0002255 -001- 10            BSA     RST_SSP
0111735                                       11            TAKEOUT 1               # 3E790032
0111735 04 000303 106000 ------         -001- 12            LR      0,0
0111736                                       13            CALL    STPUTIL         # CLEAR UREQBUF AREA
0111736 04 000304 073052 ------         -001- 14            BSAI    S%TPUTIL        # SUBROUTINE STPUTIL IS IN PROGRAM CUTIL
0111737                                       15            ENDP                    # 11516
0111737 04 000305 137000 004537 0004537 -001- 16            BL      XXX1760
                                        -001- 17            NOTE    ************ LAST PATCH ADDRESS USED IS 000306 ***************
                                                                     *
                                        -001- 19            NOTE    ***** NUMBER OF PATCH WORDS USED IS 6 (DECIMAL) ********


0004537                                 -001- 22 XXX1760    OWCONTINUE
0004537                                       23            EOW                     # 11516
                                        -001- 24            NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000161
                                                                      **********


0004537 02 000162 153004 ------ 0004543       28            B       PRTIT
0004540                                       29            RGEND
0004540                                 -001- 30 IFS1752
0004540                                       31 SENDIT
0004540                                       32            CALL    SIO             # SET INDICATOR OF INTEREST
0004540 02 000163 137020 111025 CSYSUB  -001- 33            BSA     SIO
0004542                                       34            RETURN
0004542 02 000165 156400 ------         -001- 35            BTSA
0004543                                       36 PRTIT
0004543                                       37            PRINT   FMT=(WRD(E,X),WRD(S,S,P),WRD(C,O,M,P,L))

                                        -001- 39 #  MESSAGE PROTOTYPE
                                        -001- 40 #      mm      EX SSP COMPL
0004543 02 000166 173053 ------         -002- 41            BSAI    P%MRY           # SUBROUTINE PMRY IS IN PROGRAM TTYAPP
0004544 02 000167 100200 ------         -002- 42            VFD     1,1 2,0 1,0 3,0 1,0 1,1 1,0 2,0 1,0 3,0
0004545 02 000170 021040 ------         -002- 43            VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_WRD
0004546 02 000171 021042 ------         -002- 44            VFD     4,TTYO_ 4,TTYO_ 4,TTYO_ 4,TTYO_
0004547 02 000172 014017 ------ TTYTBL  -002- 45            VFD     5,3 11,E%X
0004550 02 000173 000235 ------ TTYTBL  -002- 46            VFD     5, 11,S%SP
0004551 02 000174 000302 ------ TTYTBL  -002- 47            VFD     5, 11,C%OMPL
                                        -001- 48            NOTE    THE VARIABLE PORTION OF THE OUTPUT MESSAGE TO BE PRINTED IS
                                                                      CONTAINED IN GENERAL REGISTERS
```

```
0004552                                          01        RETURN
0004552 02 000175 156400 ------          -001-   02        BTSA
                                                 03 CPATCH BGNP    0(500)              # 11518
                                         -001-   04        NOTE    CPATCH 'CSECT'
                                         -001-   05        NOTE    ****************** PATCH AREA BEGINS AT 000500 ****************


                                                 08 # SUBROUTINE TO SEND ALL ZEROS TO 12 SSP ADDRESSES
                                                 09 # WHICH CORRESPOND TO DATA LAMPS,KEYS; AND RELAY DRIVERS.
0112132                                          10 SSPINT
0112132                                          11        BEGIN
0112132 04 000500 171420 ------          -002-   12        HA
0112133 04 000501 031400 004355 0004355          13        LAL     R0,SSPEXTBL,RA1     # GET ADDRESS
0112135 04 000503 003173 ------                  14        LN      INDXR,11
0112136                                          15 LPINIT
0112136 04 000504 142647 ------                  16        LX      R10,INDXR(RA1)
0112137 04 000505 010656 ------                  17        RLN     R10,2
0112140 04 000506 026240 ------                  18        SBN     R10,0               # WRITE-READ OPERATION
0112141 04 000507 023400 ------                  19        SIO
0112142 04 000510 036160 112136 0112136          20        BX      INDXR,LPINIT
0112144                                          21        RETURN
0112144 04 000512 056420 ------          -001-   22        BTSAG
```

```
                                          01 # SUBROUTINE TO CLEAR THE PANEL TIMER AND TIMER BIT
                                          02 # IN R1.  TIME CONSTANTS ARE APPROXIMATE. R1 = 0(20000)
                                          03 # GIVES ABOUT 1 SECOND.
0112145                                   04 KEPCLR
0112145                                   05         BEGIN   ()
0112145                                   06 LPTI
0112145 04 000513 103641 000312           07         LI      R10,CLRTIMER
0112147                                   08         CALL    SIO
0112147 04 000515 037020 111025 CSYSUB -001- 09      BSA     SIO
0112151 04 000517 103641 000131           10         LI      R10,CLRTIMBT
0112153                                   11         CALL    SIO
0112153 04 000521 037020 111025 CSYSUB -001- 12      BSA     SIO
0112155 04 000523 171420 ------           13         HA
0112156 04 000524 036020 112145 0112145   14         BX      R1,LPTI
0112160                                   15         RETURN
0112160 04 000526 056400 ------        -001- 16      BTSA
0112161                                   17         ENDP    NR                  # 11518
                                       -001- 18         NOTE    ************ LAST PATCH ADDRESS USED IS 000526 ***************
                                       -001- 19         NOTE    ***** NUMBER OF PATCH WORDS USED IS 23 (DECIMAL) ********

                                          22 CPATCH5 BGNP   0(120)               # 12912
                                       -001- 23         NOTE    CPATCH5 'CSECT'
                                       -001- 24         NOTE    ****************** PATCH AREA BEGINS AT 000120 ****************
```

```
                                                    01 # SET  OR ZERO BITS IN THE MMS REGISTER
                                                    02 # ENTRY POINTS
                                                    03 #  MMSRS  - SET BITS ONLY
                                                    04 #  MMSRZ  -  ZERO BITS ONLY
0116412                                             05
                                                    06 # ENTRY CONDITIONS
0116412                                             07
                                                    08 #  R0 = BITS TO SET OR ZERO
                                                    09 #   IF R0 = 0 ON ENTRY  CALL ACTS AS READ OF THE MMSR
0116412                                             10
                                                    11 # EXIT CONDITIONS
                                                    12 #  R1 = ORGINIAL CONTENTS OF THE MMSR



0116412                                             16 MMSRZ
0116412                                             17         BEGIN
0116412 11 000120 171420 ------              -002-  18         HA
0116413 11 000121 012404 ------                     19         UNPK    MMSR
0116414 11 000122 006023 ------                     20         LR      R1,R3
0116415 11 000123 015400 ------                     21         COM     R0
0116416 11 000124 014060 ------                     22         NR      R3,R0
0116417 11 000125 053005 ------ 0116424             23         B       MMSRMG
0116420                                             24
0116420                                             25 MMSRS
0116420                                             26         BEGIN
0116420 11 000126 171420 ------              -002-  27         HA
0116421 11 000127 012404 ------                     28         UNPK    MMSR
0116422 11 000130 006023 ------                     29         LR      R1,R3
0116423 11 000131 014460 ------                     30         OR      R3,R0
0116424                                             31 MMSRMG
W0116424 11 000132 113400 ------                    32         MI      0
 0116425 11 000133 070531 ------                    33         DATA    PACK(8,BR%T 8,R3%F)
 0116426 11 000134 145312 ------                    34         DATA    BR%MMS%
 0116427 11 000135 026750 ------                    35         DATA    ZMINT%
 0116430                                            36         RETURN
 0116430 11 000136 056420 ------             -001-  37         BTSAG
 0116430                                            38         ENDP    NR                  # 12912
                                             -001-  39         NOTE    ************ LAST PATCH ADDRESS USED IS 000136 ***************
                                             -001-  40         NOTE    ***** NUMBER OF PATCH WORDS USED IS 15 (DECIMAL) ********
```

```
                                                  01 CPATCH6 BGNP   0(0)              # 12912
                                          -001-   02        NOTE    CPATCH6 'CSECT'
                                          -001-   03        NOTE    ***************** PATCH AREA BEGINS AT 000000 *****************


                                                  06 # DESCRIPTION:
                                                  07 # DO AN UPDATE OVER THE MAINTENANCE CHANNEL.  THE
                                                  08 # PURPOSE OF THIS ROUTINE IS TO UPDATE THE OFF-LINE
                                                  09 # MAINSTORE WITHOUT THE USE OF THE NORMAL UPDATE BUS.
                                                  10 # IN THE CASE OF A HARDWARE FALT IN THE ON-LINE
                                                  11 # MACHINE WHICH PREVENTS UPDATE TO THE OFF-LINE.
                                                  12 # THIS ROUTINE CAN BE CALLED.  BECAUSE OF TIME
                                                  13 # LIMITATIONS IT WILL NOT COPY EVERYTHING. BUT
                                                  14 # ONLY WHAT IS NECESSARY FOR A STOP AND SWITCH
                                                  15 # INIT TO COPY THE REST OF THE STORE.
0116442                                           16
                                                  17 #     THIS ROUTINE WILL RUN UNDER CONTROL OF NORMAL UPDATE.
0116442                                           18
                                                  19 # ENTRY POINT: MCH_UPD
0116442                                           20
                                                  21 # ENTRY CONDITIONS: NONE
0116442                                           22
                                                  23 # EXIT CONDITIONS: R0=RETURN CODE
                                                  24 #                      0--END OF "CORE" UPDATE
                                                  25 #                      1--SEQUENCE THROUGH STORE CONTINUES.
                                                  26 #                      2--SEQUENCE ENDED BY MCH ERROR.


0116442                                           30 MCH_UPD
0116442                                           31        BEGIN
0116442 12 000000 171420 ------           -002-   32        HA
                                                  33 # GET CURRENT ADDRESS OF MCH UPDATE.
0116443 12 000001 030440 043017 CTSD              34        LL      R2,AUMASCTL       # POINTER TO CSECT AND OFFSET.
0116445 12 000003 016462 170000                   35        LRM     R3,R2,0(170000)   # PUT CSECT/ASECT POINTER IN R3.
0116447 12 000005 010473 ------                   36        RRN     R3,11
0116450 12 000006 014042 ------                   37        TZ      R2                # IS THIS THE 1ST CALL ?
0116451 12 000007 055005 ------ 0116456           38        BNC     NOINT
0116452                                           39        CALL    INIT_OCC          # IF SO INIT OTHER CC.
0116452 12 000010 037020 111240 CSYSUB    -001-   40        BSA     INIT_OCC
0116454                                           41        CALL    STOPPSAU          # INSURE THE ON-LINE MAS MARKED INDATE.
0116454 12 000012 137020 003674 0003674   -001-   42        BSA     STOPPSAU
0116456                                           43 NOINT
                                                  44 # MSTOP THE OFF-LINE.
0116456                                           45        LMCH    MSTOP
0116456 12 000014 103401 000321           -001-   46        LI      R0,MSTOP
0116460                                   -001-   47        CALL    SMCH
0116460 12 000016 073027 ------           -002-   48        BSAI    S%MCH             # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
                                                  49 # FIND THE ACTUAL ADDRESS
```

```
0116461 12 000017 131000 116576 0116576        01        LAL     R0,COPYTBL,RA0
0116463 12 000021 043343 ------                02        LAX     RA1,R3(RA0)          # HIGH BITS OF CSECT ADDRESS
0116464 12 000022 040361 ------                03        L       RA1+1,1(RA0)         # LOW BITS OF CSECT ADDRESS.
0116465 12 000023 003442 007777                04        NI      R2,0(7777)           # IS THIS THE 1ST TIME IN THE CSECT?
                                               05 CPATCH6 OW    0(25)                # 3E800105
                                         -001- 06        NOTE    ************* THE FIRST ADDRESS OVERWRITTEN IS 000025 **********


                                               09        IF      CF = 1 THEN RGBEGIN
0116467
0116467 12 000025 055015 ------ 0116504  -001- 10            BNC     IFS1820
0116470                                      11            CALL    UNWPOSTM
0116470 12 000026 037020 116726 0116726  -001- 12            BSA     UNWPOSTM
0116472 12 000030 103421 010000              13            LI      R1,4096              # ADVANCE TO NEXT 4K
0116474                                      14            CALL    ADD16
0116474 12 000032 037020 110115 CSYSUB   -001- 15            BSA     ADD16
0116476                                      16            CALL    UNWPOSTM
0116476 12 000034 137020 116726 0116726  -001- 17            BSA     UNWPOSTM
0116500 12 000036 103421 010000              18            LI      R1,4096
0116502                                      19            CALL    SUB16                # RESTORE RA1
0116502 12 000040 037020 110135 CSYSUB   -001- 20            BSA     SUB16
0116504                                      21            RGEND
0116504                                  -001- 22 IFS1820
0116504 12 000042 143402 ------                23        LAX     R0,R2(RA1)           # SETUP RA1
0116505                                        24        EOW                          # 3E800105
                                         -001- 25        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000042 *********
                                                                  *


                                               30 # DO "SAFE" READS ON ON-LINE
                                               31        LN      R5,3
0116505 12 000043 003123 ------                32 LOOP16
0116506                                        33        L_ONL   0(RA1)
0116506                                  -001- 34        STAF    0(RA1)
0116506 12 000044 176020 ------          -001- 35        DATA    B(1011110010110000)
0116507 12 000045 136260 037020                36 # DO THE OFF-LINE WRITE
                                               37        CALL    WOSTMCH
0116510                                  -001- 38        BSA     WOSTMCH
0116510 12 000046 037020 116622 0116622        39        BNC     UPDMCHFL
0116512 12 000050 155062 ------ 0116574        40 # INCREMENT THE CURRENT ADDRESS
                                               41        AN      RA1+1,1
0116513 12 000051 004761 ------                42        BNC     DOBX
0116514 12 000052 055002 ------ 0116516        43        AN      RA1,1
0116515 12 000053 004741 ------                44 DOBX
0116516                                        45        AN      R2,1                 # UPDATE THE ADDRESS POINTER.
0116516 12 000054 104441 ------                46        BX      R5,LOOP16
0116517 12 000055 036120 116506 0116506        47        L       R6,0(RA0)            # NO. OF WORDS TO COPY+STARTING ADDRESS
0116521 12 000057 040140 ------                48        L       R7,1(RA0)
0116522 12 000060 040161 ------                49        LRM     R8,R6,0(177760)
0116523 12 000061 016606 177760
```

```
0116525 12 000063 010604 ------                  01        RRN     R8,4
0116526 12 000064 003542 000017                  02        NI      R6,0(17)
0116530 12 000066 001570 ------                  03        AR      R7,R8
0116531 12 000067 055002 ------ 0116533          04        BNC     DOCOM
0116532 12 000070 004541 ------                  05        AN      R6,1
0116533                                          06 DOCOM
                                                 07 # COMPARE THE ACTUAL ADDRESS TO THE STOPPING ADDRESS WHICH WAS
                                                 08 # CALCULATED BY ADDING NO. OF WORDS TO COPY TO STARTING ADDRESS.
                                                 09 # THE STOPPING ADDRESS IS IN R6 AND R7.
0116533 12 000071 116616 000017                  10        LRM     R8,RA1,0(17)
0116535 12 000073 005206 ------                  11        SR      R8,R6                 # IF HIGH BITS OF STOPPING ADDR < HIGH BITS
                                                                                         OF CURRENT ADDR GET NEW CSECT
0116536 12 000074 055003 ------ 0116541          13        BNC     NEWSECT
0116537 12 000075 005177 ------                  14        SR      R7,RA1+1
0116540 12 000076 054006 ------ 0116546          15        BC      UPDCWRD
                                                 16 # UPDATE CONTROL WORD TO UPDATE THE NEXT CSECT POINTER IF ONE
                                                 17 # EXISTS IN COPYTBL.
                                                 18 CPATCH6 OW    0(77)                 # 13320
                                          -001-  19        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000077 **********

0116541                                          22 NEWSECT
0116541 12 000077 103465 000024                  23        CI      R3,COPYSIZE
0116543                                          24        EOW                           # 13320
                                          -001-  25        NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000100 *********
                                                                    *

0116543 12 000101 054011 ------ 0116554          29        BC      ZEROEXIT
0116544 12 000102 004462 ------                  30        AN      R3,2
0116545 12 000103 003040 ------                  31        ZR      R2                    # ZERO OFFSET POINTER.
0116546                                          32 UPDCWRD
0116546 12 000104 110465 ------                  33        RLN     R3,11
0116547 12 000105 016043 170000                  34        IRM     R2,R3,0(170000)
0116551 12 000107 034440 043017 CTSD             35        STL     R2,AUMASCTL
0116553                                          36        RETURN  1
0116553 12 000111 056441 ------           -001-  37        BTSAGN  1

0116554                                          39 ZEROEXIT
                                                 40 CPATCH6 OW    0(112)                # 3E800105
                                          -001-  41        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000112 **********

                                                 44 # AT THIS POINT, A SMALL NUMBER OF WORDS IS WRITTEN INTO THE OMAS
                                                 45 # AT LOCATION 0(40) WHICH LINK TO THE OMAS-TO-MAS COPY ROUTINE.
                                                 46 # THE DATA TO BE WRITTEN IN FOUND IN TABLE "MCHINITTBL".
0116554 12 000112 131400 000023                  47        LAL     R0,0(40)-TBLSIZ(MCHINITTBL),RA1 # ALIGN LAST WORD TO MRF ADDRESS
0116556 12 000114 031000 113073 0113073          48        LAL     R0,MCHINITTBL-1,RA0 # POINT TO WORDS TABLE
0116560 12 000116 003521 000015                  49        LI      R5,TBLSIZ(MCHINITTBL)
```

```
0116562 12 000120 053005 ------ 0116567
0116563
0116563 12 000121 141401 ------
0116564 12 000122 041001 ------
0116565
0116565 12 000123 037020 116622 0116622
0116567
0116567 12 000125 136120 116563 0116563

0116571
0116571 12 000127 037020 111240 CSYSUB
0116573
0116573 12 000131 156440 ------
0116574
0116574 12 000132 106000 ------
0116575
0116575 12 000133 056442 ------


0116576


0116576
0116576 12 000134 006200 000000
0116600 12 000136 000620 005230 CINIT
0116602 12 000140 003100 001150 0001150

0116604 12 000142 003100 115073 0115073
0116606 12 000144 056700 110000 CSYSUB
0116610 12 000146 000042 021637 TDATA
0116612 12 000150 000402 020013 TDATA
0116614 12 000152 101400 043000 CTSD
0116616 12 000154 001001 016446 MASACS
0116620 12 000156 000400 042160 CINIT


                        0000044
0116622
```

```
                01      B       MCHINITDEC
                02 MCHINITLOOP
                03      LA      R0,1(RA1)
                04      LA      R0,1(RA0)       # GET A WORD TO SEND TO OMAS
                05      CALL    WOSTMCH
-001-           06      BSA     WOSTMCH
                07 MCHINITDEC
                08      BX      R5,MCHINITLOOP

                10      CALL    INIT_OCC
-001-           11      BSA     INIT_OCC
                12      RETURN  0
-001-           13      BTSAGN  0
                14 UPDMCHFL
                15      NOP
                16      RETURN  2
-001-           17      BTSAGN  2


                21 COPYTBL
                22 # THIS TABLE IS FOR THE MCH-UPD ROUTINE.  IT CONTAINS STARTING
                23 # ADDRESSES AND NO. OF WORDS TO COPY FOR A SET OF RESIDENT ROUTINES
                24 # REQUIRED TO GIVE THE CU ENOUGH INTELLEGENCE TO COPY THE REST
                25 # OF THE STORE FROM THE OTHER CU AFTER A "SW:INIT;UCL" TTY INPUT MESSAGE.
                26
                27      ADDR    0,200           # TV_TBL
                28      ADDR    MCHUPENT,MCHUPLEN   # CINIT OMAS-TO-MAS COPY ROUTINE
                29      ADDR    RESETPT,100
                30 DDELETE NOTE 1
                31      ADDR    CPATCH3,100     # PATCH AREA FOR RESETPT
                32      ADDR    CSYSUB,1500
                33      ADDR    STRLIM,2
                34      ADDR    WPTBL,16
                35      ADDR    CTSD,2096
                36      ADDR    MASCIOSC,32
                37      ADDR    HGAREA+OFL_HG,16    # FOR GA IN MCHINITTBL
                38 DINSERT NOTE ' ADDR 0,0      # SPARE
                39 DINSERT NOTE ' ADDR 0,0      # SPARE
                40 COPYSIZE EQU *-COPYTBL
                41      EOW                     # 3E800105
-001-           42      NOTE    ********** THE LAST ADDRESS OVERWRITTEN IS 000157 *********
                                 *
```

```
0116622                                        01         ENDP                             # 12912
                                        -001- 02         NOTE     ************* LAST PATCH ADDRESS USED IS 000157 ****************
                                        -001- 03         NOTE     ***** NUMBER OF PATCH WORDS USED IS 112 (DECIMAL) *********


                                               09 CPATCH1 BGNP    0(312)                   # 3E800105
                                        -001- 10         NOTE     CPATCH1 'CSECT'
                                        -001- 11         NOTE     ****************** PATCH AREA BEGINS AT 000312 *****************

                                               14 ##############################################################
0113074                                        15 MCHINITTBL                               # MAINTENANCE CHANNEL INIT TABLE
0113074 05 000312 171400 ------                16         GA                               # CORRECT PARITY IN ALL REGISTERS
0113075 05 000313 003120 ------                17         ZR       BOOT                    # ZERO BOOTSTRAP BIT
0113076 05 000314 034520 043351 CTSD           18         STL      BOOT,MASTATE            # INSURE ROUTINE SEES STORE OUT-OF-DATE
0113100                                        19         CALL     INIT_OCC                # INSURE OMAS IS READABLE
0113100 05 000316 037020 111240 CSYSUB  -001- 20         BSA      INIT_OCC
0113102                                        21         CALL     INITST                  # INITIALIZE ALL MAIN STORES.
0113102 05 000320 137020 110447 CSYSUB  -001- 22         BSA      INITST
0113104                                        23         MIMODE   L ER,NOP                # CLEAR ERROR REG
0113104 05 000322 113000 ------         -001- 24         MIS      0
0113105 05 000323 125360 ------         -002- 25             VFD      8,ERXT 8,NOPXF
0113106 05 000324 037000 005230 CINIT          26         BL       MCHUPENT                # ENTRY POINT AFTER MCH UPDATE SW:INIT(UCL)
0113110 05 000326 153764 ------ 0113074        27 LOC40   B        MCHINITTBL              # MUST BE AT ADDRESS 0(40)
                                0000015        28 TBLSIZ(MCHINITTBL) EQU *-MCHINITTBL
                                               29 ##############################################################
0113111                                        30         ENDP                             # 3E800105
                                        -001- 31         NOTE     ************* LAST PATCH ADDRESS USED IS 000326 ****************
                                        -001- 32         NOTE     ***** NUMBER OF PATCH WORDS USED IS 13 (DECIMAL) *********
```

