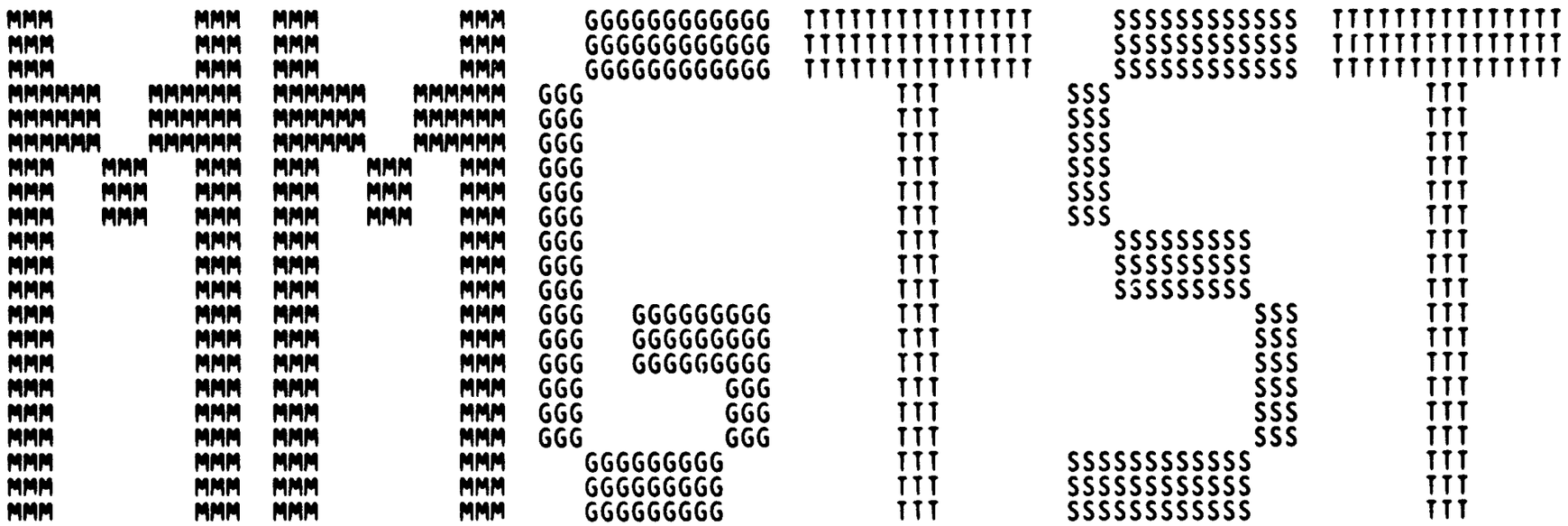
MMM MMM MMM MMM GGGGGGGGGGG TTTTTTTTTTTTTTT SSSSSSSSSSS TTTTTTTTTTTTTTT
MMMMMMM MMMMMMM MMMMMMM MMMMMMM GGG TTT SSS TTT
MMM MMM MMM MMM MMM MMM GGG TTT SSS TTT
MMM MMM MMM MMM GGG TTT SSS TTT
MMM MMM MMM MMM GGG TTT SSSSSSSSS TTT
MMM MMM MMM MMM GGG TTT SSSSSSSSS TTT
MMM MMM MMM MMM GGG GGGGGGGGG TTT SSS TTT
MMM MMM MMM MMM GGG GGGGGGGGG TTT SSS TTT
MMM MMM MMM MMM GGG GGG TTT SSS TTT
MMM MMM MMM MMM GGG GGG TTT SSS TTT
MMM MMM MMM MMM GGG GGG TTT SSS TTT
MMM MMM MMM MMM GGGGGGGGG TTT SSSSSSSSSSS TTT
MMM MMM MMM MMM GGGGGGGGG TTT SSSSSSSSSSS TTT
MMM MMM MMM MMM GGGGGGGGG TTT SSSSSSSSSSS TTT
MMM MMM MMM MMM GGGGGGGGG TTT SSSSSSSSSSS TTT

```
MM       MM  MM       MM    GGGGGGGG  LL          KK      KK  WW      WW  UU      UU  LL          WW      WW
MM       MM  MM       MM    GGGGGGGG  LL          KK      KK  WW      WW  UU      UU  LL          WW      WW
MMMM   MMMM  MMMM   MMMM  GG          LL          KK      KK  WW      WW  UU      UU  LL          WW      WW
MMMM   MMMM  MMMM   MMMM  GG          LL          KK      KK  WW      WW  UU      UU  LL          WW      WW
MM  MM  MM  MM  MM  MM  GG          LL          KK    KK    WW      WW  UU      UU  LL          WW      WW
MM  MM  MM  MM  MM  MM  GG          LL          KK    KK    WW      WW  UU      UU  LL          WW      WW
MM      MM  MM      MM  GG          LL          KKKKKK      WW      WW  UU      UU  LL          WW      WW
MM      MM  MM      MM  GG          LL          KKKKKK      WW      WW  UU      UU  LL          WW      WW
MM      MM  MM      MM  GG  GGGGGG  LL          KK    KK    WW  WW  WW  UU      UU  LL          WW  WW  WW
MM      MM  MM      MM  GG  GGGGGG  LL          KK    KK    WW  WW  WW  UU      UU  LL          WW  WW  WW
MM      MM  MM      MM  GG      GG  LL          KK      KK  WWWW  WWWW  UU      UU  LL          WWWW  WWWW      ....
MM      MM  MM      MM  GG      GG  LL          KK      KK  WWWW  WWWW  UU      UU  LL          WWWW  WWWW      ....
MM      MM  MM      MM    GGGGGG    LLLLLLLLLL  KK      KK  WW      WW  UUUUUUUUUU  LLLLLLLLLL  WW      WW      ....
MM      MM  MM      MM    GGGGGG    LLLLLLLLLL  KK      KK  WW      WW  UUUUUUUUUU  LLLLLLLLLL  WW      WW      ....

LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

Table of contents

```
0000     1 ;
0000     2 ;                MEMORY MANAGEMENT SERVICES TEST #6
0000     3 ;
0000     4 ;
0000     5         .TITLE  MMGLKWULW - TEST OF $LKWSET/$ULWSET SYSTEM SERVICES
0000     6         .IDENT  'V04-000'
0000     7 ;
0000     8 ;*****************************************************************************
0000     9 ;*                                                                           *
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0000    27 ;*                                                                           *
0000    28 ;*                                                                           *
0000    29 ;*****************************************************************************
0000    30
0000    31 ;++
0000    32 ; FACILITY: USER MODE MEMORY MANAGEMENT SERVICES TEST
0000    33 ;
0000    34 ; ABSTRACT: THIS SET OF ROUTINES TESTS THE MEMORY MANAGEMENT SERVICES
0000    35 ;
0000    36 ; ENVIRONMENT: USER MODE DIAGNOSTIC
0000    37 ;
0000    38 ; AUTHOR: PETER H. LIPMAN       , CREATION DATE: 6-JAN-77
0000    39 ;
0000    40 ; MODIFIED BY:
0000    41 ;
0000    42 ;       V02-012 SHZ0005         Stephen Zalewski        20-Aug-1980
0000    43 ;               Added further tests to system services tested in this
0000    44 ;               program.  Also incorporated program into MMG test
0000    45 ;               package.
0000    46 ;
0000    47 ;       V02-012 TSC0005         Thomas Clark            25-Jul-1980
0000    48 ;               Added further tests to system services tested in this
0000    49 ;               program.
0000    50 ;
```