```
                                                  01 CPATCH6 BGNP   0(160)              # 12912
                                          -001-   02         NOTE   CPATCH6 'CSECT'
                                          -001-   03         NOTE   ****************** PATCH AREA BEGINS AT 000160 ****************


                                                  06 # DESCRIPTION:
                                                  07 #      WRITE A WORD IN THE OFF-LINE MAINSTORE BY
                                                  08 #      CONTROLLING AND SENDING DATA TO THE OFF-LINE CC
                                                  09 #      OVER THE MAINTENANCE CHANNEL.
                                                  10
0116622                                           11 #   ENTRY POINT:
                                                  12 #                WOSTMCH
                                                  13
0116622                                           14 #   ENTRY CONDITIONS:
                                                  15 #                   R0=DATA TO BE WRITTEN (16 BITS)
                                                  16 #                   RA1=ADDRESS TO BE WRITTEN
                                                  17
0116622                                           18 #   EXIT CONDITIONS:
                                                  19 #                      R0=RETURN CODE
                                                  20 #                  0--STORE CYCLE COMPLETED
                                                  21 #                  1--STORE CYCLE NOT COMPLETED
                                                  22
0116622                                           23 #   RESTRICTIONS:
                                                  24 #                  OFF-LINE MACHINE MUST BE MSTOPED AND THE ADDRESS IN
                                                  25 #                  RA1 MUST BE IN A NON-WRITE-PROTECTED AREA OF STORE.
                                                  26 #                  THIS ROUTINE TAKES APPROXIMATELY 420 MICRO SECONDS
                                                  27
0116622                                           28 WOSTMCH
0116622                                           29         BEGIN
0116622                                           30         HA
0116622 12 000160 171420 ------           -002-   31 # SEND DATA TO OFF-LINE "SDR"
                                                  32         ZR      R2
0116623 12 000161 003040 ------                   33         LR      R4,R0                # SAVE DATA FOR COMPARE
0116624 12 000162 006100 ------                   34         LR      R3,R0
0116625 12 000163 006060 ------                   35         PACK    MCHTR
0116626 12 000164 012000 ------                   36         LMCH    LDMCHB
0116627                                   -001-   37         CALL    SLDMCHB
0116627                                   -002-   38         BSA     SLDMCHB
0116627 12 000165 037020 111072 CSYSUB            39         LI      R3,SDR%T*E(8)+MCHB%F
0116631 12 000167 103461 027231                   40         PACK    MCHTR
0116633 12 000171 012000 ------                   41         LMCH    LDMIRL
0116634                                   -001-   42         CALL    SLDMIRL
0116634                                   -002-   43         BSA     SLDMIRL
0116634 12 000172 037020 111075 CSYSUB            44 # THE DATA HAS BEEN SENT NOW SEND A NORMAL WRITE TO THE MMS.
0116636 12 000174 103461 130200                   45         LI      R3,NWRITE
0116640 12 000176 012000 ------                   46         PACK    MCHTR
0116641                                           47         LMCH    LDMCHB
0116641                                   -001-   48         CALL    SLDMCHB
0116641 12 000177 037020 111072 CSYSUB    -002-   49         BSA     SLDMCHB
```

```
0116643 12 000201 103461 070631                    01        LI      R3,BR%T*E(8)+MCHB%F
0116645 12 000203 012000 ------                    02        PACK    MCHTR
0116646                                            03        LMCH    LDMIRL
0116646                                  -001-     04        CALL    SLDMIRL
0116646 12 000204 037020 111075 CSYSUB   -002-     05        BSA     SLDMIRL
0116650 12 000206 103461 145312                    06        LI      R3,BRXMMS%
0116652 12 000210 012000 ------                    07        PACK    MCHTR
0116653                                            08        LMCH    LDMIRL
0116653                                  -001-     09        CALL    SLDMIRL
0116653 12 000211 037020 111075 CSYSUB   -002-     10        BSA     SLDMIRL
                                                   11 # INITIATE THE WRITE BY ISSUING THE "SARD" TO FIELD CROSSPOINT.
0116655 12 000213 106056 ------                    12        LR      R2,RA1
0116656 12 000214 006077 ------                    13        LR      R3,RA1+1
0116657 12 000215 012000 ------                    14        PACK    MCHTR
0116660                                            15        LMCH    LDMCHB
0116660                                  -001-     16        CALL    SLDMCHB
0116660 12 000216 037020 111072 CSYSUB   -002-     17        BSA     SLDMCHB
0116662 12 000220 103040 ------                    18        ZR      R2
0116663 12 000221 003461 141631                    19        LI      R3,SARD%T*E(8)+MCHB%F
0116665 12 000223 012000 ------                    20        PACK    MCHTR
0116666                                            21        LMCH    LDMIRL
0116666                                  -001-     22        CALL    SLDMIRL
0116666 12 000224 037020 111075 CSYSUB   -002-     23        BSA     SLDMIRL
                                                   24 # TEST FOR COMPLETION OF STORE CYCLE.  THE "R.W" BIT SHOULD
                                                   25 # BE SET WHEN STORE CYCLE COMPLETES.
0116670 12 000226 103461 114632                    26        LI      R3,MCHB%T*E(8)+MMS%F
0116672 12 000230 012000 ------                    27        PACK    MCHTR
0116673                                            28        LMCH    LDMIRL
0116673                                  -001-     29        CALL    SLDMIRL
0116673 12 000231 037020 111075 CSYSUB   -002-     30        BSA     SLDMIRL
0116675 12 000233 103401 000261                    31        LI      R0,RTNMCHB
0116677                                            32        CALL    SMCH
0116677 12 000235 073027 ------          -001-     33        BSAI    S%MCH                 # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0116700 12 000236 112403 ------                    34        UNPK    MCHB
0116701 12 000237 017460 030060                    35        CIRM    R3,RWMSK,0,RWMSK
0116703 12 000241 055022 ------ 0116725            36        BNC     NOTCMP
                                                   37 # CHECK THAT DATA IS REALLY BEING WRITTEN OVER TO THE OFF-
                                                   38 # LINE BY PERFORMING A READ CYCLE.
0116704 12 000242 003461 036312                    39        LI      R3,STSEQ%
0116706 12 000244 012000 ------                    40        PACK    MCHTR
0116707                                            41        LMCH    LDMIRL
0116707                                  -001-     42        CALL    SLDMIRL
0116707 12 000245 037020 111075 CSYSUB   -002-     43        BSA     SLDMIRL
0116711 12 000247 103461 114705                    44        LI      R3,MCHB%T*E(8)+SDRC%F
0116713 12 000251 012000 ------                    45        PACK    MCHTR
0116714                                            46        LMCH    LDMIRL
0116714                                  -001-     47        CALL    SLDMIRL
0116714 12 000252 037020 111075 CSYSUB   -002-     48        BSA     SLDMIRL
0116716                                            49        LMCH    RTNMCHB
```

```
0116716 12 000254 103401 000261          -001- 01        LI      R0,RTNMCHB
0116720                                  -001- 02        CALL    SMCH
0116720 12 000256 073027 ------          -002- 03        BSAI    S%MCH       # SUBROUTINE SMCH IS IN PROGRAM CSYSUB
0116721 12 000257 112403 ------                04        UNPK    MCHB
0116722 12 000260 020064 ------                05        CR      R3,R4
0116723 12 000261 055002 ------ 0116725        06        BNC     NOTCMP
0116724                                        07        RETURN  0
0116724 12 000262 056440 ------          -001- 08        BTSAGN  0
0116725                                        09 NOTCMP
0116725                                        10        RETURN  1
0116725 12 000263 156441 ------          -001- 11        BTSAGN  1
```

```
                                                01 # DESCRIPTION:
                                                02 # UNWRITE-PROTECT THE OTHER MAIN STORE VIA THE MAINTENANCE CHANNEL.
0116726                                         03
                                                04 # ENTRY POINT:
                                                05 # UNWPOSTM
0116726                                         06
                                                07 # INPUTS
                                                08 # RA1 = ADDRESS
0116726                                         09
                                                10 # OUTPUTS
                                                11 # NONE
0116726                                         12
                                                13 # RESTRICTIONS
                                                14 # OFF-LINE MUST BE "MSTOPED"



0116726                                         18 UNWPOSTM
0116726                                         19       BEGIN
0116726 12 000264 171420 ------          -002- 20       HA
                                                21 # SEND DATA TO OFF-LINE
0116727 12 000265 003040 ------                 22       ZR      R2
                                                23 CPATCH6 OW    0(266)              # 3E800105
                                         -001- 24       NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000266 **********


0116730 12 000266 003060 ------                 27       ZR      R3
0116731                                         28       EOW                         # 3E800105
                                         -001- 29       NOTE    *************** THE LAST ADDRESS OVERWRITTEN IS 000266 *********
                                                                *


0116731 12 000267 012000 ------                 33       PACK    MCHTR
0116732                                         34       LMCH    LDMCHB
0116732                                  -001- 35       CALL    SLDMCHB
0116732 12 000270 037020 111072 CSYSUB   -002- 36       BSA     SLDMCHB
0116734 12 000272 103461 027231                 37       LI      R3,SDR%T*E(8)+MCHB%F
0116736 12 000274 012000 ------                 38       PACK    MCHTR
0116737                                         39       LMCH    LDMIRL
0116737                                  -001- 40       CALL    SLDMIRL
0116737 12 000275 037020 111075 CSYSUB   -002- 41       BSA     SLDMIRL
                                                42 # SEND A "WRITE THE WRITE PROTECT REGISTER" TO THE MMS.
0116741 12 000277 103461 134203                 43       LI      R3,WWPR
0116743 12 000301 012000 ------                 44       PACK    MCHTR
0116744                                         45       LMCH    LDMCHB
0116744                                  -001- 46       CALL    SLDMCHB
0116744 12 000302 037020 111072 CSYSUB   -002- 47       BSA     SLDMCHB
0116746 12 000304 103461 070631                 48       LI      R3,BR%T*E(8)+MCHB%F
0116750 12 000306 012000 ------                 49       PACK    MCHTR
```

```
0116751                                          01        LMCH    LDMIRL
0116751   ,                                     -001- 02        CALL    SLDMIRL
0116751 12 000307 037020 111075 CSYSUB          -002- 03        BSA     SLDMIRL
0116753 12 000311 103461 145312                       04        LI      R3,BRXMMS%
0116755 12 000313 012000 ------                       05        PACK    MCHTR
0116756                                               06        LMCH    LDMIRL
0116756                                         -001- 07        CALL    SLDMIRL
0116756 12 000314 037020 111075 CSYSUB          -002- 08        BSA     SLDMIRL
                                                      09 # NOW ISSUE A "SARD" TO INITIATE THE STORE CYCLE.
                                                      10 CPATCH6 OW     0(316)                # 3E800105
                                                -001- 11        NOTE    ************** THE FIRST ADDRESS OVERWRITTEN IS 000316 **********


                                                      14 CPATCH4 BGNP   0(0)                  # 3E800105
0116760 12 000316 137000 116057 0116057         -001- 15        BL      XXX1902
                                                -001- 16        NOTE    CPATCH4 'CSECT'
                                                -001- 17        NOTE    ****************** PATCH AREA BEGINS AT 000000 ****************


0116057                                         -001- 20 XXX1902 PATCHAREA
0116057 10 000000 106056 ------                       21        LR      R2,RA1
0116060 10 000001 006077 ------                       22        LR      R3,RA1+1
0116061 10 000002 022077 ------                       23        ZBN     R3,15                 # ZERO LOW MODULE ADDRESS BIT
0116062                                               24        ENDP                          # 3E800105
0116062 10 000003 037000 116762 0116762         -001- 25        BL      XXX1904
                                                -001- 26        NOTE    ************ LAST PATCH ADDRESS USED IS 000004 ***************
                                                -001- 27        NOTE    ***** NUMBER OF PATCH WORDS USED IS 5 (DECIMAL) ********


0116762                                         -001- 30 XXX1904 OWCONTINUE
0116762                                               31        EOW                           # 3E800105
                                                -001- 32        NOTE    ***************** THE LAST ADDRESS OVERWRITTEN IS 000317 *********
                                                                         *


0116762 12 000320 112000 ------                       36        PACK    MCHTR
0116763                                               37        LMCH    LDMCHB
0116763                                         -001- 38        CALL    SLDMCHB
0116763 12 000321 037020 111072 CSYSUB          -002- 39        BSA     SLDMCHB
0116765 12 000323 103040 ------                       40        ZR      R2
0116766 12 000324 003461 141631                       41        LI      R3,SARD%T*E(8)+MCHB%F
0116770 12 000326 012000 ------                       42        PACK    MCHTR
0116771                                               43        LMCH    LDMIRL
0116771                                         -001- 44        CALL    SLDMIRL
0116771 12 000327 037020 111075 CSYSUB          -002- 45        BSA     SLDMIRL
0116773                                               46        RETURN
0116773 12 000331 156420 ------                 -001- 47        BTSAG
0116773                                               48        ENDP                          # 12912
                                                -001- 49        NOTE    ************ LAST PATCH ADDRESS USED IS 000331 ***************
```

```
MAINTENANCE CHANNEL UPDATE                                    22:40:42   2/05/81  ****
                                                                        CBLM          W77D

-001- 01        NOTE    ***** NUMBER OF PATCH WORDS USED IS 106 (DECIMAL) ********
```

CBLM INDEX AND WORD COUNTS 22:40:42 2/05/81 ****

CBLM W77D

0116773 01 INDEXGEN

	SECTION TITLE	ADDRESS	WORD COUNT
-001- 05 #			
-001- 06 #	DATA TABLES	000000	19
-001- 07 #	BASE LEVEL SEQUENCE	000023	168
-001- 08 #	APPLICATION MONITOR SEQUENCING	000023	22
-001- 09 #	COMMON SYSTEM MONITOR SEQUENCING	000051	14
-001- 10 #	REMOVE CU FROM SERVICE--TTY INPUT SUBROUTINE	000067	5
-001- 11 #	RESTORE CU TO SERVICE--TTY INPUT SUBROUTINE	000074	22
-001- 12 #	CHECK IF CU SHOULD BE RESTORED--SUBROUTINE	000122	22
-001- 13 #	RESET PROGRAM TIMER--SUBROUTINE	000150	46
-001- 14 #	QUARANTINE OFF-LINE CC--SUBROUTINE	000226	17
-001- 15 #	REMOVE OFF-LINE CC FROM SERVICE--SUBROUTINE	000247	20
-001- 16 #	SYSTEM STATE DETECTOR (SSD)	000273	338
-001- 17 #	COMMENTS	000273	0
-001- 18 #	ADMINISTRATION PERFORMED EVERY BASE LEVEL LOOP	000273	68
-001- 19 #	CRITICAL SYSTEM AUDITS	000377	0
-001- 20 #	HOLD-GET AUDIT	000377	13
-001- 21 #	SS REGISTER AUDIT	000414	35
-001- 22 #	OFF-LINE SS REGISTER AUDIT	000457	9
-001- 23 #	ON-LINE MANUAL SWITCH AUDIT	000470	23
-001- 24 #	MS REGISTER AUDIT	000517	7
-001- 25 #	IM REGISTER AUDIT	000526	17
-001- 26 #	UPDATE SYSTEM STATE WORD 'SYSTATE'	000547	96
-001- 27 #	OUTPUT CU STATUS--TTY INPUT SUBROUTINE	000707	12
-001- 28 #	UPDATE THE SYSTEM STATE WORD SYSTATE--SUBROUTINE	000723	21
-001- 29 #	CHECK STATE OF OFF-LINE MAIN STORE	000750	24
-001- 30 #	PRINT THE REPT CU STAT TTY MESSAGE	001000	13
-001- 31 #	SYSTEM STATUS PANEL CONTROLLER (SSPC)	001015	175
-001- 32 #	MAIN ROUTINE	001015	83
-001- 33 #	SSP KEY BUFFER UPDATE--SUBROUTINES	001140	25
-001- 34 #	UPDATE SSP FROM SSP MAP--SUBROUTINE	001171	27
-001- 35 #	CHANGE SYSTEM STATUS PANEL BUFFER--SUBROUTINE	001224	20
-001- 36 #	REMOVE AND RESTORE SYSTEM STATUS AND CONTROL PANEL--SUBROUTINES	001250	20
-001- 37 #	MULTISCAN FUNCTION CONTROLLER (MSFC)	001274	821
-001- 38 #	COMMENTS	001274	0
-001- 39 #	MAIN ROUTINE	001274	86
-001- 40 #	WAIT SUBROUTINE	001422	15
-001- 41 #	ALLOW OR INHIBIT MSF--TTY INPUT SUBROUTINE	001441	20
-001- 42 #	CLEAR REPEAT AND STEP MSF--TTY INPUT SUBROUTINE	001465	11
-001- 43 #	MSF ABORT--SUBROUTINE	001500	38
-001- 44 #	MATRIX ANALYSIS--SUBROUTINE	001546	67
-001- 45 #	MSF DATA ACCESS--SUBROUTINE	001651	13
-001- 46 #	REPEAT & STEP CONTROL--SUBROUTINE	001666	95
-001- 47 #	MSF REQUEST--SUBROUTINE	002025	77
-001- 48 #	MSF STATE CHECK--SUBROUTINE	002142	19
-001- 49 #	MASK OF ACTIVE MSF IP & AB--SUBROUTINE	002165	6

CBLM INDEX AND WORD COUNTS 22:40:42 2/05/81 ****

```
                                                                                CBLM          W77D
-001- 01 #       UPDATE OFF-LINE STORE--MULTISCAN FUNCTION                      002173          95
-001- 02 #       REQUEST UPDATE--TTY INPUT SUBROUTINE                           002332           7
-001- 03 #       REQUEST MAS AUDIT--TTY INPUT SUBROUTINE                        002341          16
-001- 04 #       AUDIT/UPDATE MAIN STORE                                        002361         199
-001- 05 #       PROTECTED STORE AUDIT CONTROL--SUBROUTINES                     002670          57
-001- 06 # TIME MONITOR                                                  002761         252
-001- 07 #       COMMENTS                                                       002761           0
-001- 08 #       MAINTAIN MILLISECOND CLOCK                                     002761          35
-001- 09 #       INITIATE TIME PERIODIC FUNCTIONS                               003024          45
-001- 10 #       SET CLOCK--TTY INPUT SUBROUTINE                                003101          56
-001- 11 #       OUTPUT CLOCK--TTY INPUT SUBROUTINE                             003171          13
-001- 12 #       SCAN TIME TABLE FOR NEXT PERIODIC FUNCTION--SUBROUTINE         003206          19
-001- 13 #       INCREMENT TIME OF DAY--SUBROUTINE                              003231          67
-001- 14 #       SYNCHRONIZE TIME TO AN EXTERNAL SOURCE                         003334          17
-001- 15 # SSP EXERCISE                                                  000000          80
-001- 16 #       TABLES AND LAYOUTS                                             000000          12
-001- 17 #       SSP INPUT AND PROCESSING ROUTINES                              000000          80
-001- 18 # MMSR SUBROUTINE                                               000000         126
-001- 19 #                                                                       000000         126
-001- 20 # MAINTENANCE CHANNEL UPDATE                                    000176           0


-001- 24 # THE TOTAL LENGTH OF THIS ASSEMBLY IS 01979
      25         HEADER
```

SYMBOL REFERENCE TABLE

22:40:42 2/05/81 ****

CBLM W77D

```
01 CBLM   MAXSIZE 0,3355
02 CBLM1  MAXSIZE 0,176
```

PATCH HISTORY 22:40:42 2/05/81 ****

LISTING OF INDIVIDUAL PATCHES CBLM W77D

```
          */*/*/*/011518/*/*/*/*     -002- 01        PBEGIN  PROG=CBLM   CSECT=CBLM1    ORG=          TRNO=11518  SERNOB=63865
                                            02 # SUPPLY SUBROUTINES FOR THE SSP EXERCISE TEST TO
                                            03 # CLEAR THE PANNEL TIMER AND INIT THE SSP.
                                            04 # BECAUSE THE SSP TEST IS NOT RUN AS A MSF.
                                            05 # THE PAGED SUBROUTINES CANNOT BE USED
                                            06 DDELETE NOTE   3
                                 0000007    07 INDXR  EQU     R7
                                 0000312    08 CLRTIMER EQU   0(312)
                                 0000131    09 CLRTIMBT EQU   0(131)
0116773                                     10        TCEND
                                           -001- 11        NOTE    **********************************************************************


          */*/*/*/011517/*/*/*/*     -002- 18        PBEGIN  PROG=CBLM                                 TRNO=11517  SERNOB=63423
                                            19 # CORRECT ERROR IN THE SPECIAL HANDLING TO
                                            20 # TOGGLE A GIVEN LAMP.  A RETURN WAS LEFT OUT.
0116773                                     21        TCEND
                                           -001- 22        NOTE    **********************************************************************


          */*/*/*/011516/*/*/*/*     -002- 29        PBEGIN  PROG=CBLM                                 TRNO=11516  SERNOB=63503
                                            30 # CLEAR THE UTILTY FUNCTION BUFFER AREA IN
                                            31 # CUTIL UPON NORMAL COMPLETION OF THE EXERCISE
                                            32 # CORRECT THE MASK OF THE TBLIDX USED
                                            33 # TO GET THE SSP BUFFER ADDRESS
0116773                                     34        TCEND
                                           -001- 35        NOTE    **********************************************************************
```

PATCH HISTORY 22:40:42 2/05/81 ****

CBLM W77D

LISTING OF INDIVIDUAL PATCHES

//*/*/011440/*/*/*/* -002- 01 PBEGIN PROG=CBLM TRNO=11440 SERNOB=61869
02 # CHANGE THE DATA FIELD PRINTED ON THE REPT CU STAT MESSAGE
03 TCEND
0116773 -001- 04 NOTE **********

//*/-/012533/*/*/*/* -002- 11 PBEGIN PROG=CBLM TRNO=12533 SERNOB=47096
12 # ELIMINATE A DUPLICATE CALL TO WPOST
13 # IN THE UQOFLCC SUBROUTINE
14 # THIS PATCH COORDINATES WITH TR 11442 SERNOB 47063
15 # BUT DOES NOT REQUIRE THIS PATCH
16 TCEND
0116773 -001- 17 NOTE **********

//*/*/012833/*/*/*/* -002- 24 PBEGIN PROG=CBLM TRNO=12833 SERNOB=60048
25 # CHANGE THE WAY IN WHICH THE MSF CONTROLLER
26 # HANDLES THE MSF'S. PRIORITIES ARE NOW GIVEN TO
27 # ABORTS.
28 TCEND
0116773 -001- 29 NOTE **********

```
PATCH HISTORY                                                          22:40:42    2/05/81  ****

LISTING OF INDIVIDUAL PATCHES                                                  CBLM          W77D

          */*/*/*/012912/*/*/*/*     -002- 01        PBEGIN  PROG=CBLM                                TRNO=12912  SERNOB=60333
                                          02 # THIS PATCH COORDINATES WITH THE FOLLOWING PATCHES (BY TC)
                                          03 # 60355, 60344, 60333, 60606, 61723
                                          04 # THIS PATCH ADDS THE MAINTENANCE CHANNEL UPDATE FUNCTION .
                                          05 # IT ALSO ADDS A SUBROUTINE WHICH SETS OR ZEROS BITS IN THE MMS
                                          06 # REGISTER.
                                          07 #*************************
                                          08 # TFA 14
                                          09 #*************************
                                          10 # PROBLEM IS DOCUMENTED IN TFA4.
                                          11 # THIS PATCH PROVIDES THE MCH_UPD SUBROUTINE FOR CBLM THE
0116773                                   12        TCEND
                                    -001- 13        NOTE    ***********************************************************************




          */*/*/*/012913/*/*/*/*     -002- 20        PBEGIN  PROG=CBLM                                TRNO=12913  SERNOB=60344
                                          21 # THIS PATCH COORDINATES WITH THE FOLLOWING PATCHES (BY TC)
                                          22 # 60355, 60344, 60333, 60606, 61723
                                          23 # THIS PATCH IMPLEMENTS THE NEEDED CHANGES TO CBLM
                                          24 # TO ALLOW THE MCH UPDATE AND THE NEW UPDATE/AUDIT CHANGES.
                                          25 #*************************
                                          26 # TFA 14
                                          27 #*************************
                                          28 # AUMASCTL BIT DEFINITIONS
                                          29 # SPECIFY A NORMAL UPDATE OF THE HGAREA
                                          30 # AFTER RUNNING OSANUCL.
                                          31 # CHANGE THE UPDATE REQUEST ROUTINE TO HANDLE THE
                                          32 # NEW OPTIONS ALLOWED BY TFA9 AND TFA14.
                                          33 # NOW ALLOWED ARE AN UNCONDITIONAL UPDATE,A MAINTENANCE
                                          34 # CHANNEL UPDATE, AND THE ABILITY TO DO A COMPLEMENT
                                          35 # UPDATE.
                                          36 # INDICATE WHICH TYPE OF UPDATE SHOULD BE DONE
                                          37 # BY THE UPDATE ROUTINE.
                                          38 # ELIMINATE SOME CHECKS NOT REQUIRED FOR THE NEW AUDITS
0116773                                   39        TCEND
                                    -001- 40        NOTE    ***********************************************************************
```

PATCH HISTORY 22:40:42 2/05/81 ****

LISTING OF INDIVIDUAL PATCHES CBLM W77D

```
          */*/*/*/013317/*/*/*/*     -002- 01        PBEGIN  PROG=CBLM                                    TRNO=13317  SERNOB=59278
                                            02 # TFA 41
                                            03 # TAKE SYSTEM ACTION TO DISABLE ONE CC'S IO
                                            04 # WHEN BOTH CC'S ARE FOUND ACTIVE.
0116773 .                                   05        TCEND
                                        -001- 06        NOTE    ************************************************************************


          */*/*/*/013320/*/*/*/*     -002- 13        PBEGIN  PROG=CBLM                                    TRNO=13320  SERNOB=58435
                                            14 # THESE SERNO MUST COORIDINATE
                                            15 # 45896,  58413, 58435
                                            16 # TFA 14 - CORRECTION
                                            17 # FIX A BUG FOUND IN A TFA 14 PATCH 60344
                                            18 # CHANGE 'CALL MASONOFF' TO 'CALL MASONFOP' TO ALLOW VARIOUS OPTIONS.
0116773                                     19        TCEND
                                        -001- 20        NOTE    ************************************************************************


          */*/*/*/013208/*/*/*/*     -002- 27        PBEGIN  PROG=CBLM                                    TRNO=13208  SERNOB=57169
                                            28 # REMOVE OTS_UPD FROM MASK OF BITS THAT SHOULDN'T BE
                                            29 # BE CHANGED. THIS HAS TO BE DONE SO AN OFFLINE BOOT
                                            30 # CAN BE DONE AND THE TEMPORY STORE UPDATED.
0116773                                     31        TCEND
                                        -001- 32        NOTE    ************************************************************************
```

PATCH HISTORY 22:40:42 2/05/81 ****

LISTING OF INDIVIDUAL PATCHES CBLM W77D

```
          */*/*/*/013714/*/*/*/*     -002- 01        PBEGIN  PROG=CBLM                                  TRNO=13714  SERNOB=50646
                                            02 # THE VALUE LOADED INTO R2 WAS CHANGED TO 16 SO
                                            03 # THE VALUE PASSED TO AUMASBLK WAS CHANGED TO 16 WORDS.
0116773                                     04        TCEND
                                        -001- 05        NOTE    ************************************************************************


          */*/*/*/012569/*/*/*/*     -002- 12        PBEGIN  PROG=CBLM                                  TRNO=12569  SERNOB=51229
                                            13 # CHANGE THE VALUE CHECKED BY THE UPDSTATE ROUTINE
                                            14 # TO BE THE NEW UPDATED VALUE OF SYSTATE, NOT THE
                                            15 # VALUE UPON ENTERING THE ROUTINE.
0116773                                     16        TCEND
                                        -001- 17        NOTE    ************************************************************************


          */*/*/*/013833/*/*/*/*     -002- 24        PBEGIN  PROG=CBLM                                  TRNO=13833  SERNOB=50793
                                            25 # IN THE RESETPT SUBROUTINE AN INTERUPT CAN OCCUR BETWEEN
                                            26 # THE TIME INTERUPTS ARE TURNED ON AND THE TIME THE TI IS
                                            27 # UPDATED.
                                            28 # DO NOT ZERO THE INTERUPTS UNTIL THE TI HAS BEEN UPDATE.
0116773                                     29        TCEND
                                        -001- 30        NOTE    ************************************************************************
```

PATCH HISTORY 22:40:42 2/05/81 ****

LISTING OF INDIVIDUAL PATCHES CBLM W77D

0116773 01 END

PATCH HISTORY 22:40:42 2/05/81 ****

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CBLM	W77D
44070514	S	.STOP				
0115034	L	XXX1088	106-34	106-29		
0002640	L	XXX1096	107-29	107-24		
0116145	L	XXX1231	120-01	119-41		
0003202	L	XXX1233	120-12	120-07		
0116160	L	XXX1247	120-36	120-30		
0003210	L	XXX1249	121-01	120-41		
0116167	L	XXX1262	121-30	121-24		
0003221	L	XXX1265	122-01	121-41		
0116217	L	XXX1299	124-23	124-18		
0003555	L	XXX1312	125-01	124-44		
0116234	L	XXX1331	126-07	126-02		
0003277	L	XXX1333	126-17	126-12		
0116242	L	XXX1343	127-01	126-41		
0003307	L	XXX1345	127-11	127-05		
0116247	L	XXX1356	127-41	127-36		
0003324	L	XXX1359	128-05	127-49		
0116261	L	XXX1361	128-14	128-09		
0116272	L	XXX1374	129-36	129-31		
0111655	L	XXX1392	131-39	131-34		
0003353	L	XXX1394	132-01	131-45		
0116335	L	XXX1449	135-32	135-26		
0003440	L	XXX1459	136-28	136-22		
0111662	L	XXX1470	137-10	137-04		
0003454	L	XXX1474	137-27	137-21		
0116374	L	XXX1496	138-38	138-32		
0003513	L	XXX1499	139-03	138-46		
0116405	L	XXX1518	143-11	143-06		
0111755	L	XXX1713	164-13	164-08		
0004405	L	XXX1716	164-26	164-21		
0111733	L	XXX1755	168-08	168-02		
0004537	L	XXX1760	168-22	168-16		
0116057	L	XXX1902	181-20	181-15		
0116762	L	XXX1904	181-30	181-25		
0114357	L	XXX436	30-40	30-35		
0115206	L	XXX479	36-01	35-46		
0001203	L	XXX482	36-12	36-07		
0113140	L	XXX618	51-31	51-25		
0001467	L	XXX627	52-25	52-19		
0003525	L	XXX644	53-44	53-39		
0001515	L	XXX646	54-15	54-10		
0003544	L	XXX696	59-25	59-19		
0001626	L	XXX698	59-38	59-32		
0116064	L	XXX717	61-14	61-09		
0001661	L	XXX725	62-01	61-45		
0116123	L	XXX775	65-07	65-02		
0001740	L	XXX778	65-23	65-18		
0116136	L	XXX793	66-42	66-37		
0001762	L	XXX795	67-03	66-47		

```
PATCH HISTORY                                                                                    22:40:42    2/05/81  ****

     VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES                                          CBLM          W77D

     0112313 L %XX813         68-29  68-24
     0002003 L %XX815         68-40  68-35
     0000201 A %BITCNT                1-08
     0000001 A %BOP                   1-08
     0031160 A %CHKTR%       123-23 169-04,170-23,172-02,177-02
     0000002 A %CLAS                LIBNUM=10        1-08
     0000001 A %MAXWRD              LIBNUM=10        1-08
'CBLM'       T %NAME%
     0000000 A %ORGX2
           0 J %OW%            1-10
           0 J %PFT%
'ALL'        T %SAVREGS
     0000010 A %TA1%           28-10  28-39, 30-31, 33-02, 35-38, 38-03, 51-20, 53-35, 57-45, 58-20, 59-14, 60-22, 60-34, 61-02,
                                      62-11, 64-36, 64-40, 66-33, 68-02, 96-15, 98-09,105-30,106-41,119-36,120-25,121-17,122-13,
                                     122-32,123-06,124-05,124-40,126-36,127-29,129-18,131-19,133-36,135-07,135-21,135-41,136-48,
                                     138-27,142-45,144-14,144-34,162-30,164-04,167-47,173-06,174-19,174-41,180-24,181-11
           0 J %TCHEAD%        1-10
'PRLINE 1,1,
'     ---------
~~~~~~~~~~~~~~
~~~~~~~~~~~~~~
~~~~~~~~~~~~~~
~~~~~~~~~~~~~~
~~~~~~~~~~~~~~
~~~~~~~~~~~~~~
~~~~~~~~~~~~~~
~~~~~~~~~~~~~~
~~~~~~~~~~~~~~T'T %US%
TT~~~~~~~~~~  T %USING12
''            T %USING14
     0000001 A %WRDCNT              LIBNUM=10        1-08
    CTVTAB   V errprTck             LIBNUM=13       45-38, 48-35, 50-29, 54-23, 55-09, 56-45, 73-02
          14 P errprTck%_%C
             INIT                   LIBNUM=13
    CTVTAB   V rgchkAdr             LIBNUM=13      134-08
          14 P rgchkAdr%_%C
             SYSUB                  LIBNUM=13
    TTYTBL   X A%U           134-28 134-28
    TTYTBL   X A%VL           58-36  58-36
     0000001 A AA%                  LIBNUM=10        1-08
     0000003 A AB              15-06 W=20  S=0  N=3  CL=3          4-01, 16-01, 57-41, 95-01, 95-23, 95-40,102-46,105-17,105-37,
                                     106-18,107-37,118-16
     0000001 A ABB             15-04 W=20  S=0  N=1  CL=3         95-37,102-49,105-11,105-35
     0003222 L ABORTUPD        122-08 120-23,121-02
     0000004 A ABORT2B          16-01
           0 R ABRQB            19-21 W=1  S=2  N=0  CL=1
           0 R ABTB             19-17 W=1  S=0  N=0  CL=1  107-39,120-22
          11 R ACMSFCODE        10-12

COMMON BASE LEVEL MONITOR                                                                        PR-1C950-50

 22:40:42   2/05/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CBLM      ISSUE 07      PAGE   193
```

PATCH HISTORY 22:40:42 2/05/81 ****

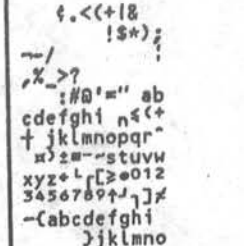
CBLM W77D

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

  0003165  L  ACTMSF        118-13   4-02,102-22,138-43
  0004526  L  ADDONE        167-37 167-28
   CSYSUB  V  ADD16          7-40 173-15
  0003402  L  ADROOR        134-11 139-28
        5  R  AK                   LIBNUM=6       144-31
  0000005  A  ALLOW2B        16-02
        6  R  ALTBUS         13-20 W=1  S=15  N=0  CL=1          72-47
  0003732  L  ALWMASAU      144-10   4-03,128-22
  0003741  L  ALWMASAUMG    144-29 144-08
  0002441  L  ALWMSF         99-01   4-04
  0002443  L  ALWMSFPG       99-05   4-05
       17  R  AME                  W=1  S=0  N=0  CL=1  LIBNUM=6       131-42,137-14
  0000004  A  APRIL          14-11 159-45
  0000161  A  ARXF                  LIBNUM=6       45-12
        7  R  AU_IP          17-05 W=1  S=1  N=1  CL=1    4-08,122-36,132-09,133-49,136-45,143-13,143-23,144-18
  0003775  L  AUDTIM        149-31 149-20
  0003341  L  AUMAS         131-22   4-06
  MASACS   V  AUMASBLK        9-08 137-19
  0003351  L  AUMASC        131-32 131-25,131-29
  CTSD     V  AUMASCTL        8-16  59-26, 60-25, 66-43,120-02,121-31,122-30,123-29,124-10,127-32,128-07,130-13,132-08,133-32,
                                    136-08,143-12,144-17,172-34,174-35
        6  R  AUMASCTLR       10-22  17-03, 17-04, 17-05, 17-06, 17-08, 17-10, 17-13, 17-15, 17-18, 17-19, 17-20, 17-21, 17-23,
                                    17-25
  0003361  L  AUUPDMAS       133-29   4-07,123-04
  CTVTAB   V  BXCDXBIN              LIBNUM=13      99-04, 99-12
       14  P  BXCDXBINX_XC
                SYSUB               LIBNUM=13
        0  J  BBX                    1-08
  CSYSUB   V  BCDXBIN         7-41
  0003710  L  BDSRMG        143-22 143-01
        4  R  BDSR0                W=1  S=14  N=0  CL=1  LIBNUM=6       61-30,136-14,136-32,145-09
        4  R  BDSR1                W=1  S=15  N=0  CL=1  LIBNUM=6       61-30,136-14,136-32,145-08
  0003715  L  BGNPSAU       143-41   4-09
  0003713  L  BGNPSAU_NOTE
                ST          143-36 127-47
  0003723  L  BGNPSAUMG     144-02 143-39
       17  R  BHC                  W=1  S=1  N=0  CL=1  LIBNUM=6       50-21, 50-26
       17  R  BIN                  W=1  S=2  N=0  CL=1  LIBNUM=6       50-21, 50-26
'SSPEXWD+0'  T  BITP               W=3  S=1  N=0  CL=2  167-40
    CINIT    V  BOOT           7-19 176-17,176-18
'X-74292 THR
U X-74298
       IV-C
MAY,1973'    T  BOTTTL
  0000161  A  BRXT                 LIBNUM=6       35-31,145-13,171-33,178-01,180-48
  0145312  A  BRXMMSX              LIBNUM=6      145-15,171-34,178-06,181-04
  0164311  A  BRXPTX               LIBNUM=6       35-33
       17  R  BTC                  W=1  S=3  N=0  CL=1  LIBNUM=6       50-21, 50-26
        0  U  C
```

PATCH HISTORY

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
CTVTAB	V	C%HGSSP		LIBNUM=13 72-50, 93-25,112-24
14	P	C%HGSSP%_%CB LM		LIBNUM=13
TTYTBL	X	C%LK	149-47	149-47,156-22
TTYTBL	X	C%OMPL	62-28	62-28,124-14,134-30,168-47
TTYTBL	X	C%U	39-48	39-48, 62-39, 69-04
0001000	L	CBLM	1-31	53-39, 59-19,124-44
0004355	L	CBLM1	1-32	
17	R	CC		W=1 S=14 N=0 CL=1 LIBNUM=6 49-26, 51-18, 52-13
0113200	L	CCERR	52-16	52-14
CTSD	V	CCLRTBL	8-18	
0113200	L	CCOK	52-17	51-33
CTSD	V	CCOLOOPS	8-17	44-18
0002230	L	CHGSSP	80-42	4-10
0003772	L	CHKTIM	149-21	149-13
0002572	L	CHOSNEXT	105-33	
0001750	L	CK_OST	66-22	4-11,130-23,131-27,143-45
0002605	L	CKAGAIN	105-45	106-06
0116331	L	CKALL	130-21	129-42,129-46
0116307	L	CKMCHPWR	130-03	129-43,129-45
0116313	L	CKPWR	130-07	129-44,129-48
BLMMA	V	CLKCHGD	7-01	154-38
0000305	A	CLPT		LIBNUM=6 36-14
CINIT	V	CLPTF	7-20	36-24
CSYSUB	V	CLR_WRDS	7-42	
0002465	L	CLRRPT	100-04	4-12,102-34
0000131	A	CLRTIMBT	186-09	170-10
0000312	A	CLRTIMER	186-08	170-07
6	R	CLRTTY	13-08	W=1 S=4 N=0 CL=1 73-35, 73-39
TTYTBL	V	COMP	9-18	129-28
7	R	COMP_UPD	17-23	W=1 S=13 N=1 CL=1 128-20,129-29,130-14



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

pqr      \ s
tuvwxyz
 0123456789
      '          T CONLC              LIBNUM=13
'n


     z
   te<hplx
       v$fgs
¬al        '
i% >k
  jo#b'd" ab
cdefghi n≤(+
† jklmnopqr^
 ¤)±¤-~stuvw
xyz÷└[]»012
3456789†J┐]≠
-(ABCDEFGHI
     }JKLMNO
PQR      \ S
TUVWXYZ
 0123456789
      '          T CONSC              LIBNUM=13
     0116203 L  CONTUPD      123-27 123-12
     0000024 A  COPYSIZE     175-40 174-23
     0116576 L  COPYTBL      175-21 173-01,175-40
           5 R  COROFL        20-51 W=1  S=4  N=1  CL=1    4-13, 32-48, 59-28, 59-29, 60-05,125-13,138-11,138-15,138-20
           5 R  CORONL        20-49 W=1  S=3  N=1  CL=1    4-14,138-11
    CTSD     V  COUNT          8-19 161-29
     0001317 L  COUNTING      44-45  44-42
          10 R  COUNTR        10-09 149-11,149-12,149-24,149-38,150-04,150-12,150-13,150-22
     0111432 L  CPATCH         1-38  68-24,131-34,137-04,164-08,168-02,169-04
     0112562 L  CPATCH1        1-39  51-25,176-10
     0114107 L  CPATCH2        1-40  30-35,106-29
     0115073 L  CPATCH3        1-41  35-46,175-31
     0116057 L  CPATCH4        1-42  61-09, 65-02, 66-37,119-41,120-30,121-24,123-23,124-18,126-02,126-41,127-36,128-09,181-15
     0116272 L  CPATCH5        1-43 129-31,135-26,138-32,143-06,170-23
     0116442 L  CPATCH6        1-44 172-02,177-02
     0121236 L  CPATCH7        1-45
     0002711 L  CRUNCHLP     110-19 110-29
    CSYSUB   V  CSYSUB          7-43 175-32
    CTAPH    V  CTAPH           8-15  28-26
     0001062 L  CTAPHRTN      28-27   4-15
    CTSD     V  CTSD           8-20 175-35
    CTTYH    V  CTTYB          9-02  28-30
     0001064 L  CTTYBRTN      28-31   4-16
```

PATCH HISTORY 22:40:42 2/05/81 ****

CBLM W77D

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

   TTYTBL    X CUzSTAT       63-35  63-35
    0002500 L CURABT        101-40   4-17,112-04
   CTSD      V CURFCN          8-21 151-17,151-19,151-30,151-32,151-45,151-47,157-26,157-35
   CTSD      V CURMON          8-23  27-04, 27-17
    0000006 A CURMSF         15-09 W=4  S=0  N=6  CL=3    4-18, 94-18, 98-04,101-41,106-09,107-14,107-20
   CUTIL     V CUTILBAS        9-04  28-34
    0001066 L CUTILRTN       28-35   4-19
          5 R DAY            10-18
    0004153 L DAYFOUND       154-29 154-24
'CURFCN+1'   T DAYINC                W=1  S=3  N=1  CL=2
    0001014 L DAYNAMES        22-34   4-20,154-18,156-10
    0004145 L DAYOFWEEKLP    154-20 154-25
   CTSD      V DAYOWEEK        8-25 154-14,156-11,159-21,159-28
   CTSD      V DAYS            8-26
         11 R DB                    LIBNUM=6       53-09, 53-20, 53-26
    0000251 A DB%T                  LIBNUM=6       53-29
'SSPEXWD+0'  T DCNT                 W=7  S=11  N=0  CL=2        166-09,167-24
'

   ¢.<(+!&
      !$*);
—/          ¦
,%_>?
   :#@'="
       n≤(+
†  .        ^
 ж)±=-~
   +└┌[≥•012
3456789†J┐]≠
—(ABCDEFGHI
    ❩JKLMNO
PQR      \ S
TUVWXYZ
 0123456789
    '        T DELLC                LIBNUM=13
    0003066 L DENYRQ         114-42 114-24,115-19,115-25
   BLMMA     V DGNCUMM         7-02  30-22
          7 R DGNUPD          17-13 W=1  S=5  N=1  CL=1    4-21,122-36,134-14,135-17
   CTSD      V DGREQ           8-27  30-43
    0000245 A DISA                  LIBNUM=6       51-43
          6 R DISAREM         13-19 W=1  S=14  N=0  CL=1          72-47
    0000341 A DISB                  LIBNUM=6       51-49
         17 R DME                   W=1  S=4  N=0  CL=1  LIBNUM=6      131-42,137-14
    0116516 L DOBX           173-44 173-42
    0116533 L DOCOM          174-06 174-04
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PATCH HISTORY 22:40:42 2/05/81 ****