```
0000     52          .SBTTL  DECLARATIONS
0000     53 ;
0000     54 ; INCLUDE FILES:
0000     55 ;
0000     56          .SBTTL  MACROS
0000     57 ;
0000     58 ; MACROS:
0000     59 ;
0000     60          .MACRO  LIST
0000     61          .LIST   MEB
0000     62          .ENDM   LIST
0000     63
0000     64          .MACRO  NLIST
0000     65          .NLIST  MEB
0000     66          .ENDM   NLIST
0000     67
0000     68          .MACRO  CRETVA STARTVA,ENDVA,STATUS=S^#SS$_NORMAL,-
0000     69                          INADR=W^INRANGE,RETADR=W^RETRANGE
0000     70          LIST
0000     71                  .IF     NB,STARTVA
0000     72                  MOVL    STARTVA,W^INRANGE
0000     73                  .ENDC
0000     74                  .IF     NB,ENDVA
0000     75                  MOVL    ENDVA,W^INRANGE+4
0000     76                  .ENDC
0000     77                  MOVZWL  STATUS,R3
0000     78                  MOVAL   INADR,R0
0000     79                  MOVAL   RETADR,R1
0000     80                  BSBW    CRETVASUBR
0000     81          NLIST
0000     82          .ENDM   CRETVA
0000     83
0000     84          .MACRO  DELTVA STARTVA,ENDVA,STATUS=S^#SS$_NORMAL,-
0000     85                          INADR=W^INRANGE,RETADR=W^RETRANGE
0000     86          LIST
0000     87                  .IF     NB,STARTVA
0000     88                  MOVL    STARTVA,W^INRANGE
0000     89                  .ENDC
0000     90                  .IF     NB,ENDVA
0000     91                  MOVL    ENDVA,W^INRANGE+4
0000     92                  .ENDC
0000     93                  MOVZWL  STATUS,R3
0000     94                  MOVAL   INADR,R0
0000     95                  MOVAL   RETADR,R1
0000     96                  BSBW    DELTVASUBR
0000     97          NLIST
0000     98          .ENDM   DELTVA
0000     99
0000    100          .MACRO  EXPREG  PAGCNT,REGION=#0,STATUS=S^#SS$_NORMAL,-
0000    101          RETADR=W^RETRANGE
0000    102          LIST
0000    103                  MOVZWL  STATUS,R3
0000    104                  MOVL    PAGCNT,R4
0000    105                  MOVAL   RETADR,R1
0000    106                  .IF     IDN,<REGION>,<#0>
0000    107                  CLRL    R5
0000    108                  .IFF
```

```
0000   109                  MOVL    REGION,R5
0000   110                  .ENDC
0000   111                  BSBW    EXPREGSUBR
0000   112          NLIST
0000   113          .ENDM   EXPREG
0000   114
0000   115          .MACRO  LKWSET STARTVA,ENDVA,STATUS=S^#SS$_WASCLR,-
0000   116                         INADR=W^INRANGE,RETADR=W^RETRANGE
0000   117          LIST
0000   118                  .IF     NB,STARTVA
0000   119                  MOVL    STARTVA,W^INRANGE
0000   120                  .ENDC
0000   121                  .IF     NB,ENDVA
0000   122                  MOVL    ENDVA,W^INRANGE+4
0000   123                  .ENDC
0000   124                  MOVZWL  STATUS,R3
0000   125                  MOVAL   INADR,R0
0000   126                  MOVAL   RETADR,R1
0000   127                  BSBW    LKWSETSUBR
0000   128          NLIST
0000   129          .ENDM   LKWSET
0000   130
0000   131          .MACRO  ULWSET STARTVA,ENDVA,STATUS=S^#SS$_WASSET,-
0000   132                         INADR=W^INRANGE,RETADR=W^RETRANGE
0000   133          LIST
0000   134                  .IF     NB,STARTVA
0000   135                  MOVL    STARTVA,W^INRANGE
0000   136                  .ENDC
0000   137                  .IF     NB,ENDVA
0000   138                  MOVL    ENDVA,W^INRANGE+4
0000   139                  .ENDC
0000   140                  MOVZWL  STATUS,R3
0000   141                  MOVAL   INADR,R0
0000   142                  MOVAL   RETADR,R1
0000   143                  BSBW    ULWSETSUBR
0000   144          NLIST
0000   145          .ENDM   ULWSET
0000   146
0000   147  ;*****************************************************************************
0000   148  ;       THIS MACRO USED TO CREATE PERMANENT GLOBAL SECTIONS.  THE FILE NAME
0000   149  ;       AND GBL SECTION DEVICE NAME ARE DECLARED INDEPENDANTLY OF THIS MACRO
0000   150  ;       AND ARE PUSHED ONTO THE STACK MANUALY BEFORE THE $CRMPSC SERVICE IS
0000   151  ;       CALLED.
0000   152  ;         ALSO NOTE THE TEMPORARY FIX LOCATED AT THE BOTTOM OF THE MACRO.  THE
0000   153  ;       FIX IS NEEDED BECAUSE THE LAST GLOBAL SECTION MAY NOT HAVE BEEN DELETED
0000   154  ;       BY THE TIME THE NEXT MAPPED SECTION IS CREATED.  IN THIS CASE THE
0000   155  ;       RETURNED ERROR IS TRAPPED AND THE SECTION IS REMAPPED UNTIL THE
0000   156  ;       SUCCESS CODE IS RETURNED.  THIS BUG IS SLATED TO BE FIXED.  WHEN THAT
0000   157  ;       IS ACCOMPLISHED REFER TO THE COMMENTS ABOVE THE FIX TO DETERMINE WHAT
0000   158  ;       LINES SHOULD BE REMOVED TO DELETE THE PATCH.
0000   159  ;*****************************************************************************
0000   160  ;
0000   161          .MACRO  CREMAPSEC -
0000   162                  STARTVA         ,-
0000   163                  ENDVA           ,-
0000   164                  STATUS=S^#SS$_NORMAL ,-
0000   165                  INADR=<W^INRANGE>,-             ;INPUT RANGE
```