CBLM W77D

```
  VALUE  T  NAME          DEF/REF     ATTRIBUTES AND REFERENCES
 0116073 L DOREQ          61-22  61-15
      17 R DSABL                 W=1  S=17  N=0  CL=1  LIBNUM=6      50-02, 50-26
 0116366 L DSROK         136-17 136-11
       0 U E
TTYTBL   X EXRR          124-37 124-37
TTYTBL   X EXX           168-45 168-45
       6 R EAEN           13-04 W=1  S=0  N=0  CL=1
       6 R EAEXC          13-22 W=1  S=17  N=0  CL=1
       6 R EM_ACT         13-21 W=1  S=16  N=0  CL=1          4-22, 13-36
 0035072 A ENAX                 LIBNUM=6        50-07
 0035071 A ENBX                 LIBNUM=6        50-14
 0000000 L ENTAB           1-34
 0004226 L ENTERFCN      157-39 157-30,157-33
       7 R EOST           17-08 W=1  S=3  N=1  CL=1  122-36,125-02,133-50,134-15
 0000252 A ERXT                 LIBNUM=6        176-25
CINIT    V ERPHG            7-21  48-32
CINIT    V ERPIM            7-22  56-43
CINIT    V ERPKEY           7-23  54-21
CINIT    V ERPMCH           7-24  45-36
CINIT    V ERPMS            7-25  55-06
CTSD     V ERPRTCTL         8-28  51-34, 52-10
CINIT    V ERPSS            7-26  50-27
CINIT    V ERPSSP           7-27  72-51
 0116226 L ERRCHK        124-33 124-30
      15 R ERRI                  W=1  S=5  N=0  CL=1  LIBNUM=6       32-37
CINIT    V ERRPRTCK         7-28
 0113175 L ERRPRTED       52-12  51-36
       0 J ESS2            1-10
       1 J ESS2E           1-09
 0115047 L EXAB          107-10 105-39
 0115050 L EXABIP        107-12 107-03
 0002635 L EXABREQ       106-26 105-41
CSYSUB   V EXCOFLMG         7-44  45-22
CSYSUB   V EXCOFLPG         7-45
 0000006 A EXC1ST           15-10 W=1  S=4  N=6  CL=3   95-32,106-08
'SSPEXWD+0' T EXIP                W=1  S=0  N=0  CL=2  164-32,167-40
 0003516 L EXITAUUPDMAS  139-22 134-46,136-36,138-41,139-04
 0003524 L EXITRTN       139-33 137-16
 0002620 L EXREQC        106-07 106-45
 0004371 L EXSSP         163-32   4-23
CUTIL    V EXSSPF        162-05 163-34
TTYTBL   X FXRI           22-46  22-46
 0000002 A FEB             14-10 159-46,159-49
       1 J FIELD           1-09
CUTIL    V FIXDMPST         9-05  63-21
       6 R FORCE          13-15 W=1  S=11  N=0  CL=1          13-36, 74-10
 0000005 A FORCNA          15-08 W=20  S=0  N=5  CL=3          99-19,105-19,114-21
 0002640 L FORMCODE      107-35 105-28
 0000065 A HGXF                 LIBNUM=6        48-25, 94-15
```

PATCH HISTORY


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

     0000065 A HGXT                LIBNUM=6        48-31
    CTSD'    V HG_IMAGE       8-29  94-16
    LAYOUT   V HGAREA         9-06  48-28, 48-28, 48-28,127-02,175-37
          17 R HLT                   W=1  S=5  N=0  CL=1  LIBNUM=6       50-21, 50-26
    CTSD     V HOURS          8-30 152-03
'CURFCN+1'   T HRINC                W=1  S=4  N=1  CL=2  151-47,151-48
     0004070 L HRRTN         152-01 152-06
    BLMMA    V HRTBL           7-03 151-44,152-02
'ILLEGAL CON
DITIONAL IN
THE IF MACRO'T IFERROR1
'DATA > 0 OR
 DATA < 0 IS
 MEANINGLESS
, USE DATA ¬
= 0'         T IFERROR2
'TWO CONSTAN
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
     0002464 L IFS1010       99-28  99-26
     0002534 L IFS1044      102-38 102-17
     0002534 L IFS1048      102-36 102-20
     0002532 L IFS1051      102-32 102-25
     0002537 L IFS1057      102-43 102-41
     0002705 L IFS1111      110-14 110-10
     0002717 L IFS1114      110-28 110-24
     0002725 L IFS1119      110-35 110-32
     0002740 L IFS1122      111-03 110-40
     0002736 L IFS1124      110-48 110-43
     0002775 L IFS1134      111-39 111-35
```

PATCH HISTORY 22:40:42 2/05/81 ****

CBLM W77D

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
0003010	L	IFS1142	112-08	112-02
0003045	L	IFS1169	114-17	114-09
0003102	L	IFS1190	115-14	115-08
0003107	L	IFS1195	115-21	115-17
0003137	L	IFS1198	116-04	115-28
0003127	L	IFS1202	115-40	115-32
0003153	L	IFS1215	117-32	117-30
0003164	L	IFS1217	117-39	117-37
0003211	L	IFS1238	121-09	120-20
0003242	L	IFS1255	122-46	121-13
0003567	L	IFS1314	125-19	125-04
0003567	L	IFS1315	125-17	125-10
0003316	L	IFS1339	127-25	126-27
0003316	L	IFS1351	127-23	127-21
0003375	L	IFS1410	134-03	134-01
0003421	L	IFS1414	134-38	134-10
0003420	L	IFS1416	134-34	134-19
0003431	L	IFS1433	135-01	134-41
0003431	L	IFS1436	134-48	134-44
0003450	L	IFS1446	136-43	135-19
0003524	L	IFS1465	139-32	136-46
0003466	L	IFS1479	138-01	137-48
0003516	L	IFS1481	139-18	138-05
0003474	L	IFS1483	138-10	138-08
0003516	L	IFS1488	139-16	138-14
0003504	L	IFS1490	138-19	138-17
0003516	L	IFS1493	139-13	138-24
0003723	L	IFS1529	144-01	143-48
0004116	L	IFS1607	153-42	153-38
0004130	L	IFS1611	154-06	154-02
0004154	L	IFS1614	154-33	154-17
0004161	L	IFS1622	154-42	154-40
0004310	L	IFS1650	160-09	159-20
0004261	L	IFS1652	159-27	159-25
0004267	L	IFS1659	159-35	159-33
0004274	L	IFS1661	159-41	159-39
0004310	L	IFS1663	160-06	160-02
0004331	L	IFS1670	160-29	160-25
0004353	L	IFS1678	161-38	161-36
0004400	L	IFS1707	163-41	163-39
0004424	L	IFS1728	166-08	166-06
0004443	L	IFS1731	166-25	166-11
0004471	L	IFS1740	167-02	166-40
0004471	L	IFS1743	166-49	166-47
0004540	L	IFS1752	168-30	167-43
0116504	L	IFS1820	173-22	173-10
0001043	L	IFS392	27-23	27-20
0001107	L	IFS425	30-21	30-11
0001114	L	IFS432	30-28	30-26

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

 0001147 L IFS458        33-15  32-35
 0001213 L IFS489        36-28  36-23
 0001225 L IFS493        36-44  36-36
 0001272 L IFS530        40-04  39-32
 0001264 L IFS532        39-38  39-36
 0001304 L IFS551        44-23  44-21
 0001307 L IFS552        44-28  44-26
 0001343 L IFS558        45-26  44-49
 0001342 L IFS563        45-23  45-21
 0001376 L IFS570        46-20  45-46
 0001376 L IFS573        46-18  46-11
 0001414 L IFS585        48-37  48-22
 0001443 L IFS601        50-16  50-04
 0001470 L IFS615        52-34  51-06
 0001545 L IFS656        56-42  56-28
 0001562 L IFS664        57-35  57-33
 0001601 L IFS672        58-13  58-08
 0001622 L IFS681        58-45  58-34
 0001620 L IFS686        58-41  58-39
 0001627 L IFS693        59-46  59-12
 0001641 L IFS704        60-12  60-07
 0001677 L IFS737        62-29  62-27
 0001760 L IFS789        66-31  66-29
 0001773 L IFS801        67-21  67-19
 0001777 L IFS804        67-27  67-25
 0002043 L IFS861        73-30  73-25
 0002052 L IFS864        73-43  73-36
 0002060 L IFS875        74-08  74-06
 0002070 L IFS889        74-19  74-15
 0002102 L IFS892        74-33  74-22
 0002152 L IFS913        76-43  76-41
 0002166 L IFS915        77-09  77-07
 0002230 L IFS927        80-41  80-39
 0002315 L IFS966        93-32  93-16
 0002313 L IFS968        93-28  93-19
 0002371 L IFS978        95-15  94-47
 0002366 L IFS980        95-06  95-04
 0002420 L IFS984        96-13  96-07
      14 R IM                   LIBNUM=6       32-46, 56-23, 56-36
CTSD    V IM_IMAGE         8-31  32-36, 56-25
 0004320 L INCUNIT       160-20 160-14
 0000101 A INDEXCNTR      10-31  22-49, 26-29, 27-31, 29-01, 29-15, 31-10, 33-18, 36-47, 38-16, 40-07, 41-01, 43-36, 46-22,
                                 47-05, 48-38, 50-30, 52-35, 54-24, 55-10, 56-47, 62-44, 63-38, 65-38, 67-30, 69-14, 70-01,
                                 75-33, 77-13, 79-17, 81-15, 83-16, 84-01, 92-22, 96-24, 98-27, 99-31,100-16,103-04,107-48,
                                108-31,112-27,116-12,117-42,118-20,128-38,131-01,132-13,141-19,145-20,146-01,148-34,151-01,
                                152-14,155-02,156-27,158-01,160-35,161-42,162-01,163-01,170-27,171-01,171-43,183-02

'DATA TABLES
'          T INDEXTITLE1
'REMOVE OFF-
```

PATCH HISTORY 22:40:42 2/05/81 ****

VALUE T NAME DEF/REF ATTRIBUTES AND REFERENCES CBLM W77D

```
LINE CC FROM
 SERVICE-->SU
BROUTINE'     T INDEXTITLE10
'SYSTEM STAT
E DETECTOR (
SSD)'         T INDEXTITLE11
'COMMENTS'    T INDEXTITLE12
'ADMINISTRAT
ION PERFORME
D EVERY BASE
 LEVEL LOOP'  T INDEXTITLE13
'CRITICAL SY
STEM AUDITS'  T INDEXTITLE14
'HOLD-GET AU
DIT'          T INDEXTITLE15
'SS REGISTER
 AUDIT'       T INDEXTITLE16
'OFF-LINE SS
 REGISTER AU
DIT'          T INDEXTITLE17
'ON-LINE MAN
UAL SWITCH A
UDIT'         T INDEXTITLE18
'MS REGISTER
 AUDIT'       T INDEXTITLE19
'BASE LEVEL
SEQUENCE'     T INDEXTITLE2
'IM REGISTER
 AUDIT'       T INDEXTITLE20
'UPDATE SYST
EM STATE WOR
D 'SYSTATE'' T INDEXTITLE21
'OUTPUT CU S
TATUS--TTY I
NPUT SUBROUT
INE'          T INDEXTITLE22
'UPDATE THE
SYSTEM STATE
 WORD SYSTAT
E--SUBROUTIN
E'            T INDEXTITLE23
'CHECK STATE
 OF OFF-LINE
 MAIN STORE'  T INDEXTITLE24
'PRINT THE R
EPT CU STAT
TTY MESSAGE'  T INDEXTITLE25
'SYSTEM STAT
US PANEL CON
```

PATCH HISTORY

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

 0001147 L IFS458         33-15  32-35
 0001213 L IFS489         36-28  36-23
 0001225 L IFS493         36-44  36-36
 0001272 L IFS530         40-04  39-32
 0001264 L IFS532         39-38  39-36
 0001304 L IFS551         44-23  44-21
 0001307 L IFS552         44-28  44-26
 0001343 L IFS558         45-26  44-49
 0001342 L IFS563         45-23  45-21
 0001376 L IFS570         46-20  45-46
 0001376 L IFS573         46-18  46-11
 0001414 L IFS585         48-37  48-22
 0001443 L IFS601         50-16  50-04
 0001470 L IFS615         52-34  51-06
 0001545 L IFS656         56-42  56-28
 0001562 L IFS664         57-35  57-33
 0001601 L IFS672         58-13  58-08
 0001622 L IFS681         58-45  58-34
 0001620 L IFS686         58-41  58-39
 0001627 L IFS693         59-46  59-12
 0001641 L IFS704         60-12  60-07
 0001677 L IFS737         62-29  62-27
 0001760 L IFS789         66-31  66-29
 0001773 L IFS801         67-21  67-19
 0001777 L IFS804         67-27  67-25
 0002043 L IFS861         73-30  73-25
 0002052 L IFS864         73-43  73-36
 0002060 L IFS875         74-08  74-06
 0002070 L IFS889         74-19  74-15
 0002102 L IFS892         74-33  74-22
 0002152 L IFS913         76-43  76-41
 0002166 L IFS915         77-09  77-07
 0002230 L IFS927         80-41  80-39
 0002315 L IFS966         93-32  93-16
 0002313 L IFS968         93-28  93-19
 0002371 L IFS978         95-15  94-47
 0002366 L IFS980         95-06  95-04
 0002420 L IFS984         96-13  96-07
      14 R IM                    LIBNUM=6       32-46, 56-23, 56-36
CTSD    V IM_IMAGE          8-31  32-36, 56-25
 0004320 L INCUNIT        160-20 160-14
 0000101 A INDEXCNTR       10-31  22-49, 26-29, 27-31, 29-01, 29-15, 31-10, 33-18, 36-47, 38-16, 40-07, 41-01, 43-36, 46-22,
                                  47-05, 48-38, 50-30, 52-35, 54-24, 55-10, 56-47, 62-44, 63-38, 65-38, 67-30, 69-14, 70-01,
                                  75-33, 77-13, 79-17, 81-15, 83-16, 84-01, 92-22, 96-24, 98-27, 99-31,100-16,103-04,107-48,
                                 108-31,112-27,116-12,117-42,118-20,128-38,131-01,132-13,141-19,145-20,146-01,148-34,151-01,
                                 152-14,155-02,156-27,158-01,160-35,161-42,162-01,163-01,170-27,171-01,171-43,183-02

'DATA TABLES
'         T INDEXTITLE1
'REMOVE OFF-
```

PATCH HISTORY 22:40:42 2/05/81 ****

VALUE T NAME DEF/REF ATTRIBUTES AND REFERENCES CBLM W77D

```
LINE CC FROM
 SERVICE-->SU
BROUTINE'     T INDEXTITLE10
'SYSTEM STAT
E DETECTOR (
SSD)'         T INDEXTITLE11
'COMMENTS'    T INDEXTITLE12
'ADMINISTRAT
ION PERFORME
D EVERY BASE
 LEVEL LOOP'  T INDEXTITLE13
'CRITICAL SY
STEM AUDITS'  T INDEXTITLE14
'HOLD-GET AU
DIT'          T INDEXTITLE15
'SS REGISTER
 AUDIT'       T INDEXTITLE16
'OFF-LINE SS
 REGISTER AU
DIT'          T INDEXTITLE17
'ON-LINE MAN
UAL SWITCH A
UDIT'         T INDEXTITLE18
'MS REGISTER
 AUDIT'       T INDEXTITLE19
'BASE LEVEL
SEQUENCE'     T INDEXTITLE2
'IM REGISTER
 AUDIT'       T INDEXTITLE20
'UPDATE SYST
EM STATE WOR
D 'SYSTATE''  T INDEXTITLE21
'OUTPUT CU S
TATUS--TTY I
NPUT SUBROUT
INE'          T INDEXTITLE22
'UPDATE THE
SYSTEM STATE
 WORD SYSTAT
E--SUBROUTIN
E'            T INDEXTITLE23
'CHECK STATE
 OF OFF-LINE
 MAIN STORE'  T INDEXTITLE24
'PRINT THE R
EPT CU STAT
TTY MESSAGE'  T INDEXTITLE25
'SYSTEM STAT
US PANEL CON
```

```
TROLLER (SSP
C)'          T INDEXTITLE26
'MAIN ROUTIN
E'           T INDEXTITLE27
'SSP KEY BUF
FER UPDATE--
SUBROUTINES' T INDEXTITLE28
'UPDATE SSP
FROM SSP MAP
--SUBROUTINE'T INDEXTITLE29
'APPLICATION
 MONITOR SEQ
UENCING'     T INDEXTITLE3
'CHANGE SYST
EM STATUS PA
NEL BUFFER--
SUBROUTINE'  T INDEXTITLE30
'REMOVE AND
RESTORE SYST
EM STATUS AN
D CONTROL PA
NEL--SUBROUT
INES'        T INDEXTITLE31
'MULTISCAN F
UNCTION CONT
ROLLER (MSFC
)'           T INDEXTITLE32
'COMMENTS'   T INDEXTITLE33
'MAIN ROUTIN
E'           T INDEXTITLE34
'WAIT SUBROU
TINE'        T INDEXTITLE35
'ALLOW OR IN
HIBIT MSF--T
TY INPUT SUB
ROUTINE'     T INDEXTITLE36
'CLEAR REPEA
T AND STEP M
SF--TTY INPU
T SUBROUTINE'T INDEXTITLE37
'MSF ABORT--
SUBROUTINE'  T INDEXTITLE38
'MATRIX ANAL
YSIS--SUBROU
TINE'        T INDEXTITLE39
'COMMON SYST
EM MONITOR S
EQUENCING'   T INDEXTITLE4
'MSF DATA AC
```

PATCH HISTORY 22:40:42 2/05/81 ****

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

CESS--SUBROU
TINE'         T INDEXTITLE40
'REPEAT & ST
EP CONTROL--
SUBROUTINE'   T INDEXTITLE41
'MSF REQUEST
--SUBROUTINE'T INDEXTITLE42
'MSF STATE C
HECK--SUBROU
TINE'         T INDEXTITLE43
'MASK OF ACT
IVE MSF IP &
 AB--SUBROUT
INE'          T INDEXTITLE44
'UPDATE OFF-
LINE STORE--
MULTISCAN FU
NCTION'       T INDEXTITLE45
'REQUEST UPD
ATE--TTY INP
UT SUBROUTIN
E'            T INDEXTITLE46
'REQUEST MAS
 AUDIT--TTY
INPUT SUBROU
TINE'         T INDEXTITLE47
'AUDIT/UPDAT
E MAIN STORE'T INDEXTITLE48
'PROTECTED S
TORE AUDIT C
ONTROL--SUBR
OUTINES'      T INDEXTITLE49
'REMOVE CU F
ROM SERVICE-
-TTY INPUT S
UBROUTINE'    T INDEXTITLE5
'TIME MONITO
R'            T INDEXTITLE50
'COMMENTS'    T INDEXTITLE51
'MAINTAIN MI
LLISECOND CL
OCK'          T INDEXTITLE52
'INITIATE TI
ME PERIODIC
FUNCTIONS'    T INDEXTITLE53
'SET CLOCK--
TTY INPUT SU
BROUTINE'     T INDEXTITLE54
'OUTPUT CLOC
```

PATCH HISTORY 22:40:42 2/05/81 ****

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

K--TTY INPUT
 SUBROUTINE' T INDEXTITLE55
'SCAN TIME T
ABLE FOR NEX
T PERIODIC F
UNCTION--SUB
ROUTINE'     T INDEXTITLE56
'INCREMENT T
IME OF DAY--
SUBROUTINE'  T INDEXTITLE57
'SYNCHRONIZE
 TIME TO AN
EXTERNAL SOU
RCE'         T INDEXTITLE58
'SSP EXERCIS
E'           T INDEXTITLE59
'RESTORE CU
TO SERVICE--
TTY INPUT SU
BROUTINE'    T INDEXTITLE6
'TABLES AND
LAYOUTS'     T INDEXTITLE60
'SSP INPUT A
ND PROCESSIN
G ROUTINES'  T INDEXTITLE61
'MMSR SUBROU
TINE'        T INDEXTITLE62
''           T INDEXTITLE63
'MAINTENANCE
 CHANNEL UPD
ATE'         T INDEXTITLE64
''           T INDEXTITLE65
'CHECK IF CU
 SHOULD BE R
ESTORED--SUB
ROUTINE'     T INDEXTITLE7
'RESET PROGR
AM TIMER--SU
BROUTINE'    T INDEXTITLE8
'QUARANTINE
OFF-LINE CC-
-SUBROUTINE' T INDEXTITLE9
          7  R INDXR        186-07 169-14,169-16,169-20
     0003705 L INHMASAU     143-02   4-24,121-22
     0002445 L INHMSF        99-09   4-25
     0002447 L INHMSFPG      99-13   4-26
    CSYSUB   V INIT_OCC       7-46  52-04,172-40,175-11,176-20
    CTSD     V INITLVL        8-32  45-01
    CSYSUB   V INITOST        7-47
```

```
PATCH HISTORY                                                                                    22:40:42   2/05/81  ****

     VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES                                          CBLM          W77D