```
0000   166                 RETADR=<W^RETRANGE>  ,-          ;RETURN RANGE
0000   167                 FLAGS=#0             ,-          ;SECTION FLAGS
0000   168                 GSDNAM=<W^GBLSECNAM>,-           ;GLOBAL SECTION NAME
0000   169                 RELPAG=#0            ,-          ;RELATIVE PAGE
0000   170                 FILNAM=<W^FILENAME>,-            ;FILE NAME
0000   171                 PAGCNT=#0            ,-          ;MAX SIZE OF SECTION
0000   172                 VBN=#0               ,-          ;STARTING WIRT BLK NO. IN FILE
0000   173                 ?L1
0000   174         LIST
0000   175                 .IF     NB,STARTVA
0000   176                 MOVL    STARTVA,W^INRANGE
0000   177                 .ENDC
0000   178                 .IF     NB,ENDVA
0000   179                 MOVL    ENDVA,W^INRANGE+4
0000   180                 .ENDC
0000   181                 MOVZWL  STATUS,R3
0000   182 L1:
0000   183                 PUSHL   VBN
0000   184                 PUSHL   PAGCNT
0000   185                 $PUSHADR        FILNAM
0000   186                 PUSHL   RELPAG
0000   187                 $PUSHADR        GSDNAM
0000   188                 PUSHL   FLAGS
0000   189                 $PUSHADR        RETADR
0000   190                 $PUSHADR        INADR
0000   191                 CALLS   #8,LIB$_CREMAPSEC
0000   192 ;*******
0000   193 ;IN ORDER TO DELTE THE PATCH MENTIONED ABOVE SIMPLY REMOVE THE LINES FROM
0000   194 ;HERE TO THE NEXT SET OF ASTERICS.
0000   195 ;
0000   196                 CMPL    #^X1828A,R0              ;IF PREVIOUS GBL SECTION HASN'T
0000   197                 BEQL    L1                       ;BEEN DELETED TRY CREMAPSEC AGAIN.
0000   198 ;*******
0000   199                 MOVAL   W^CRMPSCERR,R1
0000   200                 BSBW    CHECK1
0000   201         NLIST
0000   202         .ENDM   CREMAPSEC
0000   203
0000   204         .MACRO  RANGECHK ONOROFF
0000   205         LIST
0000   206         .IF     IDN <ONOROFF>,<OFF>
0000   207                 BICL    #CTL$M_RNGCHK,W^CTLFLG
0000   208         .IFF
0000   209                 BISL    #CTL$M_RNGCHK,W^CTLFLG
0000   210         .ENDC
0000   211         NLIST
0000   212         .ENDM   RANGECHK
```

```
                          0000   214 ;
                          0000   215 ; EQUATED SYMBOLS:
                          0000   216 ;
                          0000   217         $SSDEF
                          0000   218         $SECDEF
                          0000   219         $PRTDEF
                          0000   220         $GBLINI
                          0000   221         $VIELD  CTL,0,<-                        ;DEFINE CONTROL BITS IN R3
                          0000   222                 <MEMLOOP,,MASK>,-               ;LOOP IN MEMORY WRITE LOOP
                          0000   223                 <TSTLOOP,,MASK>,-               ;REDO ENTIRE TEST FROM TOP
                          0000   224                 <PIDMSG,,MASK>,-                ;PUT PROCESS ID IN EACH TYPEOUT
                          0000   225                 <RNGCHK,,MASK>-                 ;ON IF CHECKING RETURN RANGE
                          0000   226                 >
                 00000010 0000   227         PRT$C_NONE=1@4
                          0000   228 ;
                          0000   229 ; OWN STORAGE:
                          0000   230 ;
```

```
                        0000   232          .SBTTL  DATA STORAGE AND MESSAGE STRINGS
                    00000000   233          .PSECT  DATA0,PAGE,WRT,NOEXE
                        0000   234 INRANGE:
                    00000008   235          .BLKL   2
                        0008   236 RETRANGE:
                    00000010   237          .BLKL   2
                    00000006   238 CTLFLG: .LONG   CTL$M_TSTLOOP!CTL$M_PIDMSG
                    00000018   239 SAVEND: .BLKL   1
                    0000001C   240 PID:    .BLKL   1                               ;PROCESS ID
                        001C   241 MAXPASSCNT:
                    00000003   242          .LONG   3                               ;NUMBER OF PASSES TO RUN
                        0020   243 PASSCNT:
                    00000024   244          .BLKL   1                               ;PASS COUNTER
                        0024   245 PREVPROT:
                        0024   246 FAB:    $FAB    FAC=PUT, FNA=OUTNAMADR, FNS=OUTNAMSIZ ;FAB FOR OUTPUT
                        0074   247 RAB:    $RAB    FAB=FAB                         ;RECORD ACCESS BLOCK FOR OUTPUT
                    000000BC   248 MSGLEN: .BLKL   1                               ;RETURN LENGTH FROM FAO
            000000DA'000000A0' 249 MSGBUFD:.LONG   MSGBUFSIZ,MSGBUF                ;MESSAGE BUFFER DESCRIPTOR
                        00C4   250 PIDMSGD:
            000000D6'00000004' 251          .LONG   MSGBUF-PIDMSG,PIDMSG
                        00CC   252 ;
                        00CC   253 ; ***** DO NOT SEPARATE OR REORDER THE FOLLOWING LINES
                        00CC   254 ;
                        00CC   255 MSGBUFID:
                       0A 0D   256 CRLF:   .BYTE   ^O15,^O12
      20 53 53 45 43 4F 52 50  257          .ASCII  $PROCESS $
                  20 20 20 20  258 PIDMSG: .ASCII  $    $
                    0000017A   259 MSGBUF: .BLKB   160                             ;MESSAGE BUFFER USED BY FAO
                    000000A0   260          MSGBUFSIZ=.-MSGBUF
                        017A   261 ;
                        017A   262 ; ***** DO NOT SEPARATE OR REORDER THE PRECEEDING LINES
                        017A   263 ;
                        017A   264
```

```
                                00000000   266          .PSECT  CODE,PAGE,NOWRT,EXE
                                    0000   267
                                    0000   268 OUTNAMADR:
      54 55 50 54 55 4F 24 53 59 53 0000   269          .ASCII  /SYS$OUTPUT/
                                0000000A   270          OUTNAMSIZ=.-OUTNAMADR
                                    000A   271
                                    000A   272 CRETVAERRADR:
52 52 45 20 41 56 54 45 52 43 2F 21 000A   273          .ASCII  $!/CRETVA ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F 0016
41 57 20 53 55 54 41 54 53 20 2C 4C 0022
4C 55 4F 48 53 20 2C 4C 58 21 20 53 002E
            4C 58 21 20 45 42 20 44 003A
21 20 3D 20 52 44 41 4E 49 09 2F 21 0042   274          .ASCII  $!/     INADR = !XL - !XL,  RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58 004E
20 4C 58 21 20 3D 20 52 44 41 54 45 005A
            2F 21 4C 58 21 20 2D 0066
                                00000063   006D   275          CRETVAERRSIZ=.-CRETVAERRADR
                                    006D   276
                                    006D   277 DELTVAERRADR:
52 52 45 20 41 56 54 4C 45 44 2F 21 006D   278          .ASCII  $!/DELTVA ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F 0079
41 57 20 53 55 54 41 54 53 20 2C 4C 0085
4C 55 4F 48 53 20 2C 4C 58 21 20 53 0091
            4C 58 21 20 45 42 20 44 009D
21 20 3D 20 52 44 41 4E 49 09 2F 21 00A5   279          .ASCII  $!/     INADR = !XL - !XL,  RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58 00B1
20 4C 58 21 20 3D 20 52 44 41 54 45 00BD
            2F 21 4C 58 21 20 2D 00C9
                                00000063   00D0   280          DELTVAERRSIZ=.-DELTVAERRADR
                                    00D0   281
                                    00D0   282 CRMPSCERRADR:
52 52 45 20 43 53 50 4D 52 43 2F 21 00D0   283          .ASCII  $!/CRMPSC ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F 00DC
41 57 20 53 55 54 41 54 53 20 2C 4C 00E8
4C 55 4F 48 53 20 2C 4C 58 21 20 53 00F4
            4C 58 21 20 45 42 20 44 0100
21 20 3D 20 52 44 41 4E 49 09 2F 21 0108   284          .ASCII  $!/     INADR = !XL - !XL,  RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58 0114
20 4C 58 21 20 3D 20 52 44 41 54 45 0120
            2F 21 4C 58 21 20 2D 012C
                                00000063   0133   285          CRMPSCERRSIZ=.-CRMPSCERRADR
                                    0133   286
                                    0133   287 LKWSETERRADR:
52 52 45 20 54 45 53 57 4B 4C 2F 21 0133   288          .ASCII  $!/LKWSET ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F 013F
41 57 20 53 55 54 41 54 53 20 2C 4C 014B
4C 55 4F 48 53 20 2C 4C 58 21 20 53 0157
            4C 58 21 20 45 42 20 44 0163
21 20 3D 20 52 44 41 4E 49 09 2F 21 016B   289          .ASCII  $!/     INADR = !XL - !XL,  RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58 0177
20 4C 58 21 20 3D 20 52 44 41 54 45 0183
            2F 21 4C 58 21 20 2D 018F
                                00000063   0196   290          LKWSETERRSIZ=.-LKWSETERRADR
                                    0196   291
                                    0196   292 ULWSETERRADR:
52 52 45 20 54 45 53 57 4C 55 2F 21 0196   293          .ASCII  $!/ULWSET ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F 01A2
```

```
41 57 20 53 55 54 41 54 53 20 2C 4C  01AE
4C 55 4F 48 53 2C 2C 4C 58 21 20 53  01BA
           4C 58 21 20 45 42 20 44  01C6
21 20 3D 20 52 44 41 4E 49 09 2F 21  01CE   294          .ASCII  $!/     INADR = !XL - !XL,  RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58  01DA
20 4C 58 21 20 3D 20 52 44 41 54 45  01E6
              2F 21 4C 58 21 20 2D  01F2
                       00000063    01F9   295          ULWSETERRSIZ=.-ULWSETERRADR
                                   01F9   296
                                   01F9   297 EXPREGERRADR:
52 52 45 20 47 45 52 50 58 45 2F 21  01F9   298          .ASCII  $!/EXPREG ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F  0205
41 57 20 53 55 54 41 54 53 20 2C 4C  0211
4C 55 4F 48 53 20 2C 4C 58 21 20 53  021D
           4C 58 21 20 45 42 20 44  0229
20 3D 20 54 4E 43 47 41 50 09 2F 21  0231   299          .ASCII  $!/     PAGCNT = !SL, REGION = P!UB SPACE, $
20 4E 4F 49 47 45 52 20 2C 4C 53 21  023D
45 43 41 50 53 20 42 55 21 50 20 3D  0249
                          20 2C      0255
4C 58 21 20 3D 20 52 44 41 54 45 52  0257   300          .ASCII  $RETADR = !XL - !XL!/$
              2F 21 4C 58 21 20 2D 20  0263
                       00000072    026B   301          EXPREGERRSIZ=.-EXPREGERRADR
                                   026B   302
                                   026B   303 RANGERRADR:
4E 41 52 20 4E 52 55 54 45 52 2F 21  026B   304          .ASCII  $!/RETURN RANGE ERROR - LOCATION = !XL$
4C 20 2D 20 52 4F 52 52 45 20 45 47  0277
58 21 20 3D 20 4E 4F 49 54 41 43 4F  0283
                             4C      028F
21 20 3D 20 52 44 41 4E 49 09 2F 21  0290   305          .ASCII  $!/     INADR = !XL - !XL, RETADR = !XL - !XL!/$
45 52 20 2C 4C 58 21 20 2D 20 4C 58  029C
2D 20 4C 58 21 20 3D 20 52 44 41 54  02A8
                 2F 21 4C 58 21 20  02B4
                       0000004F    02BA   306          RANGERRSIZ=.-RANGERRADR
                                   02BA   307
                                   02BA   308 IDMSGADR:
4E 41 4D 20 59 52 4F 4C 45 4D 2F 21  02BA   309          .ASCII  $!/MEMORY MANAGEMENT SERVICES TEST #6 (LKWULW), PASS !UL!/$
56 52 45 53 20 54 4E 45 4D 45 47 41  02C6
36 23 20 54 53 45 54 20 53 45 43 49  02D2
50 20 2C 29 57 4C 55 57 4B 4C 28 20  02DE
           2F 21 4C 55 21 20 53 53 41  02EA
                       00000039    02F3   310          IDMSGSIZ=.-IDMSGADR
                                   02F3   311
                                   02F3   312 RUN1_MSGADR:
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21  02F3   313          .ASCII  $!/   *****   TEST WILL NOW BE RUN USING REGULAR VA SPACE   *****$
4E 20 4C 4C 49 57 20 54 53 45 54 20  02FF
53 55 20 4E 55 52 20 45 42 20 57 4F  030B
20 52 41 4C 55 47 45 52 20 47 4E 49  0317
2A 20 20 20 45 43 41 50 53 20 41 56  0323
                    2A 2A 2A 2A 2A  032F
                       20 2F 21    0333   314          .ASCII  $!/ $
                       00000043    0336   315          RUN1_MSGSIZ=.-RUN1_MSGADR
                                   0336   316
                                   0336   317 RUN2_MSGADR:
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21  0336   318          .ASCII  $!/   *****   TEST WILL NOW BE RUN USING PERM GBL SECTIONS   *****$
4E 20 4C 4C 49 57 20 54 53 45 54 20  0342
53 55 20 4E 55 52 20 45 42 20 57 4F  034E
4C 42 47 20 4D 52 45 50 20 47 4E 49  035A
```

```
20 20 20 53 4E 4F 49 54 43 45 53 20  0366
                  2A 2A 2A 2A 2A 2A  0372
                        20 2F 21     0377    319          .ASCII  $ / $
                        00000044     037A    320          RUN2_MSGSIZ=.-RUN2_MSGADR
                                     037A    321
                                     037A    322 RUN3_MSGADR:
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21  037A    323          .ASCII  $!/   *****   TEST WILL NOW BE RUN USING PFN MAPPING   *****$
4E 20 4C 4C 49 57 20 54 53 45 54 20  0386
53 55 20 4E 55 52 20 45 42 20 57 4F  0392
50 50 41 4D 20 4E 46 50 20 47 4E 49  039E
   2A 2A 2A 2A 2A 20 20 20 47 4E 49  03AA
                        20 2F 21     03B5    324          .ASCII  $!/ $
                        0000003E     03B8    325          RUN3_MSGSIZ=.-RUN3_MSGADR
                                     03B8    326
                                     03B8    327 PIDCTLADR:
                        4C 55 21     03B8    328          .ASCII  $!UL$
                        00000003     03BB    329          PIDCTLSIZ=.-PIDCTLADR
                                     03BB    330
                                     03BB    331 GBLSECNAMADR:
                  54 53 54 47 4D 4D  03BB    332          .ASCII  $MMGTST$
                        00000006     03C1    333          GBLSECNAMSIZ=.-GBLSECNAMADR
                                     03C1    334
                                     03C1    335 FILENAMEADR:
      54 41 44 2E 54 53 54 47 4D 4D  03C1    336          .ASCII  $MMGTST.DAT$
                        0000000A     03CB    337          FILENAMESIZ=.-FILENAMEADR
                                     03CB    338
```