         4 R INITQ_IP      20-22 W=1  S=3  N=0  CL=1    4-27, 57-29, 57-34, 58-23, 65-27,138-39
    CTSD   V INITQCD        8-34  44-41, 57-31
    BLMMA  V INITQEND       7-05  45-07
    CSYSUB V INITST         7-48 176-22
     0000003 A INPROG2B    15-58
    CTSD   V INTCNT         8-35  44-09
     7777775 A INTMAX      14-30   4-28, 44-08
     0000002 A IP          15-05 W=20  S=0  N=2  CL=3          15-58, 57-39, 95-21, 95-42,102-13,102-44,105-14,105-36,106-14,
                                 107-41,114-37,118-15
     0002603 L IP_REQ     105-42 106-39
     0115045 L IPEX       107-01 105-49
     0000066 A IS_RXT            LIBNUM=6       56-31
          17 R ISC1              W=1  S=6  N=0  CL=1  LIBNUM=6       45-10
          17 R ISC2              W=1  S=7  N=0  CL=1  LIBNUM=6       45-10
     0000006 A JUNE        14-12 159-45
    CDGNOF V KEEPCLR      162-03
     0112145 L KEPCLR     170-04 166-36
     0116130 L LEAVOOS     65-12  65-08, 65-10
'SSPEXWD+0'  T LEDON               W=1  S=10  N=0  CL=2        167-23,167-29
     0003021 L LIGHTLMPS  112-21 111-01,111-15,111-20,111-26,111-31,111-43,112-13
     0000000 A LINECNT
    TTYAPP V LINKRDY        9-16
     0002136 L LMPLITER    75-25  75-11, 75-17
          6 R LOCKM        13-05 W=1  S=1  N=0  CL=1   13-35, 74-13, 74-21, 80-37
     0002072 L LOCKMERGE   74-23  74-17
          6 R LOCKP        13-14 W=1  S=10  N=0  CL=1         13-36, 74-12
     0113110 L LOC40      176-27
     0003750 L LOD_BDSR   145-03 138-09
          17 R LOF               W=1  S=10  N=0  CL=1  LIBNUM=6       49-36
          17 R LON               W=1  S=11  N=0  CL=1  LIBNUM=6       57-26
'MSFMTX'     T LONAM_AB
'MSFMTX'     T LONAM_ABB
'RO'         T LONAM_ABRQB
'RO'         T LONAM_ABTB
'SSPCKEYS'   T LONAM_ALTBUS
'AUMASCTLR'  T LONAM_AU_IP
'SSPEXWD'    T LONAM_BITP
'SSPCKEYS'   T LONAM_CLRTTY
'AUMASCTLR'  T LONAM_COMP_U
               PD
'SYSTATER'   T LONAM_COROFL
'SYSTATER'   T LONAM_CORONL
'MSFMTX'     T LONAM_CURMSF
'CURFCN'     T LONAM_DAYINC
'SSPEXWD'    T LONAM_DCNT
'AUMASCTLR'  T LONAM_DGNUPD
'SSPCKEYS'   T LONAM_DISARE
               M
'SSPCKEYS'   T LONAM_EAEN
```

PATCH HISTORY 22:40:42 2/05/81 ****

CBLM W77D

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
'SSPCKEYS'	T	LONAM_EAEXC		
'SSPCKEYS'	T	LONAM_EM_ACT		
'AUMASCTLR'	T	LONAM_EOST		
'MSFMTX'	T	LONAM_EXC1ST		
'SSPEXWD'	T	LONAM_EXIP		
'SSPCKEYS'	T	LONAM_FORCE		
'MSFMTX'	T	LONAM_FORCNA		
'CURFCN'	T	LONAM_HRINC		
'SYSTATER'	T	LONAM_INITQ_IP		
'MSFMTX'	T	LONAM_IP		
'SSPEXWD'	T	LONAM_LEDON		
'SSPCKEYS'	T	LONAM_LOCKM		
'SSPCKEYS'	T	LONAM_LOCKP		
'SYSTATER'	T	LONAM_MAN_ON_L		
'SYSTATER'	T	LONAM_MAS_OOS		
'SYSTATER'	T	LONAM_MCH_OOS		
'AUMASCTLR'	T	LONAM_MCH_UPD		
'CURFCN'	T	LONAM_MININC		
'CURFCN'	T	LONAM_MONINC		
'MSFTBL'	T	LONAM_MSFAPCTLB		
'R2'	T	LONAM_MSFNUM		
'MSFMTX'	T	LONAM_NA		
'AUMASCTLR'	T	LONAM_NODSR		
'AUMASCTLR'	T	LONAM_NPUCOR		
'AUMASCTLR'	T	LONAM_OFL_AU		
'SYSTATER'	T	LONAM_OFL_OOS		
'SYSTATER'	T	LONAM_OFL_STBY		
'SYSTATER'	T	LONAM_OFL_UAV		
'SYSTATER'	T	LONAM_ONL_CC		
'SYSTATER'	T	LONAM_OSA_FALT		
'SYSTATER'	T	LONAM_OSA_PGM		
'SYSTATER'	T	LONAM_OSA_TBLA		
'SYSTATER'	T	LONAM_OSM_OFL		
'AUMASCTLR'	T	LONAM_OTS_UPD		
'R6'	T	LONAM_PASSFL		

PATCH HISTORY

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CBLM W77D

```
     VALUE  T  NAME       DEF/REF    ATTRIBUTES AND REFERENCES
                AG
'SYSTATER'   T LONAM_PKEY
'AUMASCTLR'  T LONAM_PKEYM
'R6'         T LONAM_PRINTF
                LG
'SYSTATER'   T LONAM_PWR_ON
                L
'RXSCTLR'    T LONAM_RXS_AC
                T
'RXSCTLR'    T LONAM_RXS_MS
                F
'RXSCTLR'    T LONAM_RXS_NP
'RXSCTLR'    T LONAM_RXS_RE
                Q
'RXSCTLR'    T LONAM_RXS_RP
                T
'RXSCTLR'    T LONAM_RXS_1S
                TP
'RXSCTLR'    T LONAM_RXSBPU
                SH
'SSPCKEYS'   T LONAM_RXSEXC
'SSPCKEYS'   T LONAM_RXSF
'SSPCKEYS'   T LONAM_RXSP
'TIMRCYL'    T LONAM_RCYLIN
                IT
'TIMRCYL'    T LONAM_RCYLMA
                X
'SSPCKEYS'   T LONAM_RLDPRO
                G
'MSFMTX'     T LONAM_RQB
'SYSTATER'   T LONAM_RST_IP
'SSPCKEYS'   T LONAM_SELCU0
'SSPCKEYS'   T LONAM_SELCU1
'SYSTATER'   T LONAM_SSP_OO
                S
'R10'        T LONAM_SSPADR
'R10'        T LONAM_SSPDAT
                A
'R10'        T LONAM_SSPOP
'R6'         T LONAM_SUPPL
'SYSTATER'   T LONAM_SW_IP
'SSPEXWD'    T LONAM_TBLIDX
'R0'         T LONAM_TS_ADR
'SYSTATER'   T LONAM_TST
'SYSTATER'   T LONAM_TST_ON
                L
'AUMASCTLR'  T LONAM_UCL_UP
                D
'SYSTATER'   T LONAM_UCORDS
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PATCH HISTORY 22:40:42 2/05/81 ****

CBLM W77D

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     VALUE  T  NAME       DEF/REF    ATTRIBUTES AND REFERENCES

              R
'SYSTATER'    T LONAM_UCOROF
              L
'SYSTATER'    T LONAM_UCORON
              L
'SYSTATER'    T LONAM_UPD_DO
              N
'AUMASCTLR'   T LONAM_UPD_ER
              R
'AUMASCTLR'   T LONAM_UPD_IP
'AUMASCTLR'.  T LONAM_UPD_PT
              R
'MSFMTX'      T LONAM_WAITAC
              T
'MSFMTX'      T LONAM_WAITMS
              F
'CURFCN'      T LONAM_YRINC
'RO'          T LONAM_1STB
     .0116506 L LOOP16       173-32 173-46
      0112136 L LPINIT       169-15 169-20
      0112145 L LPTI         170-06 170-14
            0 U M
     TTYTBL   X M%AN          46-14  46-14
     TTYTBL   X M%AS         134-29 134-29
     TTYTBL   X M%CH         124-27 124-27,129-37
     TTYTBL   X M%ON          22-38  22-38
     CTVTAB   V M%OVST              LIBNUM=13     112-16
           14 P M%OVST%_%CSY
              SUB               LIBNUM=13
     CTVTAB   V M%SFABT             LIBNUM=13      30-17,105-23,116-09
           14 P M%SFABT%_%CB
              LM                LIBNUM=13
            5 R MAN_ONL        21-04 W=1  S=16  N=1  CL=1          4-29, 53-49
            0 R MANKEY                 W=1  S=4   N=0  CL=1  LIBNUM=6      45-48
            4 R MAS_OOS        20-33 W=1  S=12  N=0  CL=1          4-31, 21-20, 33-06, 60-03, 65-09,138-39
     MASACS   V MASCIOSC        9-09 175-36
     CTSD     V MASERCNT        8-38
      0000001 A MASERMAX       14-24
      0121334 A MASID          14-18   4-30, 67-18,142-30,142-35,144-03
     MASACS   V MASONFOP        9-10 135-46
     MASACS   V MASONOFF        9-11 127-19
     CTSD     V MASTATE         8-39  61-38, 67-13,135-33,142-40,144-04,176-18
            4 R MCH_OOS        20-36 W=1  S=14  N=0  CL=1          4-32, 21-20, 45-35, 46-03, 46-04, 59-10, 65-09,130-05,138-39
            7 R MCH_UPD        17-20 W=1  S=11  N=1  CL=1        120-03,124-15,128-20,129-38,129-39,130-12,130-14,133-39
      0116442 L MCH_UPD_       172-30 133-40
            3 R MCHB                 LIBNUM=6       45-47, 51-14, 52-09, 53-16,178-34,179-04
      0000231 A MCHBXF               LIBNUM=6       53-29,177-39,178-01,178-19,180-37,180-48,181-41
      0000231 A MCHBXT               LIBNUM=6      178-26,178-44
      0116220 L MCHCOMPL       124-25 123-40
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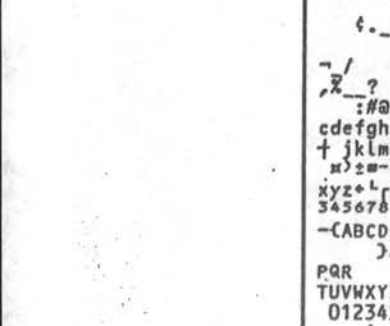
PATCH HISTORY 22:40:42 2/05/81 ****

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
CTSD	V	MCHFCN	8-40	
0116567	L	MCHINITDEC	175-07	175-01
0116563	L	MCHINITLOOP	175-02	175-08
0113074	L	MCHINITTBL	176-15	TBLSIZ=15 174-47,174-48,174-49,176-27,176-28
0	R	MCHTR		LIBNUM=6 177-35,177-40,177-46,178-02,178-07,178-14,178-20,178-27,178-40,178-45,180-33, 180-38,180-44,180-49,181-05,181-36,181-42
0116212	L	MCHUPDER	123-36	123-13
CINIT	V	MCHUPENT	7-29	175-28,176-26
CINIT	V	MCHUPLEN	7-30	175-28
TTYAPP	V	MFAD	9-17	111-49,112-20



	T	MICODETR		LIBNUM=6
'CURFCN+1'	T	MININC		W=1 S=5 N=1 CL=2 151-17,151-32,151-33
0004051	L	MINRTN	151-35	151-40
BLMMA	V	MINTBL	7-06	151-29,151-36
CTSD	V	MINUTES	8-41	151-37
0000232	A	MMS%F		LIBNUM=6 178-26
4	R	MMSR		LIBNUM=6 60-19,136-30,145-07,171-19,171-28
0116424	L	MMSRMG	171-31	171-23
0116420	L	MMSRS	171-25	61-19, 61-32,136-16
0116412	L	MMSRZ	171-16	61-35
'CURFCN+1'	T	MONINC		W=1 S=2 N=1 CL=2
0001035	L	MONRTN	27-16	4-33
0001023	L	MONSEQ	27-01	4-34
0001117	L	MONSEQ_	31-01	28-42
BLMMA	V	MONTBL	7-08	27-08, 27-29
6	R	MONTH	10-19	
CTSD	V	MONTHS	8-42	
0004164	L	MOVCLKLP	154-45	154-48

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PATCH HISTORY                                                                                    22:40:42    2/05/81  ****

     VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES                                          CBLM          W77D

   CSYSUB   V MOVST          7-49
'3E800105'  T MRNO
        16 R MS                      LIBNUM=6        55-01
   0000215 A MS%T                    LIBNUM=6        55-05
   0002504 L MSFABT        101-45     4-35
   0002546 L MSFANLZ       105-01     4-36, 94-07
   BLMMA   V MSFAPCTL        7-10    95-13
   0000000 A MSFAPCTLB      18-04 W=1  S=4  N=0  CL=3   94-45
   0002274 L MSFC           93-01     4-37
   0002412 L MSFCDONE       96-01    94-24, 95-38
   0003142 L MSFCHK        117-20     4-38
   0003147 L MSFCHKLP      117-26 117-33
   0001056 L MSFCRTN        28-19     4-39
   0002651 L MSFDATA       108-17     4-40, 94-44,106-04,106-37,107-22,114-30
   0002650 L MSFGO         107-44     4-41,107-40
   0002451 L MSFMG          99-15    99-07
   BLMMA   V MSFMSK          7-11    94-04
   CTSD    V MSFMTX          8-43    48-19, 57-38, 63-37, 94-03, 94-17, 98-04, 99-19,101-41,102-07,114-19,117-24,118-15,118-16,

         2 R MSFNUM          20-03 W=4  S=0  N=0  CL=1  108-21,109-41,109-42,114-06,115-18,117-35
   BLMMA   V MSFOFL          7-12    30-15, 58-06
   CTSD    V MSFPROG         8-44    95-25,123-30
   0002666 L MSFR%SCK      109-35     4-42, 96-11
   0003032 L MSFREQ        114-01     4-43
   0003045 L MSFREQMERGE   114-18 113-35,114-12
   0003031 L MSFREQN       113-44     4-44, 30-24
   0003025 L MSFREQR%S     113-31    93-30,110-45
   0002354 L MSFRTN         94-40    94-25, 94-27, 94-28, 94-29
   0002400 L MSFRTNC        95-31    94-26
   0002432 L MSFRTNCR       98-14 105-26
   0002323 L MSFRTNWT       94-08     4-45
   BLMMA   V MSFTBL          7-13 108-20
   0000321 A MSTOP                   LIBNUM=6      172-46
   0000004 A NA             15-07 W=20  S=0  N=4  CL=3          16-02,105-18,114-20
   0116541 L NEWSECT       174-22 174-13
   0004471 L NEXTLED       167-07 166-21
   0112640 A NO_UPD         21-20  60-37, 66-27,120-39,127-43
   0002725 L NOCRUNCH      110-36 110-12
         7 R NODSR          17-06 W=1  S=2  N=1  CL=1  122-36
   0003447 L NOERR         136-35 136-19,136-33
   0116456 L NOINT         172-43 172-38
   0000360 A NOP%F                   LIBNUM=6        55-05,176-25
   0116174 L NORUPD        121-35 121-33
   0116725 L NOTCMP        179-09 178-36,179-06
   0116077 L NOTIUPD        61-28  60-38
   0116222 L NOTMCH        124-28 124-24
   0002407 L NOT1ST         95-39  95-33
   0000013 A NOV            14-14 159-45
   0002766 L NPSPEC        111-28 111-22


COMMON BASE LEVEL MONITOR                                                                        PR-1C950-50

 22:40:42   2/05/81  TRADE SECRET - SEE TRADE SECRET RESTRICTIVE NOTICE ON COVER SHEET   CBLM      ISSUE  07      PAGE   211
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PATCH HISTORY

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CBLM W77D

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
7	R	NPUCOR	17-18	W=1 S=7 N=1 CL=1 4-46,122-36,137-43,137-49
0130200	A	NWRITE	10-30	177-45
0001026	L	NXTMON	27-05	27-30
0	U	O		
TTYTBL	V	O%FL	9-19	51-39
TTYTBL	X	O%MAS	124-12	123-38,124-12
TTYTBL	X	O%P	63-33	63-33,156-21
TTYTBL	X	O%TS	124-32	124-32
0002224	L	OASSP	80-35	74-25, 74-28, 74-31
15	R	OCCI		W=1 S=7 N=0 CL=1 LIBNUM=6 56-37
7	R	OFL_AU	17-15	W=1 S=6 N=1 CL=1 4-47,122-36,132-10,134-14,134-17,143-14
0000010	A	OFL_ERR	10-25	51-35, 52-11, 52-15
CINIT	V	OFL_HG	7-31	127-12,175-37
4	R	OFL_OOS	20-20	W=1 S=1 N=0 CL=1 4-48, 62-26, 64-33, 65-11, 65-27, 65-29
4	R	OFL_STBY	20-18	W=1 S=0 N=0 CL=1 4-49, 62-09, 65-28, 65-29
4	R	OFL_UAV	20-21	W=1 S=2 N=0 CL=1 5-01, 57-27, 58-23, 58-31, 58-37, 65-27,138-39
0001763	L	OFLSBUPD	67-11	66-45
CINIT	V	OMASTEST	7-32	121-39
0003176	L	OMASUPD	119-30	5-02
4	R	ONL_CC	20-32	W=1 S=11 N=0 CL=1 5-03, 57-23, 58-23, 68-33
0000012	A	ONL_MANKEY	14-38	53-48, 54-08
0000011	A	ONL_PWRKEY	14-40	53-21
0000007	A	ONL_TMRSW	14-36	54-01, 54-08
0004171	L	OPCLK	156-08	5-04
0001707	L	OPCU	63-17	5-05
0001714	L	OPCUBLK	63-29	63-19
CINIT	V	OPPOSTMO	7-33	45-05

T OPTR

PATCH HISTORY

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES
0003556	A	ORG_000000	129-37	162-30,172-06,181-21
0001315	A	ORG_000005	61-15	
0003432	A	ORG_000025	173-06	
0003257	A	ORG_000026	164-04	
0002651	A	ORG_000043	135-33	
0001407	A	ORG_000044	65-08	
0002654	A	ORG_000053	135-41	
0000625	A	ORG_000054	28-10	
0001431	A	ORG_000057	66-43	
0002317	A	ORG_000066	28-39	120-02
0003446	A	ORG_000077	174-19	
0002337	A	ORG_000101	120-37	
0002730	A	ORG_000102	138-39	
0002356	A	ORG_000110	121-31	
0003453	A	ORG_000112	174-41	
0002756	A	ORG_000113	36-02	143-12
0000662	A	ORG_000115	30-31	
0003403	A	ORG_000120	170-27	
0002406	A	ORG_000124	123-27	
0002423	A	ORG_000140	124-24	
0000715	A	ORG_000143	33-02	
0002436	A	ORG_000153	124-40	
0002463	A	ORG_000155	126-08	
0003475	A	ORG_000160	167-47	177-06
0002477	A	ORG_000163	127-02	
0002514	A	ORG_000170	127-42	
0000735	A	ORG_000174	35-38	
0002521	A	ORG_000202	128-15	
0002560	A	ORG_000223	131-40	
0002676	A	ORG_000230	137-11	
0001007	A	ORG_000244	38-03	
0000664	A	ORG_000250	30-41	
0003536	A	ORG_000266	180-24	
0003333	A	ORG_000301	168-09	
0003465	A	ORG_000312	176-14	
0003554	A	ORG_000316	181-11	
0003261	A	ORG_000323	164-14	
0001152	A	ORG_000356	51-32	
0001150	A	ORG_000465	51-20	
0003365	A	ORG_000500	169-08	
0001202	A	ORG_000513	53-35	
0001232	A	ORG_000570	57-45	
0001243	A	ORG_000602	58-20	
0001266	A	ORG_000624	59-14	
0001303	A	ORG_000643	60-22	
0001307	A	ORG_000647	60-34	
0001313	A	ORG_000654	61-02	
0001455	A	ORG_000661	68-30	
0001331	A	ORG_000663	62-11	

PATCH HISTORY

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CBLM W77D

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  VALUE  T  NAME          DEF/REF     ATTRIBUTES AND REFERENCES
 0002100 A ORG_000725     106-35
 0002103 A ORG_000733     106-41
 0001403 A ORG_000735      64-36  64-40
 0001427 A ORG_000760      66-33
 0001450 A ORG_001000      68-02
 0001735 A ORG_001420      96-15
 0001745 A ORG_001430      98-09
 0002074 A ORG_001572     105-30
 0002315 A ORG_002200     119-36
 0002335 A ORG_002206     120-25
 0002353 A ORG_002215     121-17
 0002366 A ORG_002225     122-13
 0002373 A ORG_002237     122-32
 0002402 A ORG_002246     123-06
 0002413 A ORG_002256     124-05
 0002475 A ORG_002305     126-36
 0002512 A ORG_002316     127-29
 0002534 A ORG_002332     129-18
 0002551 A ORG_002341     131-19
 0002574 A ORG_002364     133-36
 0002641 A ORG_002431     135-07
 0002647 A ORG_002436     135-21
 0002674 A ORG_002452     136-48
 0002726 A ORG_002511     138-27
 0001204 A ORG_002525      53-45
 0001270 A ORG_002544      59-26
 0002440 A ORG_002555     125-02
 0002753 A ORG_002704     142-45
 0002775 A ORG_002733     144-14
 0003003 A ORG_002743     144-34
       4 R OSA_FALT       20-24 W=1  S=4  N=0  CL=1    5-06, 29-10, 33-06, 39-27, 39-30, 65-09,138-39
       4 R OSA_PGM        20-26 W=1  S=5  N=0  CL=1    5-08, 21-20, 33-06, 37-25, 37-48, 45-18
       4 R OSA_TBLA       20-29 W=1  S=7  N=0  CL=1    5-07, 21-20, 45-18, 57-52, 58-09, 58-23, 65-09,138-39
CINIT    V OSANITY         7-34
CINIT    V OSANUCL         7-35 126-29
 0001343 L OSCHKS          45-27  44-43
       4 R OSM_OFL        20-31 W=1  S=10 N=0  CL=1         5-09, 21-20, 45-18, 45-49, 46-04, 46-10, 65-09,138-39
       7 R OTS_UPD        17-19 W=1  S=10 N=1  CL=1       119-25,122-36,124-29,128-20,134-43
 0003173 L OTSUPD        119-23   5-10
CTVTAB   V P%MRY                 LIBNUM=13      39-43, 62-34, 68-47,125-43,134-24,168-41
      14 P P%MRY%_%TTYA
           PP                    LIBNUM=13
BLMMA    V P_MSFRCR         9-27  98-15
BLMMA    V P_MSFRWT         9-28  98-13
 0000001 A PAGECNT
 0000062 A PAGL             2-12
       6 R PASSFLAG       19-38 W=1  S=0  N=0  CL=1  110-08,111-12,111-33
 0003270 L PATCH_LINKUP   125-38 125-21
       4 R PKEY           20-41 W=1  S=17 N=0  CL=1        5-11, 21-20, 46-02, 46-04, 65-09,130-09,138-39
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PATCH HISTORY 22:40:42 2/05/81 ****