```
                        03CB    340 ;
                        03CB    341 ; STRING DESCRIPTORS
                        03CB    342 ;
                        03CB    343         .ALIGN  LONG
                        03CC    344
                        03CC    345 CRETVAERR:
0000000A'00000063       03CC    346         .LONG   CRETVAERRSIZ,CRETVAERRADR
                        03D4    347 DELTVAERR:
0000006D'00000063       03D4    348         .LONG   DELTVAERRSIZ,DELTVAERRADR
                        03DC    349 CRMPSCERR:
000000D0'00000063       03DC    350         .LONG   CRMPSCERRSIZ,CRMPSCERRADR
                        03E4    351 EXPREGERR:
000001F9'00000072       03E4    352         .LONG   EXPREGERRSIZ,EXPREGERRADR
                        03EC    353 LKWSETERR:
00000133'00000063       03EC    354         .LONG   LKWSETERRSIZ,LKWSETERRADR
                        03F4    355 ULWSETERR:
00000196'00000063       03F4    356         .LONG   ULWSETERRSIZ,ULWSETERRADR
                        03FC    357 RANGERR:
0000026B'0000004F       03FC    358         .LONG   RANGERRSIZ,RANGERRADR
                        0404    359 IDMSG:
000002BA'00000039       0404    360         .LONG   IDMSGSIZ,IDMSGADR
                        040C    361 RUN1_MSG:
000002F3'00000043       040C    362         .LONG   RUN1_MSGSIZ,RUN1_MSGADR
                        0414    363 RUN2_MSG:
00000336'00000044       0414    364         .LONG   RUN2_MSGSIZ,RUN2_MSGADR
                        041C    365 RUN3_MSG:
0000037A'0000003E       041C    366         .LONG   RUN3_MSGSIZ,RUN3_MSGADR
                        0424    367 PIDCTL:
000003B8'00000003       0424    368         .LONG   PIDCTLSIZ,PIDCTLADR
                        042C    369 GBLSECNAM:
000003BB'00000006       042C    370         .LONG   GBLSECNAMSIZ,GBLSECNAMADR
                        0434    371 FILENAME:
000003C1'0000000A       0434    372         .LONG   FILENAMESIZ,FILENAMEADR
                        043C    373
```

```
                                .SBTTL  INITIALIZATION
                        ;*******************************************************************************
                        ;PROGRAM DESCRIPTION:
                        ;
                        ;         THIS PROGRAM TESTS THE FOLLOWING SYSTEM SERVICES:
                        ;               $LKWSET, $ULWSET
                        ;
                        ;         THE SYSTEM SERVICES ARE TESTED IN THE FOLLOWING MANNER.  THE PROGRAM
                        ;       IS DIVIDED INTO THREE SEPERATE SECTIONS.  THE FIRST SECTION DOES
                        ;       SEVERAL LOCK AND UNLOCK TESTS  AND THEN FORCES POSSIBLE ERROR PATHS
                        ;       FOR THE SYSTEM SERVICES.  THE NEXT SECTION DOES SEVERAL LOCK AND
                        ;       UNLOCK SYSTEM SERVICE CALLS FOR GLOBAL SECTIONS.  FINALLY, THE THIRD
                        ;       SECTION DOES THE SAME TESTS, ONLY USING PFN MAPPED SECTIONS.  EACH
                        ;       OF THE SECTIONS IS RUN THREE TIMES, AND A MESSAGE IS SENT TO THE
                        ;       OPR AT THE START OF EACH SECTION NOTIFYING HIM AS TO WHICH SECTION
                        ;       OF TESTS IS ABOUT TO BE RUN.
                        ;
                        ;         REFER TO MASD$:[MMGTST.COM]MMGTST.RAP FOR FURTHER INFORMATION
                        ;       REGARDING JUST HOW COMPLETELY THE ABOVE MENTIONED SYSTEM SERVICES
                        ;       ARE TESTED BY THIS PROGRAM.
                        ;
                        ;         REFER TO MASD$:[MMGTST.COM]MMGTST.RAP FOR FURTHER INFORMATION
                        ;       REGARDING JUST HOW COMPLETELY THE ABOVE MENTIONED SYSTEM SERVICES
                        ;       ARE TESTED BY THIS PROGRAM.
                        ;
                        ;      *NOTE:
                        ;         THERE IS A BUG IN $CRMPSC THAT WILL BE FIXED IN THE FUTURE.  UNTIL
                        ;       THIS FIX TAKES PLACE THERE AREA TEMPORARY PATCH'S LOCATED AT THE END
                        ;       OF THE CREMAPSEC MACRO AND MAKVA MACRO WHICH CIRCUMVENT THIS
                        ;       PROBLEM.  UPON CORRECTION OF THIS BUG REFER TO THESE ABOVE MENTIONED
                        ;       MACROS TO FIND OUT HOW TO REMOVE THESE TEMPORARY PATCHES.
                        ;         ALSO, THE FILE MMGTST.DAT, WHICH IS CREATED BY RUNNING MMGCRTFIL.MAR,
                        ;       IS NECESSARY TO RUN THIS PROGRAM AS IT IS REFERENCED BY CREMAPSEC.
                        ;
                        ;      *PRIVILEGES:
                        ;         IN ORDER TO RUN THIS PROGRAM YOU MUST HAVE IN YOUR POSSESION
                        ;       THE PRIVILEGES PRMGBL AND PFNMAP.
                        ;*******************************************************************************
                        ;
                        ; START HERE
                        ;
                  0000  START:  .WORD   0                               ;ENTRY MASK
                        ;       $OPEN   W^FAB                           ;OPEN THE FILE ''$OUTPUT''
                     50 E9    BLBC    R0,10$                           ;BRANCH IF ERROR
                        ;       $CONNECT W^RAB                          ;CONNECT THE RECORD ACCESS BLOCK
                     50 E8    BLBS    R0,20$
                        ;       $EXIT_S R0                              ;EXIT WITH STATUS IN R0
00000020'EF          01 D0    MOVL    #1,PASSCNT                       ;INITIALIZE THE PASS COUNT
                        ;       $RESUME_S PID                           ;SET UP PROCESS ID
50      00000018'EF     3C    MOVZWL  PID,R0
                        ;       $FAO_S  PIDCTL,MSGLEN,PIDMSGD,R0        ;INIT THE PROCESS ID STRING
                        ;
                        ;CRETVA_MESSAGE:
                        ;       $FAO_S  RUN1_MSG,MSGLEN,MSGBUFD         ;INFORM OPR NORMAL VA USED FOR TEST
                  07BF  30    BSBW    TYPEMSGBUF
          0010'CF   04  CA    BICL    #CTL$M_PIDMSG,W^CTLFLG           ;STOP PROCESS ID FROM PRINTING
                        ;
```

```
                                 04B7   432 RSTART_1:
                                 04B7   433          RANGECHK ON
0010'CF    08    C8              04B7                        BISL    #CTL$M_RNGCHK,W^CTLFLG
                                 04BC   434          $FAO_S  IDMSG,MSGLEN,MSGBUFD,PASSCNT
          079E   30              04D9   435          BSBW    TYPEMSGBUF
                                 04DC   436          EXPREG  #1
     53    01    3C              04DC                        MOVZWL  S^#SS$_NORMAL,R3
     54    01    D0              04DF                        MOVL    #1,R4
51   0008'CF    DE              04E2                        MOVAL   W^RETRANGE,R1
          53    D4              04E7                        CLRL    R5
        06A2    30              04E9                        BSBW    EXPREGSUBR
52   0008'CF    7D              04EC   437          MOVQ    W^RETRANGE,R2
0000'CF    52    7D              04F1   438          MOVQ    R2,W^INRANGE
0014'CF    52    D0              04F6   439          MOVL    R2,W^SAVEND
```

```
                                04FB   441          .SBTTL  LOCK AND UNLOCK FROM WORKING SET TEST
                                04FB   442 ;
                                04FB   443 ; TEST LOCK/UNLOCK PAGES FROM WORKING SET
                                04FB   444 ;
5A   0014'CF    D0   04FB   445          MOVL    W^SAVEND,R10
5B   03FF CA    DE   0500   446          MOVAL   <3*512-1>(R10),R11
                     0505   447          CRETVA  R10,R11
0000'CF   5A    D0   0505                        MOVL    R10,W^INRANGE
0004'CF   5B    D0   050A                        MOVL    R11,W^INRANGE+4
     53   01    3C   050F                        MOVZWL  S^#SS$_NORMAL,R3
50   0000'CF    DE   0512                        MOVAL   W^INRANGE,R0
51   0008'CF    DE   0517                        MOVAL   W^RETRANGE,R1
        05C2    30   051C                        BSBW    CRETVASUBR
                     051F   448          LKWSET
     53   01    3C   051F                        MOVZWL  S^#SS$_WASCLR,R3
50   0000'CF    DE   0522                        MOVAL   W^INRANGE,R0
51   0008'CF    DE   0527                        MOVAL   W^RETRANGE,R1
        05DA    30   052C                        BSBW    LKWSETSUBR
                     052F   449          ULWSET
     53   09    3C   052F                        MOVZWL  S^#SS$_WASSET,R3
50   0000'CF    DE   0532                        MOVAL   W^INRANGE,R0
51   0008'CF    DE   0537                        MOVAL   W^RETRANGE,R1
        05DE    30   053C                        BSBW    ULWSETSUBR
                     053F   450
                     053F   451          LKWSET  ENDVA=R10                       ;LOCK FIRST PAGE ONLY
0004'CF   5A    D0   053F                        MOVL    R10,W^INRANGE+4
     53   01    3C   0544                        MOVZWL  S^#SS$_WASCLR,R3
50   0000'CF    DE   0547                        MOVAL   W^INRANGE,R0
51   0008'CF    DE   054C                        MOVAL   W^RETRANGE,R1
        05B5    30   0551                        BSBW    LKWSETSUBR
                     0554   452          LKWSET  ENDVA=R11,STATUS=#SS$_WASSET    ;LOCK ALL, FIRST ALREADY LOCKED
0004'CF   5B    D0   0554                        MOVL    R11,W^INRANGE+4
     53   09    3C   0559                        MOVZWL  #SS$_WASSET,R3
50   0000'CF    DE   055C                        MOVAL   W^INRANGE,R0
51   0008'CF    DE   0561                        MOVAL   W^RETRANGE,R1
        05A0    30   0566                        BSBW    LKWSETSUBR
                     0569   453          ULWSET  ENDVA=R10                       ;UNLOCK FIRST PAGE ONLY
0004'CF   5A    D0   0569                        MOVL    R10,W^INRANGE+4
     53   09    3C   056E                        MOVZWL  S^#SS$_WASSET,R3
50   0000'CF    DE   0571                        MOVAL   W^INRANGE,R0
51   0008'CF    DE   0576                        MOVAL   W^RETRANGE,R1
        059F    30   057B                        BSBW    ULWSETSUBR
                     057E   454          ULWSET  ENDVA=R11,STATUS=#SS$_WASCLR    ;UNLOCK ALL, FIRST ALREADY UNLOCKED
0004'CF   5B    D0   057E                        MOVL    R11,W^INRANGE+4
     53   01    3C   0583                        MOVZWL  #SS$_WASCLR,R3
50   0000'CF    DE   0586                        MOVAL   W^INRANGE,R0
51   0008'CF    DE   058B                        MOVAL   W^RETRANGE,R1
        058A    30   0590                        BSBW    ULWSETSUBR
                     0593   455
                     0593   456          LKWSET  STARTVA=R11                     ;LOCK LAST PAGE ONLY
0000'CF   5B    D0   0593                        MOVL    R11,W^INRANGE
     53   01    3C   0598                        MOVZWL  S^#SS$_WASCLR,R3
50   0000'CF    DE   059B                        MOVAL   W^INRANGE,R0
51   0008'CF    DE   05A0                        MOVAL   W^RETRANGE,R1
        0561    30   05A5                        BSBW    LKWSETSUBR
                     05A8   457          LKWSET  STARTVA=R10,STATUS=#SS$_WASSET  ;LOCK ALL, LAST ALREADY LOCKED
0000'CF   5A    D0   05A8                        MOVL    R10,W^INRANGE
```

```
                53    09    3C  05AD                        MOVZWL  #SS$_WASSET,R3
50              0000'CF     DE  05B0                        MOVAL   W^INRANGE,R0
51              0008'CF     DE  05B5                        MOVAL   W^RETRANGE,R1
                   054C     30  05BA                        BSBW    LKWSETSUBR
                            05BD    458         ULWSET      STARTVA=R11                         ;UNLOCK LAST PAGE ONLY
0000'CF         5B          D0  05BD                        MOVL    R11,W^INRANGE
                53    09    3C  05C2                        MOVZWL  S^#SS$_WASSET,R3
50              0000'CF     DE  05C5                        MOVAL   W^INRANGE,R0
51              0008'CF     DE  05CA                        MOVAL   W^RETRANGE,R1
                   054B     30  05CF                        BSBW    ULWSETSUBR
                            05D2    459         ULWSET      STARTVA=R10,STATUS=#SS$_WASCLR      ;UNLOCK ALL, LAST ALREADY UNLOCKED
0000'CF         5A          D0  05D2                        MOVL    R10,W^INRANGE
                53    01    3C  05D7                        MOVZWL  #SS$_WASCLR,R3
50              0000'CF     DE  05DA                        MOVAL   W^INRANGE,R0
51              0008'CF     DE  05DF                        MOVAL   W^RETRANGE,R1
                   0536     30  05E4                        BSBW    ULWSETSUBR
                            05E7    460         DELTVA                                          ;CLEAN UP
                53    01    3C  05E7                        MOVZWL  S^#SS$_NORMAL,R3
50              0000'CF     DE  05EA                        MOVAL   W^INRANGE,R0
51              0008'CF     DE  05EF                        MOVAL   W^RETRANGE,R1
                   04FE     30  05F4                        BSBW    DELTVASUBR
```