CBLM W77D

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  VALUE  T  NAME          DEF/REF    ATTRIBUTES AND REFERENCES
      7  R  PKEYM          17-10  W=1  S=4  N=1  CL=1    5-12, 59-27,121-32,125-05
TTYAPP    V  PMRY           39-43   62-34, 68-47,125-43,134-24,168-41
TTYAPP    V  PMRYR         156-17  156-17
      6  R  PRINTFLG       19-41  W=1  S=2  N=0  CL=1   96-06
 0002775 L  PRINTMESSAGE  111-40  109-45
 0004543 L  PRTIT         168-36  168-28
 0002770 L  PRTMSG        111-32  111-11
 0116232 L  PRTUPD        124-38  124-35
 0003751 L  PSAUMERGE     145-06  143-30,145-01
BLMMA     V  PTRESET         7-14   35-05
 0116065 L  PUTIUPD        61-16   61-06
      5  R  PWR_ONL        21-05  W=1  S=17  N=1  CL=1          5-13, 53-45, 53-47
      0  R  PWRKEY                W=1  S=10  N=0  CL=1  LIBNUM=6      46-01, 53-33, 54-08
 0001226 L  QOFLCC         37-21    5-14
      0  U  R
TTYTBL    X  RXEPT         69-02   69-02
CTVTAB    V  RXESETPT              LIBNUM=13       27-07
     14  P  RXESETPTX_XC
            BLM              LIBNUM=13
TTYTBL    X  RXMV          39-47   39-47
      2  R  RXS_ACT        16-11  W=1  S=4  N=0  CL=1   93-14,102-16,109-41,109-42,114-10,115-15,115-27,115-30,117-38
      2  R  RXS_MSF        16-10  W=4  S=0  N=0  CL=1
      2  R  RXS_NP         16-18  W=1  S=10  N=0  CL=1        111-29,114-15
      2  R  RXS_REQ        16-16  W=1  S=7  N=0  CL=1    5-16,111-10,113-34,115-07,115-11
      2  R  RXS_RPT        16-12  W=1  S=5  N=0  CL=1   93-17,110-38,114-13,117-38
      2  R  RXS_1STP       16-19  W=1  S=11  N=0  CL=1        111-24,111-27,111-37
      2  R  RXSBPUSH       16-14  W=1  S=6  N=0  CL=1    5-15, 73-27, 93-13, 93-14
CTSD      V  RXSCTL          8-45   73-26, 93-12,100-09,102-08,109-38,110-33,111-09,111-36,115-05,117-34
      2  R  RXSCTLR        10-15   16-10, 16-11, 16-12, 16-14, 16-16, 16-18, 16-19
      6  R  RXSEXC         13-09  W=1  S=5  N=0  CL=1   73-23, 93-22,100-11,110-41,111-04,115-48
      6  R  RXSF           13-17  W=1  S=12  N=0  CL=1        93-23,100-11,110-15,111-16,112-22
      6  R  RXSP           13-18  W=1  S=13  N=0  CL=1        93-23,100-11,110-11,111-16,112-22
TTYTBL    X  RXST          62-38   62-38
     14  P  RA0                   LIBNUM=3        27-08, 27-10, 27-11, 27-17, 27-26, 32-36, 32-37, 32-45, 59-26, 59-27, 59-28,
                                   59-44, 60-25, 61-07, 61-43, 63-19, 73-26, 73-27, 76-45, 76-46, 76-47, 77-01, 77-02, 77-03,
                                   78-49, 78-51, 78-55, 96-08, 96-09,100-10,100-11,102-08,105-26,106-16,106-20,107-45,108-23,
                                  108-24,108-27,108-28,110-25,115-05,115-11,115-29,115-34,115-42,115-44,121-31,121-34,133-32,
                                  133-39,133-49,134-13,134-14,134-15,135-33,135-35,136-06,136-08,136-13,137-43,137-49,139-23,
                                  139-30,153-39,153-40,153-46,153-48,154-18,154-21,154-43,154-47,157-40,157-41,157-42,159-04,
                                  159-13,159-30,160-16,160-30,167-15,167-16,173-01,173-02,173-03,173-47,173-48,174-48,175-04
     16  P  RA1                   LIBNUM=3        27-10, 27-11, 27-12, 30-08, 30-12, 30-29, 32-32, 32-48, 35-43, 36-02, 44-18,
                                   44-22, 44-29, 44-41, 44-46, 51-34, 52-10, 52-11, 52-15, 53-45, 54-07, 56-25, 56-35, 57-38,
                                   57-39, 57-41, 60-01, 60-02, 61-29, 61-38, 61-41, 62-09, 62-22, 64-30, 64-31, 64-32, 65-29,
                                   67-13, 67-15, 67-22, 73-39, 75-07, 75-19, 78-50, 78-52, 78-56, 82-20, 82-21, 82-30, 82-31,
                                   93-12, 93-13, 94-03, 94-11, 94-12, 94-17, 94-18, 95-01, 95-21, 95-23, 95-35, 95-37, 95-40,
                                   95-42, 98-04, 98-06, 99-19, 99-22,102-07,102-29,102-44,102-46,102-47,102-49,105-08,105-11,
                                  105-14,105-17,105-18,105-19,105-24,105-25,105-34,105-35,105-36,105-37,106-09,106-14,106-18,
                                  107-14,107-20,107-37,107-41,108-20,108-23,108-24,108-25,108-26,109-38,109-39,109-40,110-20,
                                  110-37,110-41,111-04,111-09,111-17,111-21,111-27,111-36,111-37,111-45,114-19,114-20,114-21,
```

PATCH HISTORY 22:40:42 2/05/81 ****

VALUE	T	NAME	DEF/REF	ATTRIBUTES AND REFERENCES	CBLM W77D
				115-10,115-23,115-36,115-47,115-48,117-24,117-27,120-05,122-09,122-19,122-20,122-30,122-36, 125-05,125-11,125-13,127-02,128-07,128-20,130-13,130-14,130-16,132-08,132-09,132-10,136-09, 136-20,136-29,136-34,137-40,137-42,142-40,142-42,143-12,143-13,143-14,143-23,144-04,144-06, 144-17,144-18,144-37,144-38,149-10,149-11,150-13,151-21,151-36,152-02,153-25,153-26,153-27, 153-28,153-29,153-30,153-35,153-45,154-34,154-46,156-10,156-12,157-28,157-40,157-41,159-05, 159-14,161-29,161-39,164-01,164-15,164-32,165-19,165-21,166-03,166-37,166-41,167-10,167-22, 167-26,167-39,167-45,169-13,169-16,173-02,173-03,173-23,173-34,173-41,173-43,174-10,174-14, 174-47,175-03,178-12,178-13,181-21,181-22
0001006	L	RCYLINIT	21-32	W=1 S=10 N=0 CL=4 154-03,159-15
0001006	L	RCYLMAX	21-31	W=10 S=0 N=0 CL=4 154-07,159-17
0002117	L	RDKEYSLP	75-08	75-21
0002110	L	RDSSPKEYS	75-01	73-10, 76-49
CSYSUB	V	REPT_ERR	8-01	51-41,149-49
0002000	L	REPTCUSTAT	68-20	46-16, 58-43
0003030	L	REQ_UPD	113-39	5-17, 61-27,130-18
0003137	L	REQACCEPTED	116-06	115-12
0116334	L	REQNG	130-25	129-47,129-49,130-06,130-10
0116317	L	REQOK	130-11	130-24
0000001	A	REQUEST2B	15-57	
0001150	L	RESETPT	35-01	5-18,175-29
CSYSUB	V	RGCHKADR	8-02	
6	R	RLDPROG	13-10	W=1 S=6 N=0 CL=1
'ABORT BITS FOR MSFS'	T	RMK_AB		
'REQUEST BIT S FOR ABORTI NG MSFS'	T	RMK_ABB		
' ABRQB=0 AB ORT AN IP MS F (ABTB=1)'	T	RMK_ABRQB		
' ABTB=1 EXE CUTE ABORT'	T	RMK_ABTB		
' ALTERNATE POWER BUS OF SSP IN USE'	T	RMK_ALTBUS		
' MAS AUDIT IS IN PROGRE SS'	T	RMK_AU_IP		
' BIT POSITI ON IN BUFFER BEING TESTE D'	T	RMK_BITP		
' MANUAL CLE AR & INIT TT YS REQUEST'	T	RMK_CLRTTY		
' UPDATE OFF -LINE WITH T HE COMPLMENT OF THE ON-L				

```
INE'          T RMK_COMP_UPD
' A CORRECTA
BLE ERROR (V
IA COMPLEMEN
T CORRECTION
) EXISTS IN
THE OFF-LINE
 MAS.'        T RMK_COROFL
' A CORRECTA
BLE ERROR (V
IA COMPLEMEN
T CORRECTION
) EXISTS IN
THE ON-LINE
MAS.'         T RMK_CORONL
'CURRENTLY E
XECUTING MSF'T RMK_CURMSF
''            T RMK_DAYINC
' DELAY COUN
T'            T RMK_DCNT
' FAST UPD M
ODE USED BY
DIAGNOSTIC P
ROGRAMS AFTE
R A POWER DO
WN HAS WIPED
 OUT THE OMA
S CONTENT'    T RMK_DGNUPD
' DISABLE RE
MOTE PANEL'   T RMK_DISAREM
' MANUAL EME
RGENCY ACTIO
N ENABLE REQ
UEST'         T RMK_EAEN
' MANUAL EME
RGENCY ACTIO
N EXECUTE RE
QUEST'        T RMK_EAEXC
' EMERGENCY
ACTION FLAG' T RMK_EM_ACT
' END OF STO
RE--COMPLETI
ON OF ONE AU
DIT OR UPDAT
E'            T RMK_EOST
' 1ST EXECUT
ION OF A MSF'T RMK_EXC1ST
' EXCERCISE
IN PROGRESS
```

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

BIT'         T RMK_EXIP
' MANUAL OR
PROGRAM FORC
E REQUEST'   T RMK_FORCE
'MASK FOR MS
FS FORCED NO
T ALLOWABLE
BY TTY'      T RMK_FORCNA
''           T RMK_HRINC
' INITIALIZA
TION IN PROG
RESS'        T RMK_INITQ_IP
'IN PROGRESS
 BITS FOR MS
FS'          T RMK_IP
' SINGLE TES
T LED ON/OFF
 BIT'        T RMK_LEDON
' MANUAL LOC
K REQUEST'   T RMK_LOCKM
' PROGRAM LO
CK ENABLE'   T RMK_LOCKP
' ONLINE MAN
UAL KEY (ONL
_MANKEY)'    T RMK_MAN_ONL
' MAIN STORE
 OUT-OF-SERV
ICE'         T RMK_MAS_OOS
' MAINTENANC
E CHANNEL OU
T-OF-SERVICE'T RMK_MCH_OOS
' UPDATE VIA
 THE MAINTEN
ANCE CHANNEL'T RMK_MCH_UPD
''           T RMK_MININC
''           T RMK_MONINC
' CALL SUBRO
UTINE MSFAPC
TL AT MSF CO
MPLETION'    T RMK_MSFAPCTL
               B
' STANDARD F
OR PASSING M
SF NUMBER'   T RMK_MSFNUM
'MASK FOR MS
FS NOT ALLOW
ED BY SYSTEM
 STATE'      T RMK_NA
' DO NOT PLA
```

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

CE SYSTEM IN
TO DSR MODE' T RMK_NODSR
' THE ATTEMP
TED CORRECTI
ON OF AN UNC
ORRECTABLE L
OCATION WILL
 NOT GENERAT
E A RCOVRY M
AS ERR MESSA
GE'          T RMK_NPUCOR
' A TTY REQU
EST FOR AN A
UDIT OF THE
OMAS IS BEIN
G PROCESSED' T RMK_OFL_AU
' OFF-LINE O
UT OF SERVIC
E'           T RMK_OFL_OOS
' OFF-LINE S
TANDBY'      T RMK_OFL_STBY
' OFF-LINE U
NAVAILABLE'  T RMK_OFL_UAV
' ON-LINE CC
 (=0 IMPLIES
 CC0 IS ON-L
INE)'        T RMK_ONL_CC
' OUT-OF-SER
VICE/AUTOMAT
IC/FAULT'    T RMK_OSA_FALT
' OUT-OF-SER
VICE/AUTOMAT
IC/PROGRAM'  T RMK_OSA_PGM
' OUT-OF-SER
VICE/AUTOMAT
IC/TROUBLE A
NALYSIS'     T RMK_OSA_TBLA
' OFFLINE IN
 MANUAL (OOS
/MAN/OFL)'   T RMK_OSM_OFL
' UPDATE THE
 OTHER TEMPO
RARY STORE O
NLY'         T RMK_OTS_UPD
' PASSFLAG=0
 MSF HAS FAI
LED, PASSFLA
G=1 MSF HAS
PASSED'      T RMK_PASSFLAG
```

PATCH HISTORY 22:40:42 2/05/81 ****

CBLM W77D

```
      VALUE  T  NAME       DEF/REF    ATTRIBUTES AND REFERENCES
' OFFLINE PO
WER KEY'      T RMK_PKEY
' POWER KEY
MEMORY.  SET
 BY POWER KE
Y AUDIT AND
RESET AFTER
USE BY THE C
ONCERNED PRO
GRAM'         T RMK_PKEYM
' MSF HAS SE
T UP MESSAGE
 TO BE PRINT
ED'           T RMK_PRINTFLG
' ONLINE POW
ER KEY (ONL_
PWRKEY)'      T RMK_PWR_ONL
' STEP OR RE
PEAT IS ACTI
VE'           T RMK_RXS_ACT
' MSF CURREN
TLY UNDER RE
PEAT AND STE
P'            T RMK_RXS_MSF
' DO NOT PRI
NT MSF RESUL
TS, LIGHT PA
SS/FAIL LAMP
S ONLY.'      T RMK_RXS_NP
' REQUEST FR
OM REPEAT AN
D STEP CONTR
OLLER'        T RMK_RXS_REQ
' REPEAT IS
THE MODE, TH
E ALTERNATIV
E IS STEP'    T RMK_RXS_RPT
' SET WHEN 1
ST PASS MESS
AGE PRINTED'  T RMK_RXS_1STP
' SET BY SSP
C WHEN RXSEX
C BUTTON IS
FIRST DETECT
ED IN THE PU
SHED STATE.'  T RMK_RXSBPUSH
' MANUAL REP
EAT & STEP E
XECUTE REQUE
```

PATCH HISTORY 22:40:42 2/05/81 ****

VALUE T NAME DEF/REF ATTRIBUTES AND REFERENCES CBLM W77D

```
ST'          T RMK_R%SEXC
' REPEAT & S
TEP FAIL DRI
VER & LAMP'  T RMK_R%SF
' REPEAT & S
TEP PASS DRI
VER & LAMP'  T RMK_R%SP
' YEARS WILL
 RECYCLE FRO
M 99 TO 0 IN
 2000'       T RMK_RCYLINIT
' ONLY TWO D
IGITS OF YEA
R KEPT'      T RMK_RCYLMAX
' MANUAL REL
OAD PROGRAM
EA REQUEST'  T RMK_RLDPROG
'REQUEST BUF
FER BITS FOR
 MSFS'       T RMK_RQB
' CU RESTORA
L IN PROGRES
S, IF DGN CU
 ATP ZERO OS
A_FALT'      T RMK_RST_IP
' SELECT CU0
 FOR FORCE O
R LOCK'      T RMK_SELCU0
' SELECT CU1
 FOR FORCE O
R LOCK'      T RMK_SELCU1
' SYSTEM STA
TUS AND CONT
ROL PANEL OU
T-OF-SERVICE'T RMK_SSP_OOS
'3X6 BUFFER
ADDRESS'     T RMK_SSPADR
'DATA FOR WR
ITE OPERATIO
N'           T RMK_SSPDATA
'OP CODE'    T RMK_SSPOP
' FLAG--SUPP
LEMENT EXIST
S FOR THIS M
ESSAGE'      T RMK_SUPPL
' HIGH PRIOR
ITY SWITCH I
N PROGRESS,
SWITCH WHEN
```

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

UPDATE COMPL
ETES'         T RMK_SW_IP
' TABLE INDE
X'            T RMK_TBLIDX
' 0--PROTECT
ED STORE ADD
RESS'         T RMK_TS_ADR
' OFFLINE TE
ST MODE SWIT
CH (TMRSW)'   T RMK_TST
' ONLINE TES
T MODE SWITC
H (ONL_TMRSW
)'            T RMK_TST_ONL
' DO AN UNCO
NDITIONAL UP
DATE'         T RMK_UCL_UPD
' AN UNCORRE
CTABLE ERROR
 (VIA DOUBLE
 STORE READ)
 EXISTS IN T
HE SYSTEM.'   T RMK_UCORDSR
' AN UNCORRE
CTABLE ERROR
 (VIA COMPLE
MENT CORRECT
ION) EXISTS
IN THE OFF-L
INE MAS.'     T RMK_UCOROFL
' AN UNCORRE
CTABLE ERROR
 (VIA COMPLE
MENT CORRECT
ION) EXISTS
IN THE ON-LI
NE MAS.'      T RMK_UCORONL
' AT LEAST 1
 UPDATE HAS
BEEN COMPLET
ED SINCE BEI
NG OUT OF UP
DATE'         T RMK_UPD_DON
' SOME WORDS
 WERE SKIPPE
D BY THE UPD
ATE'          T RMK_UPD_ERR
' UPDATE FUN
CTION IS IN
```

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

PROGRESS',    T RMK_UPD_IP
' POINTER TO
 CURRENT 16-
WORD BLOCK'   T RMK_UPD_PTR
'AN MSF IS W
AITING VIA T
HE WAIT SUBR'T RMK_WAITACT
'NUMBER OF L
AST MSF TO C
ALL WAIT SUB
R'            T RMK_WAITMSF
''            T RMK_YRINC
' 1STB=0 THI
S IS PER SCA
N ENTRY'      T RMK_1STB
     0001637 L RMV           60-08  60-04
     0001251 L RMV_CC        39-23   5-20, 32-25
     0001247 L RMV_MAS       39-18   5-21, 60-10
     0001252 L RMV_MG        39-26  39-21
     0002250 L RMV_SSP       82-17   5-22, 83-13,166-13
     0001067 L RMVCU         29-08   5-19
     0000000 A RQB           15-03 W=20  S=0  N=0  CL=3        15-57, 95-35,102-12,102-47,105-08,105-34,114-38
           4 R RST_IP        20-38 W=1   S=15 N=0  CL=1         5-25, 30-12, 30-29, 32-32, 32-34, 62-14, 62-15, 62-22
     0002255 L RST_SSP       82-27   5-26, 83-04,165-23,168-10
     0001074 L RSTCU         30-06   5-23
     0001123 L RSTCUF        32-22
     0001126 L RSTCUP        32-29  30-14, 32-21
     0001122 L RSTCUPF       32-20   5-24
     0001661 L RSTPRTCHK     62-08  61-21, 61-37
     0000243 A RTNMB                LIBNUM=6       45-40
     0000261 A RTNMCHB              LIBNUM=6      178-31,179-01
     0000223 A RTNSS                LIBNUM=6       51-02, 52-05
     0002634 L RTNZRO        106-22 105-47
     0111760 L RUNCOMPL      164-19 164-14
     0000060 A RWMSK          10-28 178-35
           0 R RO                   LIBNUM=3       18-29, 19-17, 19-19, 19-21, 27-19, 27-28, 27-29, 29-10, 30-08, 30-15, 32-36,
                                    32-45, 32-46, 33-06, 35-13, 35-15, 36-14, 36-24, 37-25, 37-48, 39-27, 39-30, 45-12, 45-33,
                                    45-35, 45-36, 45-40, 46-04, 46-07, 46-14, 48-32, 50-21, 50-22, 50-25, 50-26, 50-27, 51-02,
                                    51-34, 51-35, 51-43, 51-49, 52-05, 52-10, 53-07, 53-22, 53-33, 53-45, 53-47, 53-49, 54-02,
                                    54-05, 54-07, 54-21, 55-06, 56-32, 56-33, 56-35, 56-36, 56-43, 57-31, 57-32, 57-39, 57-40,
                                    57-41, 57-42, 58-23, 58-31, 58-36, 58-40, 59-26, 59-28, 59-29, 59-44, 60-01, 60-03, 60-25,
                                    61-17, 61-30, 61-33, 61-38, 61-39, 62-14, 62-15, 63-19, 64-25, 64-34, 65-09, 65-35, 66-25,
                                    66-27, 66-43, 66-44, 67-13, 67-18, 67-23, 68-30, 68-31, 68-32, 68-33, 72-51, 73-26, 74-42,
                                    77-10, 78-51, 78-52, 81-04, 81-05, 82-20, 82-30, 94-03, 94-04, 94-09, 94-10, 94-22, 94-23,
                                    94-48, 94-49, 95-05, 95-20, 95-22, 95-24, 95-25, 95-34, 95-36, 95-40, 95-41, 98-04, 98-05,
                                    98-06, 98-07, 99-02, 99-10, 99-18, 99-19, 99-20, 99-21, 99-23, 99-24,100-10,101-42,101-43,
                                   102-10,102-13,102-14,102-23,102-28,102-44,102-45,102-47,102-48,105-06,105-10,105-13,105-16,
                                   105-18,105-20,105-26,106-12,106-15,106-19,107-36,108-20,108-25,109-40,110-17,110-20,110-25,
                                   110-29,110-37,111-45,111-47,112-10,112-14,112-18,113-45,114-08,114-11,114-14,114-20,114-22,
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PATCH HISTORY 22:40:42 2/05/81 ****

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  VALUE  T  NAME       DEF/REF    ATTRIBUTES AND REFERENCES                                                CBLM          W77D

                                  114-23,114-34,114-35,114-38,114-39,115-05,115-09,115-15,115-18,115-22,115-24,115-30,115-33,
                                  115-35,115-41,115-42,115-44,115-47,116-07,117-23,117-31,117-38,118-15,118-17,121-31,121-32,
                                  121-36,122-19,123-09,123-10,123-29,123-30,124-10,124-15,124-29,124-34,125-02,125-06,126-09,
                                  126-25,127-02,127-03,127-32,127-33,127-42,127-43,128-07,130-04,130-05,130-08,130-09,130-13,
                                  131-28,131-42,131-43,134-17,134-40,135-33,135-37,135-38,135-39,136-03,136-04,136-08,136-09,
                                  136-14,137-12,137-17,137-39,137-40,137-41,138-02,138-25,138-39,138-44,139-23,139-24,139-27,
                                  139-30,142-30,142-34,143-12,143-46,144-03,144-04,144-17,144-30,144-31,144-37,149-23,149-24,
                                  149-38,149-39,149-40,150-26,150-27,151-21,151-22,151-32,151-33,151-36,151-37,151-47,151-48,
                                  152-02,152-03,153-35,153-37,153-39,153-40,153-45,154-01,154-08,154-18,154-21,154-23,154-43,
                                  154-46,154-47,156-10,156-11,156-12,157-32,159-05,159-21,159-22,159-24,159-26,159-28,159-30,
                                  159-31,159-34,159-47,159-49,160-12,160-13,160-22,160-23,161-24,161-27,161-28,161-34,161-35,
                                  164-01,165-19,165-20,165-21,166-03,166-04,166-09,166-37,166-38,166-41,167-10,167-11,167-14,
                                  167-19,167-20,167-21,167-22,167-23,167-24,167-25,167-26,167-27,167-29,167-38,167-39,167-40,
                                  167-44,167-45,169-13,171-21,171-22,171-30,172-46,173-01,173-23,174-47,174-48,175-03,175-04,
                                  177-33,177-34,178-31,179-01
      1  R  R1                   LIBNUM=3       27-08, 30-42, 30-43, 32-47, 32-48, 35-05, 35-41, 35-43, 35-44, 36-02, 44-08,
                                   44-09, 44-41, 44-42, 44-46, 44-48, 45-01, 45-49, 46-02, 46-03, 46-08, 58-18, 58-31, 58-32,
                                   58-37, 60-02, 60-05, 61-36, 64-21, 64-25, 64-31, 64-32, 64-33, 64-43, 65-09, 65-11, 65-27,
                                   65-28, 65-29, 66-26, 66-27, 67-22, 67-23, 74-43, 77-11, 78-46, 94-16, 94-17, 95-01, 95-02,
                                   95-11, 99-06, 99-14, 99-22, 99-23,100-08,100-09,100-11,101-41,101-43,102-07,102-26,102-27,
                                  102-28,102-29,105-07,105-08,105-11,105-14,105-17,105-19,105-20,106-05,106-10,106-11,106-12,
                                  106-14,106-18,106-38,107-37,107-38,107-41,107-42,108-26,110-20,110-21,110-25,110-26,111-09,
                                  111-36,114-19,114-21,114-22,114-33,114-35,114-40,115-33,115-34,117-24,117-27,117-28,117-34,
                                  117-35,117-38,118-16,118-17,120-02,120-03,120-37,122-29,122-30,125-11,125-12,125-13,126-10,
                                  128-19,128-20,130-15,130-16,132-07,132-08,134-12,134-13,134-14,142-29,142-35,142-40,150-22,
                                  150-23,150-27,151-17,151-18,151-19,151-29,151-30,151-44,151-45,153-46,153-48,154-03,154-07,
                                  154-08,154-14,154-19,154-21,154-25,154-30,154-34,154-44,154-46,154-47,154-48,156-18,157-28,
                                  157-29,157-31,157-32,159-04,159-37,159-40,159-42,159-45,159-46,159-47,160-32,161-27,161-37,
                                  161-39,166-33,170-14,171-20,171-29,173-13,173-18
0000125  A  R1%F               LIBNUM=6       35-31
0000125  A  R1%T               LIBNUM=6       94-15
     12  R  R10                LIBNUM=3       13-44, 13-49, 13-50, 36-38, 72-48, 74-12, 74-16, 74-26, 74-29, 75-06, 75-13,
                                   75-20, 78-56, 79-01, 79-03, 79-09, 80-36, 81-04, 81-06, 81-08, 81-09, 93-23, 94-11, 96-08,
                                  112-22,129-26,129-28,154-16,154-23,166-15,166-42,167-15,167-16,167-17,167-18,167-21,169-16,
                                  169-17,169-18,170-07,170-10
     13  R  R11                LIBNUM=3       75-12, 75-18, 81-02, 81-05, 81-07, 81-08, 94-12, 96-09,129-37,153-26,166-45
     14  R  R12                LIBNUM=3       94-45,153-27
     15  R  R13                LIBNUM=3      153-25
     16  R  R14                LIBNUM=3       45-08,133-32,134-04,134-05,139-24
     17  R  R15                LIBNUM=3       45-10, 45-24,134-05
      2  R  R2                 LIBNUM=3       10-15, 20-03, 27-03, 27-04, 27-09, 27-10, 27-17, 27-19, 27-25, 27-26, 27-28,
                                   30-22, 44-18, 44-22, 44-25, 44-27, 44-29, 44-39, 45-18, 45-33, 48-19, 48-20, 50-23, 51-37,
                                   57-38, 57-40, 57-42, 58-06, 64-30, 65-35, 72-47, 72-48, 75-04, 75-19, 75-21, 78-49, 78-50,
                                   78-51, 78-52, 80-36, 80-40, 81-06, 81-07, 93-12, 93-14, 93-17, 93-20, 93-21, 93-22, 93-26,
                                   94-18, 94-21, 95-02, 95-11, 95-32, 99-18, 99-21, 99-24,102-08,102-18,102-23,102-27,102-30,
                                  105-06,105-10,105-13,105-16,105-24,105-27,105-46,105-48,106-08,106-09,106-11,106-35,107-17,
                                  107-18,107-19,107-20,107-38,107-42,108-21,108-22,108-23,110-49,111-08,111-16,113-40,114-06,
                                  114-10,114-13,114-15,114-23,115-04,115-18,115-24,115-29,117-28,117-35,119-25,119-32,122-36,
                                  123-01,123-28,127-12,129-25,129-27,129-29,129-38,129-39,129-40,130-12,130-14,134-45,135-10,
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PATCH HISTORY