```
                                05F7   462          .SBTTL  FORCE ERRORS IN LOCK/UNLOCK FROM WORKING SET
                                05F7   463 ;
                                05F7   464 ; FORCE ERRORS IN LOCK/UNLOCK FROM WORKING SET
                                05F7   465 ;
                                05F7   466          LKWSET  #^X80000200,#^X80000A00,#SS$_NOPRIV ;LOCK SYSTEM PAGE
    0000'CF    80000200 8F    D0   05F7                   MOVL    #^X80000200,W^INRANGE
    0004'CF    80000A00 8F    D0   0600                   MOVL    #^X80000A00,W^INRANGE+4
                     53    24   3C   0609                   MOVZWL  #SS$_NOPRIV,R3
               50    0000'CF    DE   060C                   MOVAL   W^INRANGE,R0
               51    0008'CF    DE   0611                   MOVAL   W^RETRANGE,R1
                        04F0    30   0616                   BSBW    LKWSETSUBR
                                0619   467          ULWSET  STATUS=#SS$_NOPRIV              ;UNLOCK SYSTEM PAGES
                     53    24   3C   0619                   MOVZWL  #SS$_NOPRIV,R3
               50    0000'CF    DE   061C                   MOVAL   W^INRANGE,R0
               51    0008'CF    DE   0621                   MOVAL   W^RETRANGE,R1
                        04F4    30   0626                   BSBW    ULWSETSUBR
                                0629   468          LKWSET  #<1@31-<128@9>-1>,W^INRANGE,#SS$_PAGOWNVIO
    0000'CF    7FFEFFFF 8F    D0   0629                   MOVL    #<1@31-<128@9>-1>,W^INRANGE
        0004'CF    0000'CF    D0   0632                   MOVL    W^INRANGE,W^INRANGE+4
               53    01EC 8F    3C   0639                   MOVZWL  #SS$_PAGOWNVIO,R3
               50    0000'CF    DE   063E                   MOVAL   W^INRANGE,R0
               51    0008'CF    DE   0643                   MOVAL   W^RETRANGE,R1
                        04BE    30   0648                   BSBW    LKWSETSUBR
                                064B   469                                   ;LOCK PAGE OWNED BY SOMEONE ELSE
                                064B   470          ULWSET  STATUS=#SS$_PAGOWNVIO           ;UNLOCK PAGE OWNED BY SOMEONE ELSE
               53    01EC 8F    3C   064B                   MOVZWL  #SS$_PAGOWNVIO,R3
               50    0000'CF    DE   0650                   MOVAL   W^INRANGE,R0
               51    0008'CF    DE   0655                   MOVAL   W^RETRANGE,R1
                        04C0    30   065A                   BSBW    ULWSETSUBR
                                065D   471          LKWSET  W^SAVEND,W^SAVEND,#SS$_ACCVIO   ;LOCK NONEXISTENT PAGE
        0000'CF    0014'CF    D0   065D                   MOVL    W^SAVEND,W^INRANGE
        0004'CF    0014'CF    D0   0664                   MOVL    W^SAVEND,W^INRANGE+4
                     53    0C   3C   066B                   MOVZWL  #SS$_ACCVIO,R3
               50    0000'CF    DE   066E                   MOVAL   W^INRANGE,R0
               51    0008'CF    DE   0673                   MOVAL   W^RETRANGE,R1
                        048E    30   0678                   BSBW    LKWSETSUBR
                                067B   472          ULWSET  STATUS=#SS$_ACCVIO              ;UNLOCK NONEXISTENT PAGE
                     53    0C   3C   067B                   MOVZWL  #SS$_ACCVIO,R3
               50    0000'CF    DE   067E                   MOVAL   W^INRANGE,R0
               51    0008'CF    DE   0683                   MOVAL   W^RETRANGE,R1
                        0492    30   0688                   BSBW    ULWSETSUBR
                                068B   473          LKWSET  #0,#0,#SS$_ACCVIO               ;LOCK DELETED PAGE
               0000'CF    00   D0   068B                   MOVL    #0,W^INRANGE
               0004'CF    00   D0   0690                   MOVL    #0,W^INRANGE+4
                     53    0C   3C   0695                   MOVZWL  #SS$_ACCVIO,R3
               50    0000'CF    DE   0698                   MOVAL   W^INRANGE,R0
               51    0008'CF    DE   069D                   MOVAL   W^RETRANGE,R1
                        0464    30   06A2                   BSBW    LKWSETSUBR
                                06A5   474          ULWSET  STATUS=#SS$_ACCVIO              ;UNLOCK DELETED PAGE
                     53    0C   3C   06A5                   MOVZWL  #SS$_ACCVIO,R3
               50    0000'CF    DE   06A8                   MOVAL   W^INRANGE,R0
               51    0008'CF    DE   06AD                   MOVAL   W^RETRANGE,R1
                        0468    30   06B2                   BSBW    ULWSETSUBR
                                06B5   475
        0000'CF    0014'CF    D0   06B5   476          MOVL    W^SAVEND,W^INRANGE
    0014'CF    000005FF 8F    C1   06BC   477          ADDL3   #3*512-1,W^SAVEND,W^INRANGE+4
                     0004'CF         06C5
```

```
                                 06C8   478          CRETVA                                  ;CREATE SOME PAGES
                53   01    3C   06C8                       MOVZWL  S^#SS$_NORMAL,R3
           50   0000'CF    DE   06CB                       MOVAL   W^INRANGE,R0
           51   0008'CF    DE   06D0                       MOVAL   W^RETRANGE,R1
                   0409    30   06D5                       BSBW    CRETVASUBR
                                 06D8   479          LKWSET  STATUS=#SS$_ACCVIO,INADR=W^4     ;INPUT RANGE NOT ACCESSIBLE
                53   0C    3C   06D8                       MOVZWL  #SS$_ACCVIO,R3
           50   0004'CF    DE   06DB                       MOVAL   W^4,R0
           51   0008'CF    DE   06E0                       MOVAL   W^RETRANGE,R1
                   0421    30   06E5                       BSBW    LKWSETSUBR
                                 06E8   480          ULWSET  STATUS=#SS$_ACCVIO,INADR=W^4     ;INPUT RANGE NOT ACCESSIBLE
                53   0C    3C   06E8                       MOVZWL  #SS$_ACCVIO,R3
           50   0004'CF    DE   06EB                       MOVAL   W^4,R0
           51   0008'CF    DE   06F0                       MOVAL   W^RETRANGE,R1
                   0425    30   06F5                       BSBW    ULWSETSUBR
                                 06F8   481          LKWSET  STATUS=#SS$_ACCVIO,RETADR=W^8    ;RETURN RANGE NOT ACCESSIBLE
                53   0C    3C   06F8                       MOVZWL  #SS$_ACCVIO,R3
           50   0000'CF    DE   06FB                       MOVAL   W^INRANGE,R0
           51   0008'CF    DE   0700                       MOVAL   W^8,R1
                   0401    30   0705                       BSBW    LKWSETSUBR
                                 0708   482          ULWSET  STATUS=#SS$_ACCVIO,RETADR=W^8    ;RETURN RANGE NOT ACCESSIBLE
                53   0C    3C   0708                       MOVZWL  #SS$_ACCVIO,R3
           50   0000'CF    DE   070B                       MOVAL   W^INRANGE,R0
           51   0008'CF    DE   0710                       MOVAL   W^8,R1
                   0405    30   0715                       BSBW    ULWSETSUBR
                                 0718   483          CRETVA  W^SAVEND,#1@30-1,#SS$_VASFULL    ;CREATE ALL POSSIBLE PAGES
      0000'CF   0014'CF    D0   0718                       MOVL    W^SAVEND,W^INRANGE
 0004'CF   3FFFFFFF 8F    D0   071F                       MOVL    #1@30-1,W^INRANGE+4
           53   0244 8F    3C   0728                       MOVZWL  #SS$_VASFULL,R3
           50   0000'CF    DE   072D                       MOVAL   W^INRANGE,R0
           51   0008'CF    DE   0732                       MOVAL   W^RETRANGE,R1
                   03A7    30   0737                       BSBW    CRETVASUBR
                                 073A   484          LKWSET  STATUS=#SS$_LKWSETFUL            ;AND TRY TO LOCK TOO MANY
           53   0194 8F    3C   073A                       MOVZWL  #SS$_LKWSETFUL,R3
           50   0000'CF    DE   073F                       MOVAL   W^INRANGE,R0
           51   0008'CF    DE   0744                       MOVAL   W^RETRANGE,R1
                   03BD    30   0749                       BSBW    LKWSETSUBR
                                 074C   485          RANGECHK OFF
      0010'CF    08    CA   074C                       BICL    #CTL$M_RNGCHK,W^CTLFLG
                                 0751   486          ULWSET  INADR=W^RETRANGE                 ;UNLOCK ALL THAT WERE LOCKED
                53   09    3C   0751                       MOVZWL  S^#SS$_WASSET,R3
           50   0008'CF    DE   0754                       MOVAL   W^RETRANGE,R0
           51   0008'CF    DE   0759                       MOVAL   W^RETRANGE,R1
                   038C    30   075E                       BSBW    ULWSETSUBR
                                 0761   487          DELTVA  #1@30-1,W^SAVEND                 ;DELETE ALL THAT WERE CREATED
 0000'CF   3FFFFFFF 8F    D0   0761                       MOVL    #1@30-1,W^INRANGE
      0004'CF   0014'CF    D0   076A                       MOVL    W^SAVEND,W^INRANGE+4
                53   01    3C   0771                       MOVZWL  S^#SS$_NORMAL,R3
           50   0000'CF    DE   0774                       MOVAL   W^INRANGE,R0
           51   0008'CF    DE   0779                       MOVAL   W^RETRANGE,R1
                   0374    30   077E                       BSBW    DELTVASUBR
                                 0781   488          RANGECHK ON
      0010'CF    08    C8   0781                       BISL    #CTL$M_RNGCHK,W^CTLFLG
                                 0786   489 ;
                                 0786   490 ;  END OF LOOP
                                 0786   491 ;
 03 0020'CF    001C'CF    F3   0786   492                AOBLEQ  W^MAXPASSCNT,W^PASSCNT,150$
```