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 VALUE  T  NAME          DEF/REF    ATTRIBUTES AND REFERENCES                                                    CBLM          M77D

                                    137-12,137-17,139-25,139-27,153-33,153-35,153-40,153-45,153-48,154-10,157-26,157-27,157-28,
                                    157-35,157-36,157-40,159-08,159-13,159-14,159-19,160-15,160-16,160-17,160-30,161-29,161-35,
                                    163-34,163-35,167-14,167-16,172-34,172-35,172-37,173-04,173-23,173-45,174-31,174-34,174-35,
                                    177-32,178-12,178-18,180-22,181-21,181-40
       3  R  R3                    LIBNUM=3       35-13, 35-15, 35-25, 35-36, 35-41, 35-42, 35-44, 45-43, 45-48, 46-01, 46-21,
                                     48-28, 48-33, 49-26, 49-36, 50-02, 50-24, 50-26, 51-18, 51-38, 52-13, 53-21, 53-33, 53-46,
                                     53-48, 54-01, 54-04, 54-08, 55-02, 56-24, 57-26, 74-10, 74-16, 74-29, 76-21, 76-27, 76-47,
                                     77-01, 77-10, 78-46, 78-55, 78-56, 79-13, 94-19, 95-21, 95-23, 95-35, 95-37, 95-42,102-12,
                                    102-14,102-30,102-39,105-34,105-43,105-44,105-46,109-38,109-42,110-38,111-10,111-24,111-29,
                                    114-37,114-39,114-40,117-25,117-31,117-33,136-30,136-31,136-32,137-14,145-08,145-09,159-14,
                                    159-15,159-17,159-36,159-48,160-03,160-04,160-13,161-28,161-32,161-34,171-20,171-22,171-29,
                                    171-30,172-35,172-36,173-02,174-23,174-30,174-33,174-34,177-34,177-39,177-45,178-01,178-06,
                                    178-13,178-19,178-26,178-35,178-39,178-44,179-05,180-27,180-37,180-43,180-48,181-04,181-22,
                                    181-23,181-41
 0000131  A  R3%F                  LIBNUM=6       48-31,145-13,171-33
       4  R  R4                    LIBNUM=3       46-07, 46-08, 58-18, 58-32, 59-10, 60-20, 60-26, 60-37, 62-15, 74-03, 74-07,
                                     74-26, 76-38, 76-39, 76-45, 77-02, 94-20, 94-21, 95-20, 95-22, 95-34, 95-36, 95-41,102-10,
                                    102-18,102-39,102-45,102-46,102-48,102-49,105-35,105-40,106-27,106-35,107-14,107-15,107-16,
                                    107-18,109-39,110-30,111-14,111-17,111-18,114-33,114-34,116-07,120-05,120-39,159-10,159-16,
                                    160-16,177-33,179-05
       5  R  R5                    LIBNUM=3       10-18, 60-26, 60-40, 76-46, 77-03,105-36,105-43,105-48,106-01,106-38,107-02,
                                    110-18,110-21,110-26,110-33,111-14,111-18,111-21,115-02,115-36,123-38,124-12,124-32,136-03,
                                    136-10,136-18,159-13,160-12,160-21,160-23,160-26,160-27,160-30,173-31,173-46,174-49,175-08
       6  R  R6                    LIBNUM=3       10-19, 10-22, 19-38, 19-40, 19-41, 39-33, 39-37, 51-39, 62-24, 62-28, 73-18,
                                     73-19, 73-23, 76-47, 77-06, 94-09, 99-02, 99-10,105-37,105-38,106-02,107-11,110-08,111-12,
                                    111-33,111-41,115-03,115-04,115-09,115-10,115-22,115-23,115-35,123-39,124-14,149-47,156-12,
                                    159-02,160-15,160-32,164-02,164-15,173-47,173-49,174-02,174-05,174-11
       7  R  R7                    LIBNUM=3       10-08, 30-09, 39-20, 39-25, 48-33, 50-23, 51-37, 55-02, 55-07, 56-24, 56-27,
                                     56-32, 56-37, 68-41, 68-42, 73-18, 73-22, 75-07, 75-26, 77-01, 77-06, 79-01, 79-04, 93-20,
                                     93-26, 94-10, 94-34, 94-48,106-01,106-02,106-05,107-02,107-11,107-13,107-16,107-17,110-07,
                                    110-11,110-15,111-08,112-10,112-18,124-16,124-27,124-37,135-38,153-28,173-48,174-03,174-14,
                                    186-07
 0000145  A  R7%F                  LIBNUM=6       56-31
 0000145  A  R7%T                  LIBNUM=6       48-25
      10  R  R8                    LIBNUM=3       10-09, 50-24, 51-38, 56-25, 56-27, 56-33, 68-30, 73-19, 73-21, 73-22, 74-13,
                                     75-12, 75-14, 75-18, 75-19, 75-26, 78-55, 79-02, 79-03, 79-04, 79-05, 79-09, 80-37,153-29,
                                    173-49,174-01,174-03,174-10,174-11
      11  R  R9                    LIBNUM=3       10-12, 36-37, 75-05, 78-53, 80-45, 81-09,131-24,135-37,136-04,153-30,166-14,
                                    166-34
       0  U  S
TTYTBL    X  S%AT          22-48   22-48
CTVTAB    V  S%ENDIO               LIBNUM=13      75-10, 75-16, 79-07, 79-11, 80-49, 81-11
      14  P  S%ENDIO%_%CS
             YSUB                  LIBNUM=13
CTVTAB    V  S%MCH                 LIBNUM=13      36-16, 45-42, 51-04, 51-45, 52-02,172-48,178-33,179-03
      14  P  S%MCH%_%CSYS
             UB                    LIBNUM=13
TTYTBL    X  S%SP        168-46    168-46
TTYTBL    X  S%TAT        69-03    69-03
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  VALUE  T  NAME          DEF/REF    ATTRIBUTES AND REFERENCES

TTYTBL   X S%TOPPED       62-24  62-24,123-39
CTYTAB'  V S%TPUTIL               LIBNUM=13      165-18,168-14
      14 P S%TPUTIL%_%C
           UTIL                   LIBNUM=13
TTYTBL   X S%UN           22-36  22-36
CINIT    V SANITY          7-36  50-10, 51-47
 0000303 A SARD%T                 LIBNUM=6       178-19,181-41
CSYSUB   V SBUMCH          8-03  36-26
 0004221 L SCTIMTBL      157-34  151-24,151-39,152-05
 0004206 L SCTIMTBLLP    157-25  157-36
 0000056 A SDR%T                  LIBNUM=6       177-39,180-37
 0000305 A SDRC%F                 LIBNUM=6       178-44
CTSD     V SECONDS         8-46  151-22
 0004032 L SECRTN        151-20  151-25
BLMMA    V SECTBL          7-15  151-18,151-21
       6 R SELCU0         13-06  W=1  S=2  N=0  CL=1   13-35, 74-03
       6 R SELCU1         13-07  W=1  S=3  N=0  CL=1   13-35, 74-07
CSYSUB   V SENDIO          8-04
 0004540 L SENDIT        168-31  167-31
 0000011 A SEPT           14-13  159-45
 0003617 A SERNO_047096  187-12
 0003653 A SERNO_050646  190-02
 0003663 A SERNO_050793  190-25
 0003657 A SERNO_051229  190-13
 0003647 A SERNO_057169  189-28
 0003643 A SERNO_058435  189-14
 0003637 A SERNO_059278  189-02
 0003623 A SERNO_060048  187-25
 0003627 A SERNO_060333  188-02
 0003633 A SERNO_060344  188-21
 0003613 A SERNO_061869  187-02
 0003603 A SERNO_063423  186-19
 0003607 A SERNO_063503  186-30
 0003577 A SERNO_063865  186-02
 0004101 L SETCLK        153-21   5-27
 0004152 L SETCLKERR     154-26  154-04,154-09
 0004110 L SETCLKLP      153-34  154-10
 0003067 L SETRQ         115-01  114-41
CSYSUB   V SIO             8-05  36-40,166-17,166-44,168-33,170-09,170-12
 0026466 A SIS1XDB%               LIBNUM=6        53-25
 0026471 A SIS2XDB%               LIBNUM=6        53-19
 0004022 L SKPAUD        150-32  150-14,150-24
 0001547 L SKPOCCI        56-46   56-39
CSYSUB   V SLDMCHB       177-37  177-38,177-48,177-49,178-16,178-17,180-35,180-36,180-46,180-47,181-38,181-39
CSYSUB   V SLDMIRL       177-42  177-43,178-04,178-05,178-09,178-10,178-22,178-23,178-29,178-30,178-42,178-43,178-47,178-48,
                                 180-40,180-41,181-02,181-03,181-07,181-08,181-44,181-45
CSYSUB   V SMCH           36-15   45-41, 51-03, 51-44, 52-01, 52-08,172-47,179-02
'CXOMPL'     T SPWORD
      17 R SS                    LIBNUM=6        49-05, 49-07, 49-15, 49-25, 57-25,137-13
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 VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES

     17 R SS_R                  LIBNUM=6       45-24, 50-22,131-43
0000216 A SS_RXT                LIBNUM=6       45-12
      4 R SSP_OOS        20-35 W=1  S=13  N=0  CL=1          5-47, 36-33, 36-35, 72-34, 72-36, 82-21, 82-31,166-26,166-28
0000132 A SSPAB0          11-07   5-28
0000162 A SSPAB1          11-08   5-29
     12 R SSPADR          13-49 W=6  S=2  N=0  CL=1
0002015 L SSPC            72-31  28-05
0000036 A SSPCB0          11-05   5-30, 13-35, 74-03, 74-07,166-15,166-42
7770436 A SSPCB0I         13-35   5-31
0000072 A SSPCB1          11-06   5-32, 13-36, 72-47, 74-10, 74-12, 93-23,112-22
7736072 A SSPCB1I         13-36   5-33
      6 R SSPCKEYS        10-05  13-04, 13-05, 13-06, 13-07, 13-08, 13-09, 13-10, 13-14, 13-15, 13-17, 13-18, 13-19, 13-20,
                                 13-21, 13-22
0001054 L SSPCRTN         28-06  72-37, 74-46
     12 R SSPDATA         13-50 W=10  S=10  N=0  CL=1         74-03, 74-07
0000225 A SSPDBH          11-17   5-34
0000151 A SSPDBL          11-15   5-35
0000215 A SSPDBM          11-16   5-36
0004417 L SSPEX           166-01   5-37
0004355 L SSPEXTBL        162-28 167-15,169-13
CTSD    V SSPEXWRD        162-04 164-01,165-19,166-03
CDGNOF  V SSPINIT         162-02
0112132 L SSPINT          169-10 167-09
0016160 A SSPIOADR         11-02   5-38, 36-37, 75-05, 78-53, 80-45,166-14,166-34
0002247 L SSPIOERR         81-12  81-01
0002223 L SSPLMPERR        79-14  79-08, 79-12
0002203 L SSPLMPLP         78-54  79-13
CTSD    V SSPMAP            8-47  75-07, 76-45, 78-50,100-10,110-37,115-47
0001000 L SSPMAPADRS       11-19  78-49
     12 R SSPOP            13-44 W=2  S=0  N=0  CL=1   81-09
0000002 A SSPRD            11-03  11-05, 11-06, 11-07, 11-08, 11-09, 11-10, 11-11, 11-12, 11-13, 11-14, 75-06, 75-20
0002271 L SSPRMV           83-10   5-39
0002266 L SSPRST           83-01   5-40
0000056 A SSPSB0           11-10   5-41
0000066 A SSPSB1           11-11   5-42
0000116 A SSPSB2           11-12   5-43
0000126 A SSPSB3           11-13   5-44
0000146 A SSPSB4           11-14   5-45
0004450 L SSPSERV         166-32 166-29
0000312 A SSPTIMER         11-09   5-46, 36-38
0000001 A SSPWRI           11-04  11-15, 11-16, 11-17, 11-54, 11-55, 11-56, 12-01, 12-02, 12-03, 80-45
0001273 L STATD            44-01  28-01
0001052 L STATDRTN         28-02  62-43
0001420 L STOP%SWITCH      49-09  49-16, 49-27, 49-37
0004407 L STOPEX          165-16   5-48
0003674 L STOPPSAU        142-33   5-49,172-42
0003677 L STOPPSAUMG      142-37 142-31
0003324 L STOPUPD         128-06 122-17,127-34,127-44
0154312 A STPASW%               LIBNUM=6       27-22, 49-12
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  VALUE  T  NAME       DEF/REF    ATTRIBUTES AND REFERENCES
 0003670 L STPSAUON    142-28   6-01
 CSYSUB  V STPSTUPD     8-09  37-32,122-11
 CUTIL   V STPUTIL     162-06
 TDATA   V STRLIM       9-14 175-33
 0036312 A STSEQ%             LIBNUM=6      178-39
 CSYSUB  V ST2_13       8-06
 CSYSUB  V ST2_5        8-07
 CSYSUB  V ST2_6        8-08
 CSYSUB  V SUB16        8-10 173-20
       6 R SUPPL       19-40 W=1  S=1  N=0  CL=1  110-23,112-12
 0000000 A SV_REG
       4 R SW_IP       20-40 W=1  S=16  N=0  CL=1          6-02, 60-20,120-19,122-09,126-09,126-25
 CINIT   V SWCCACHK     7-37 139-11
 CINIT   V SWCCUCL      7-38 127-22
 0001653 L SWIP        60-39  60-27
 CINIT   V SWITCHCC     7-39 138-18
 CTSD    V SYSTATE      8-48  30-08, 32-32, 36-33, 44-39, 53-45, 59-28, 60-01, 62-09, 64-30, 66-25, 68-31, 72-34, 76-38,
                              82-20, 82-30,120-05,122-19,125-11,127-42,130-04,130-08,136-09,137-40,138-25,144-37,166-26,
       4 R SYSTATER    10-02  20-18, 20-20, 20-21, 20-22, 20-24, 20-26, 20-28, 20-29, 20-31, 20-32, 20-33, 20-35, 20-36,
                              20-38, 20-40, 20-41, 20-43, 20-45, 20-47, 20-49, 20-51, 21-02, 21-03, 21-04, 21-05
 CTSD    V SYSTIM       8-49  35-43,149-10
       7 R SYSTIMR     10-08 149-10,149-12,149-14,149-23,149-39,150-04,150-26
 TTYTBL  X T%HURS      22-44  22-44
 TTYTBL  X T%UES       22-40  22-40
'SSPEXWD+0' T TBLIDX          W=4  S=4  N=0  CL=2  167-14,167-40
 CSYSUB  V TENZERO      8-11 153-44
 0116774 L TFAPCH2      1-47
       0 R TI                  LIBNUM=6      35-11, 35-14, 35-27
 0003761 L TIMEM       149-01  28-22
 0001060 L TIMEMRTN     28-23 152-13
 0004002 L TIMFAIL     149-45 150-28
 0004231 L TIMINC      158-48 150-34
 0004241 L TIMINCLP    159-12 160-17
 0004332 L TIMINCRTN   160-31 160-18
 0004077 L TIMMONDONE  152-12 149-41,151-34,151-49
 CSYSUB  V TIMOUTX      8-12 161-26
 0001006 L TIMRCYL      21-27  21-31, 21-32,153-46,159-05
 0004334 L TIMSYNC     161-21   6-03
 0001156 L TIWAIT       35-12  35-16, 35-26
       0 R TMRSW               W=1  S=11  N=0  CL=1  LIBNUM=6      53-33, 54-04, 54-08
'3A-CC COMMO
N SYSTEM INT
ERFACES'    T TOPTTL
 0600000 L TPATCH       1-48
 0003613 A TR_011440   187-02
 0003607 A TR_011516   186-30
 0003603 A TR_011517   186-19
 0003577 A TR_011518   186-02
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 VALUE  T  NAME          DEF/REF    ATTRIBUTES AND REFERENCES

0003617 A TR_012533      187-12
0003657 A TR_012569      190-13
0003623 A TR_012833      187-25
0003627 A TR_012912      188-02
0003633 A TR_012913      188-21
0003647 A TR_013208      189-28
0003637 A TR_013317      189-02
0003643 A TR_013320      189-14
0003653 A TR_013714      190-02
0003663 A TR_013833      190-25
0003333 A TR_11516       167-47 168-09
0003261 A TR_11517       164-04 164-14
0003365 A TR_11518       169-08
0001007 A TR_12533        38-03
0001403 A TR_12569        64-40
0002100 A TR_12833       105-30 106-35
0003475 A TR_12912       170-27 172-06,177-06
0003003 A TR_12913        57-45  58-20, 60-34, 66-33, 66-43,119-36,120-02,120-25,120-37,121-17,121-31,122-13,123-06,123-27,
                                 124-05,124-24,126-08,126-36,127-02,127-29,127-42,128-15,129-18,129-37,133-36,135-21,135-33,
                                 138-27,138-39,144-14,144-34
0002373 A TR_13208       122-32
0001152 A TR_13317        51-20  51-32
0003446 A TR_13320        60-22  61-02, 61-15, 62-11, 64-36, 65-08,135-41,142-45,143-12,174-19
0002641 A TR_13714       135-07
0000737 A TR_13833        35-38  36-02
0003244 A TR_3E790032     68-02  68-30,162-30
0002676 A TR_3E790058     33-02 131-19,131-40,136-48,137-11
0001745 A TR_3E790112     28-10  28-39, 30-31, 30-41, 96-15, 98-09
0003556 A TR_3E800105     53-35  53-45, 59-14, 59-26,106-41,124-40,125-02,173-06,174-41,176-14,180-24,181-11,181-21
0116760 L TRORG           28-10  28-39, 30-31, 33-02, 35-38, 38-03, 51-20, 53-35, 57-45, 58-20, 59-14, 60-22, 60-34, 61-02,
                                 62-11, 64-36, 64-40, 66-33, 68-02, 96-15, 98-09,105-30,106-41,119-36,120-25,121-17,122-13,
                                122-32,123-06,124-05,124-40,126-36,127-29,129-18,131-19,133-36,135-07,135-21,135-41,136-48,
                                138-27,142-45,144-14,144-34,162-30,164-04,167-47,173-06,174-19,174-41,180-24,181-11
      0 R TS_ADR          18-29 W=1  S=1  N=0  CL=1
      5 R TST             21-02 W=1  S=14  N=1  CL=1          6-04, 54-05
      5 R TST_ONL         21-03 W=1  S=15  N=1  CL=1          6-05, 54-02
 0001422 L TSTCC10N       49-14  49-06
 0002763 L TST1ST        111-23 111-13
TTYTBL   V TTY_IP          9-20 130-20,132-12,164-18,164-34
LAYOUT   V TTY_MFA         9-07 109-40,110-17,111-45,112-14
TTYTBL   V TTY_NG          9-21  99-27,130-27,131-31,143-49,154-28
TTYTBL   V TTY_OK          9-22  29-14, 83-06, 83-15, 99-30,100-15,143-16,144-20,145-19,155-01,165-25
TTYTBL   V TTY_PF          9-23  30-19, 30-45,156-26
TTYTBL   V TTY_RL          9-24  30-27,154-41,163-40
      0 U TTYAPP
CTTYT    V TTYINIT         9-03  73-38
 0000002 A TTYO_                 LIBNUM=10      39-45, 39-46, 62-36, 62-37, 68-49, 69-01,125-45,125-46,134-26,134-27,156-19,
                                 156-20,168-43,168-44
 0000004 A TTYO_DEC              LIBNUM=10      39-45, 68-49
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  VALUE  T  NAME        DEF/REF    ATTRIBUTES AND REFERENCES
 0000000 A TTYO_WRD              LIBNUM=10      62-36, 68-49,125-45,134-26,156-19,168-43
 0000003 A TTYOCNT       39-47   62-38, 69-02,125-47,134-28,156-21,168-45
       0 U TTYTBL
BLMMA    V TV_DSPCH      9-29   31-02
BLMMA    V TV_MSFC       9-30   28-13
BLMMA    V TV_MSFCR      9-31   96-18
       0 U U
TTYTBL   X UXAV          58-40   58-40
TTYTBL   X UXPD         125-47  125-47
TTYTBL   V UCL           9-25   30-09,129-26,131-24
       7 R UCL_UPD       17-21  W=1  S=12  N=1  CL=1          61-43,120-37,121-34,121-36,125-06,128-20,129-27,130-14,135-39
       5 R UCORDSR       20-47  W=1  S=2   N=1  CL=1    6-06, 32-48, 59-29, 60-05,125-13,136-13,136-20,138-07,144-38
       5 R UCOROFL       20-45  W=1  S=1   N=1  CL=1    6-07, 32-48, 59-29, 60-05,125-13,136-34,137-45,138-11,138-15,138-20
       5 R UCORONL       20-43  W=1  S=0   N=1  CL=1    6-08,137-39,137-40,137-41,137-42,137-45,138-02,138-11,138-15,138-20
CSYSUB   V UNWPOST        8-13
 0116726 L UNWPOSTM      180-18 173-12,173-17
       4 R UPD_DON       20-28  W=1  S=6   N=0  CL=1    6-15, 60-40, 61-29, 62-14, 62-15, 64-43,122-20,126-09,126-10
       7 R UPD_ERR       17-25  W=1  S=14  N=1  CL=1          122-36,124-34,127-33,128-20,136-29
       7 R UPD_IP        17-04  W=1  S=0   N=1  CL=1    6-14, 61-07, 66-44,119-25,119-32,122-36,128-20,133-50,135-17
BLMMA    V UPD_OMAS       7-17  113-40,138-44
       6 R UPD_PTR       17-03  W=20  S=0  N=0  CL=1         130-16
 0002631 L UPDAB         106-17  106-13
 0002143 L UPDAKEYS       76-24    6-09, 82-35
 0001705 L UPDCHKEND      62-42   62-16
 0002140 L UPDCKEYS       76-18    6-10, 73-41, 82-33,100-13,111-06,116-02
 0116546 L UPDCWRD       174-32  174-15
 0003256 L UPDDONE       124-09  123-11
 0002145 L UPDKEYS        76-28   76-22
 0003244 L UPDLOOP       123-02  120-04,123-28
 0116574 L UPDMCHFL      175-14  173-39
 0003200 L UPDMERGE      119-39  119-26
 0003332 L UPDOMAS       129-24    6-11
 0001424 L UPDONL_CC      49-17   49-08
 0002171 L UPDSSP         78-42   74-45
 0002172 L UPDSSPA        78-45   77-12
 0001726 L UPDSTATE       64-27   46-06, 58-30, 64-22,126-19
 0001725 L UPDSTATS       64-24    6-12, 29-12, 37-27, 39-29
 0001723 L UPDSTATZ       64-20    6-13, 33-13, 38-01
 0004007 L UPDTIM        150-10  149-18,149-25
 0003211 L UPDUCL        121-10  120-38
       4 R UPD0                  W=1  S=10  N=0  CL=1  LIBNUM=6      61-17, 61-33, 61-36,136-32
       4 R UPD1                  W=1  S=11  N=0  CL=1  LIBNUM=6      61-17, 61-33,136-32
 0001240 L UQOFLCC        37-45    6-16
CUTIL    V UREQ          162-07  163-37
TTYTBL   X WXED           22-42   22-42
 0002422 L WAIT           98-01    6-17
 0000007 A WAITACT        15-13  W=1  S=4   N=7  CL=3   48-19, 48-20, 98-05,105-24,105-25,105-27
 0000007 A WAITMSF        15-12  W=4  S=0   N=7  CL=3
MASACS   V WOPS           9-12
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   VALUE  T  NAME       DEF/REF    ATTRIBUTES AND REFERENCES

   0116622 L WOSTMCH     177-28 173-38,175-06
   CSYSUB  V WPOST         8-14  37-30,121-15
   MASACS  V WPS           9-13
   TDATA   V WPTBL         9-15 175-34
   0134203 A WWPR         10-29 180-43
   CTSD    V YEARS         9-01 153-39,154-43,159-04
'CURFCN+1' T YRINC              W=1  S=1  N=1  CL=2
   0025750 A ZER%               LIBNUM=6       50-20
   0116554 L ZEROEXIT    174-39 174-29
   0026750 A ZMINT%             LIBNUM=6       35-35,145-17,171-35
         0 R 1STB         19-19 W=1  S=1  N=0  CL=1  107-43,121-12
   0002743 L 1STEXC      111-07 110-46
   0003227 L 1STUPDC_    122-18 121-37,122-02
         1 J 3ACC          1-09
   0000007 A 3X6_0              LIBNUM=3       11-02, 11-05, 11-54, 75-20,162-33
   0000013 A 3X6_1              LIBNUM=3       11-10, 11-56,162-37
   0000043 A 3X6_10             LIBNUM=3       11-16, 12-03,162-43
   0000045 A 3X6_11             LIBNUM=3       11-17, 12-03,162-44
   0000062 A 3X6_17             LIBNUM=3       11-09
   0000015 A 3X6_2              LIBNUM=3       11-11, 11-56,162-39
   0000016 A 3X6_3              LIBNUM=3       11-06, 11-54, 75-20,162-34
   0000023 A 3X6_4              LIBNUM=3       11-12, 12-01,162-40
   0000025 A 3X6_5              LIBNUM=3       11-13, 12-01,162-36
   0000026 A 3X6_6              LIBNUM=3       11-07, 11-55, 75-06,162-35
   0000031 A 3X6_7              LIBNUM=3       11-14, 12-02,162-41
   0000032 A 3X6_8              LIBNUM=3       11-15, 12-02,162-42
   0000034 A 3X6_9              LIBNUM=3       11-08, 11-55, 75-06,162-38
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                                127-29,127-42,128-15,129-18,129-37,131-19,131-40,133-36,135-07,135-21,135-33,135-41,136-48,
                                137-11,138-27,138-39,142-45,143-12,144-14,144-34,162-30,164-04,164-14,167-47,168-09,169-08,
                                170-27,172-06,173-06,174-19,174-41,176-14,177-06,180-24,181-11,181-21
    86 M ___ORG                 LIBNUM=4        28-10, 28-39, 30-31, 30-41, 33-02, 35-38, 36-02, 38-03, 51-20, 51-32, 53-35,
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                                170-27,172-06,173-06,174-19,174-41,176-14,177-06,180-24,181-11,181-21
    26 M =                      LIBNUM=2        27-24, 30-41, 37-24, 37-47, 48-26, 73-17, 73-20, 74-02, 74-09, 74-11,100-07,
                                102-09,102-11,105-05,105-09,105-12,105-15,111-46,112-09,112-17,114-31,114-36,149-37,150-03,
                                150-11,150-21
    11 M ABEGIN                 LIBNUM=2        39-19, 39-24, 76-25, 78-43,114-04,119-31,143-03,143-37,143-42,144-11,145-04,

     7 O AI                     LIBNUM=1       150-12,150-23,160-27,161-32,161-37,166-38,167-23
    14 O AN                     LIBNUM=1        27-25, 44-27,107-15,154-30,159-22,159-34,159-40,160-21,167-38,173-41,173-43,
                                173-45,174-05,174-30
     4 O AR                     LIBNUM=1        35-44,107-18,139-27,174-03
     1 M AUMASCTLR_PI
         CTURE                  133-19
    47 O B                      LIBNUM=1        28-01, 28-42, 39-21, 44-43, 64-22, 74-17, 76-22, 77-12, 94-24, 94-25, 94-26,
                                 94-27, 94-28, 94-29, 95-38, 99-07,107-03,110-12,110-46,111-01,111-22,113-35,115-12,119-26,
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    81 O BC                     LIBNUM=1        27-20, 32-21, 35-26, 36-23, 36-36, 39-32, 39-36, 44-26, 48-22, 49-06, 49-08,
                                 49-16, 49-37, 51-36, 52-14, 56-28, 56-39, 57-33, 58-34, 60-04, 60-07, 60-27, 62-27, 66-29,
                                 67-19, 67-25, 93-19, 99-26,102-25,105-28,111-13,111-15,111-20,111-26,111-31,114-09,114-24,
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    70 O BL                     LIBNUM=1        28-05, 28-13, 28-22, 28-26, 28-30, 28-34, 30-35, 31-02, 35-46, 36-07, 51-25,
                                 52-19, 53-39, 54-10, 59-19, 59-32, 61-09, 61-21, 61-45, 62-43, 65-02, 65-18, 66-37, 66-47,
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3	0	BPAX		LIBNUM=1 94-23,123-10,129-40
5	0	BR		LIBNUM=1 27-12,106-16,106-20,107-45,157-42
131	0	BSA		LIBNUM=1 29-12, 30-14, 30-24, 32-25, 33-13, 36-26, 36-40, 37-27, 37-30, 37-32, 38-01, 39-29, 45-05, 45-07, 45-22, 46-06, 46-16, 50-10, 51-41, 51-47, 52-04, 52-08, 58-30, 58-43, 60-10, 61-19, 61-27, 61-32, 61-35, 63-21, 73-10, 73-38, 73-41, 74-25, 74-28, 74-31, 74-45, 76-49, 82-33, 82-35, 83-04, 83-13, 93-30, 94-07, 94-44, 95-13, 96-11, 98-13,100-13,102-22, 102-34,106-04,106-37,107-22,110-45,111-06,111-49,112-04,112-20,114-30,116-02,121-15,121-22, 121-39,122-11,123-04,126-19,126-29,127-19,127-22,127-47,128-22,130-18,130-23,131-27,135-46, 136-16,137-19,138-09,138-18,138-43,139-11,143-45,149-49,150-34,151-24,151-39,152-05,153-44, 154-38,156-17,161-26,163-37,165-23,166-13,166-17,166-36,166-44,167-09,168-10,168-33,170-09, 170-12,172-40,172-42,173-12,173-15,173-17,173-20,173-38,175-06,175-11,176-20,176-22,177-38, 177-43,177-49,178-05,178-10,178-17,178-23,178-30,178-43,178-48,180-36,180-41,180-47,181-03, 181-08,181-39,181-45
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159	M	CALL		LIBNUM=12 27-06, 29-11, 30-13, 30-16, 30-23, 32-24, 33-12, 36-15, 36-25, 36-39, 37-26, 37-28, 37-31, 37-49, 39-28, 45-04, 45-06, 45-37, 45-41, 46-05, 46-15, 48-34, 50-09, 50-28, 51-03, 51-40, 51-44, 51-46, 52-01, 52-03, 54-22, 55-08, 56-44, 58-29, 58-42, 60-09, 61-18, 61-26, 61-31, 61-34, 63-20, 72-49, 73-01, 73-09, 73-37, 73-40, 74-24, 74-27, 74-30, 74-44, 75-09, 75-15, 76-48, 79-06, 79-10, 80-47, 81-10, 82-32, 82-34, 83-03, 83-12, 93-24, 93-29, 94-05, 94-43, 95-12, 96-10, 98-12, 99-03, 99-11,100-12,102-21,102-33,105-21,106-03,106-36, 107-21,110-44,111-05,111-48,112-03,112-15,112-19,112-23,114-29,115-49,116-08,121-14,121-21, 121-38,122-10,123-03,126-18,126-28,127-18,127-45,128-21,130-17,130-22,131-26,134-06,135-45, 136-15,137-18,138-42,139-10,143-44,149-48,150-33,151-23,151-38,152-04,153-43,154-37,161-25, 163-36,165-17,165-22,166-12,166-16,166-35,166-43,167-08,168-09,168-13,168-32,170-08,170-11,

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                                   180-46,181-02,181-07,181-38,181-44
     7 O CI                        LIBNUM=1       67-18,129-37,131-28,134-40,159-19,159-24,174-23
    16 O CIRM                      LIBNUM=1       35-25, 45-18, 60-05, 65-27, 93-14,133-50,135-17,137-45,138-11,138-15,138-20,
                                   157-29,159-42,159-49,167-40,178-35
    12 O COM                       LIBNUM=1       45-33, 46-07, 68-32, 73-18, 73-21, 81-04,105-44,106-27,107-13,114-33,136-31,
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    11 O CR                        LIBNUM=1       27-19, 35-15, 48-33, 56-27, 67-23, 77-06,111-14,111-18,138-02,154-23,179-05,

    10 O CRM                       LIBNUM=1       50-26, 58-31, 62-15, 65-09, 66-27,109-42,115-10,117-35,149-12,157-32
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    34 M ENDP                      LIBNUM=4       30-46, 36-06, 52-18, 54-09, 59-31, 61-44, 65-17, 66-46, 68-34,107-23,120-06,
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    52 M EOW                       LIBNUM=4       28-14, 28-43, 31-05, 33-07, 36-17, 38-09, 52-28, 54-16, 58-01, 58-24, 59-39,
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                                   180-28,181-31
     1 O EXR                       LIBNUM=1       74-16
     1 M EXTEND        186-01      186-01
     3 O FLZ                       LIBNUM=1      105-46,106-35,107-17
     2 O GA                        LIBNUM=1       50-11,176-16
     1 O GN                        LIBNUM=1       53-07
    39 O HA                        LIBNUM=1       32-31, 35-03, 37-23, 50-08, 64-29, 66-24, 68-22, 76-20, 76-26, 78-44, 80-44,
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     4 O HN                        LIBNUM=1       46-21, 81-02,108-27,108-28
    23 O ICF                       LIBNUM=1       45-49, 46-02, 53-22, 53-47, 53-49, 54-02, 54-05, 57-23, 57-27, 65-28, 68-42,
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   112 M IF                        LIBNUM=2       27-18, 27-27, 30-10, 30-25, 32-33, 36-22, 36-34, 39-31, 39-35, 44-20, 44-24,
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     1 M INDEXGEN                  LIBNUM=5      183-01
     8 O IRM                       LIBNUM=1       53-33, 75-18, 79-03, 79-04, 81-08, 81-09,117-38,174-34
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   44 0 L                  LIBNUM=1       27-11, 32-45, 35-30, 57-39, 57-41, 60-02, 64-32, 67-22, 76-46, 94-18, 95-01,
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    1 M L_ONL              LIBNUM=2       173-33
    7 0 LA                 LIBNUM=1       44-22,117-27,166-37,167-10,167-22,175-03,175-04
   84 0 LAL                LIBNUM=1       27-08, 27-17, 30-08, 32-32, 32-36, 35-43, 44-18, 44-41, 51-34, 52-10, 53-45,
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    7 0 LAX                LIBNUM=1       27-10, 78-51, 78-52,108-23,157-40,173-02,173-23
   15 M LAYOUT             LIBNUM=2       11-18, 13-01, 13-42, 15-01, 16-08, 17-01, 18-01, 18-26, 18-42, 19-15, 19-35,
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   24 M LMCH               LIBNUM=5       36-13, 45-39, 51-01, 54-42, 51-48,172-45,177-36,177-41,177-47,178-03,178-08,
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   31 0 LN                 LIBNUM=1       30-22, 39-20, 39-25, 39-37, 45-36, 48-32, 50-27, 54-21, 55-06, 56-43, 72-51,
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    5 M LOSKIP             LIBNUM=2       15-10, 21-35, 21-38, 21-41, 21-44
  183 0 LR                 LIBNUM=1       27-28, 31-04, 35-13, 38-07, 38-08, 50-23, 50-24, 51-37, 51-38, 52-27, 55-02,
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    17 O LX                LIBNUM=1        76-47, 77-01, 78-55, 78-56,110-20,110-25,153-35,153-40,153-48,154-21,154-46,
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     1 M MEMOINIT          LIBNUM=5        2-11
     3 O MI                LIBNUM=1        35-29,145-11,171-32
    14 M MIMODE            LIBNUM=5        35-28, 48-23, 48-29, 50-05, 50-12, 50-18, 53-17, 53-23, 53-27, 55-03, 56-29,
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    18 O MIS               LIBNUM=1        27-21, 35-09, 36-04, 48-24, 48-30, 49-11, 50-06, 50-13, 50-19, 53-14, 53-18,
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    21 O NI                LIBNUM=1        35-36, 54-08, 58-06, 59-29, 60-37, 94-22,107-19,108-21,114-06,120-39,127-43,
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     2 O NOP               LIBNUM=1        94-30,175-15
    16 O NR                LIBNUM=1        46-08, 56-33, 73-19, 73-22, 81-05, 81-06, 95-41,102-39,102-45,102-48,106-05,
                                   106-38,114-34,114-35,114-40,171-22
     1 O OI                LIBNUM=1       167-25
    12 O OR                LIBNUM=1        57-40, 57-42, 81-07,102-14,105-20,105-43,106-02,114-22,114-39,118-17,137-41,
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    18 O PACK              LIBNUM=1        53-16,177-35,177-40,177-46,178-02,178-07,178-14,178-20,178-27,178-40,178-45,
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     6 M PDBEGIN           LIBNUM=5        3-01, 23-01, 41-01, 70-01, 84-01,146-01
     6 M PDEND             LIBNUM=5        3-29, 26-29, 43-36, 72-18, 92-22,148-34
     7 M PRINT             LIBNUM=7       39-39, 62-30, 68-43,125-39,134-20,156-13,168-37
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11	0	RLN	LIBNUM=1	27-09,108-22,123-09,130-12,134-04,157-27,163-35,167-17,167-19,169-17,174-33,
1	0	RR	LIBNUM=1	107-16
12	0	RRN	LIBNUM=1	35-42, 75-13, 75-14, 79-02, 79-05,129-39,135-39,139-25,157-31,167-11,172-36, 174-01
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15	0	SBN	LIBNUM=1	57-34, 57-52, 64-33, 93-22, 98-05,106-08,109-41,110-15,113-34,114-10,114-13, 160-03,167-18,167-20,169-18
10	0	SBR	LIBNUM=1	94-21, 99-21,101-43,102-27,102-30,106-11,115-04,117-31,160-15,167-21
21	0	SBS	LIBNUM=1	30-12, 30-29, 52-11, 59-27, 73-27, 82-21,111-27,111-37,115-11,115-48,121-34, 132-09,132-10,134-15,136-13,136-20,136-29,136-34,137-49,144-18,164-32
1	0	SCF	LIBNUM=1	143-29
27	M	SECTTL	LIBNUM=5	24-01, 24-05, 24-15, 25-04, 25-08, 29-01, 71-02, 71-06, 71-25, 71-38, 71-42, 80-01, 85-02, 85-06, 88-42, 91-17, 91-21,101-01,101-05,113-01,147-02,147-06,147-13,147-43, 147-47,148-19,148-23
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1	0	SIO	LIBNUM=1	169-19
3	0	SN	LIBNUM=1	94-34, 94-49,143-46
18	M	SPELL	LIBNUM=7	22-35, 22-37, 22-39, 22-41, 22-43, 22-45, 22-47, 46-13, 58-35, 62-23, 63-32, 63-34,124-11,124-13,124-26,124-31,124-36,149-46
9	0	SR	LIBNUM=1	35-41,149-24,149-39,150-27,154-08,160-13,161-35,174-11,174-14
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1	0	STA	LIBNUM=1	153-25
3	0	STAF	LIBNUM=1	67-15,135-35,173-34
4	0	STAL	LIBNUM=1	122-30,132-08,142-40,144-04
17	0	STL	LIBNUM=1	27-04, 30-43, 44-09, 45-01, 94-16, 95-25,100-09,110-33,123-30,151-17,151-19, 151-30,151-45,157-26,159-28,174-35,176-18
10	0	STM	LIBNUM=1	32-48, 65-29,100-11,115-29,115-34,122-36,125-13,128-20,130-14,134-14
1	M	STOP	LIBNUM=5	49-10
4	M	STOS	LIBNUM=2	61-40,136-05,142-41,144-05
19	0	STVM	LIBNUM=1	64-31, 95-21, 95-23, 95-35, 95-37, 95-42, 99-22,102-29,102-46,102-49,105-08, 105-11,105-14,105-17,106-14,106-18,115-10,115-23,115-36
5	0	STX	LIBNUM=1	75-19,153-45,154-47,160-16,160-30
64	M	SUBSECT	LIBNUM=5	10-31, 22-49, 26-29, 27-31, 29-01, 29-15, 31-10, 33-18, 36-47, 38-16, 40-07, 41-01, 43-36, 46-22, 47-05, 48-38, 50-30, 52-35, 54-24, 55-10, 56-47, 62-44, 63-38, 65-38, 67-30, 69-14, 70-01, 75-33, 77-13, 79-17, 81-15, 83-16, 84-01, 92-22, 96-24, 98-27, 99-31, 100-16,103-04,107-48,108-31,112-27,116-12,117-42,118-20,128-38,131-01,132-13,141-19,145-20, 146-01,148-34,151-01,152-14,155-02,156-27,158-01,160-35,161-42,162-01,163-01,170-27,171-01, 171-43
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12	O	TBR		LIBNUM=1 95-02, 99-24,102-18,102-23,105-48,107-38,107-42,114-23,115-24,117-28,159-47, 160-23
4	O	TBS		LIBNUM=1 61-07,110-41,133-39,144-38
4	O	TCC1		LIBNUM=1 39-34, 44-19, 57-22, 74-04
14	M	TCEND		LIBNUM=4 186-10,186-21,186-34,187-03,187-16,187-28,188-12,188-39,189-05,189-19,189-31, 190-04,190-16,190-29
15	M	TCHEAD		LIBNUM=4 185-03,186-01,186-18,186-29,187-01,187-11,187-24,188-01,188-20,189-01,189-13, 189-27,190-01,190-12,190-24
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20	O	UNPK		LIBNUM=1 35-11, 35-14, 35-27, 45-47, 49-25, 51-14, 52-09, 53-09, 53-20, 53-26, 55-01, 56-23, 57-25, 60-19,137-13,145-07,171-19,171-28,178-34,179-04
5	M	USING		LIBNUM=2 102-04,103-01,105-02,114-03,116-05
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2	O	ZCF		LIBNUM=1 56-40,106-44
57	O	ZR		LIBNUM=1 27-03, 32-47, 39-33, 45-08, 45-43, 50-25, 61-39, 64-21, 64-34, 66-26, 68-41, 80-40, 93-21, 94-19, 94-20, 95-24, 99-06, 99-20,100-08,101-42,102-26,105-07,106-10,107-36, 110-07,110-18,110-49,111-47,113-45,115-02,115-03,115-41,117-23,122-29,124-16,125-12,127-03, 128-19,129-25,130-15,132-07,134-12,142-29,142-34,144-30,159-02,159-10,161-24,165-20,167-44, 174-31,176-17,177-32,178-18,180-22,180-27,181-40

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7 FLAG(S) FOUND IN THIS ASSEMBLY