```
0003   31  078E   493          BRW     GBL_SEC_MESSAGE
FD23   31  0791   494 150$:    BRW     RSTART_T
           0794   495
```

```
                                0794   497          .SBTTL  TEST/FORCE ERRORS IN LOCK/UNLOCK GLOBAL SECTS
                                0794   498 ;
                                0794   499 ;TEST & FORCE ERRORS IN LOCKING/UNLOCKING GLOBAL SECTIONS
                                0794   500 ;
                                0794   501 GBL_SEC_MESSAGE:
          0010'CF    04    C8   0794   502          BISL    #CTL$M_PIDMSG,W^CTLFLG          ;ALLOW PROCESS ID TO PRINT
                                0799   503          $FAO_S  RUN2_MSG,MSGLEN,MSGBUFD         ;INFORM OPR GBL SECTION VA SPACE BEI
                   04BE    30   07B0   504          BSBW    TYPEMSGBUF                      ;USED FOR TESTS
          0010'CF    04    CA   07B3   505          BICL    #CTL$M_PIDMSG,W^CTLFLG          ;STOP PROCESS ID FROM PRINTING
          0020'CF    01    D0   07B8   506          MOVL    #1,W^PASSCNT                    ;REINITIALIZE THE PASS COUNT
                                07BD   507
                                07BD   508 RSTART_2:
                                07BD   509          RANGECHK ON
          0010'CF    08    C8   07BD                       BISL    #CTL$M_RNGCHK,W^CTLFLG
                                07C2   510          $FAO_S  IDMSG,MSGLEN,MSGBUFD,PASSCNT
                   048F    30   07DF   511          BSBW    TYPEMSGBUF
                                07E2   512          EXPREG  #1
               53   01    3C   07E2                       MOVZWL  S^#SS$_NORMAL,R3
               54   01    D0   07E5                       MOVL    #1,R4
          51   0008'CF    DE   07E8                       MOVAL   W^RETRANGE,R1
                     55    D4   07ED                       CLRL    R5
                   039C    30   07EF                       BSBW    EXPREGSUBR
          52   0008'CF    7D   07F2   513          MOVQ    W^RETRANGE,R2
          0000'CF    52    7D   07F7   514          MOVQ    R2,W^INRANGE
          0014'CF    52    D0   07FC   515          MOVL    R2,W^SAVEND
                                0801   516
    0000'CF    0014'CF    D0   0801   517          MOVL    W^SAVEND,W^INRANGE              ;DEFINE INRANGE AT END OF CODE
    0004'CF    0014'CF    D0   0808   518          MOVL    W^SAVEND,W^INRANGE+4
                                080F   519          CREMAPSEC       -                       ;CREATE READ-ONLY GLOBAL SECTION
                                080F   520                  INADR=<W^INRANGE>,-
                                080F   521                  FLAGS=#<SEC$M_GBL!SEC$M_PERM>,-
                                080F   522                  PAGCNT=#10,-
                                080F   523                  RETADR=<W^RETRANGE>
               53   01    3C   080F                       MOVZWL  S^#SS$_NORMAL,R3
                                0812   30000$:
                     00    DD   0812                       PUSHL   #0
                     0A    DD   0814                       PUSHL   #10
               FC1A  CF    DF   0816                       PUSHAL  W^FILENAME
                     00    DD   081A                       PUSHL   #0
               FC0C  CF    DF   081C                       PUSHAL  W^GBLSECNAM
            00004001  8F    DD   0820                       PUSHL   #<SEC$M_GBL!SEC$M_PERM>
                0008'CF    DF   0826                       PUSHAL  W^RETRANGE
                0000'CF    DF   082A                       PUSHAL  W^INRANGE
     00000000'EF    08    FB   082E                       CALLS   #8,LIB$_CREMAPSEC
     50   0001828A  8F    D1   0835                       CMPL    #^X1828A,R0             ;IF PREVIOUS GBL SECTION HASN'T
                     D4    13   083C                       BEQL    30000$                  ;BEEN DELETED TRY CREMAPSEC AGAIN.
          51   FB9A  CF    DE   083E                       MOVAL   W^CRMPSCERR,R1
                     02E9    30   0843                       BSBW    CHECK1
                                0846   524          LKWSET  W^RETRANGE,W^RETRANGE+4         ;LOCK READ-ONLY GLOBAL SECTION
    0000'CF    0008'CF    D0   0846                       MOVL    W^RETRANGE,W^INRANGE
    0004'CF    000C'CF    D0   084D                       MOVL    W^RETRANGE+4,W^INRANGE+4
               53   01    3C   0854                       MOVZWL  S^#SS$_WASCLR,R3
          50   0000'CF    DE   0857                       MOVAL   W^INRANGE,R0
          51   0008'CF    DE   085C                       MOVAL   W^RETRANGE,R1
                     02A5    30   0861                       BSBW    LKWSETSUBR
                                0864   525          ULWSET  W^RETRANGE,W^RETRANGE+4         ;UNLOCK WHAT WE LOCKED
    0000'CF    0008'CF    D0   0864                       MOVL    W^RETRANGE,W^INRANGE
```

```
0004'CF    000C'CF    D0   086B                        MOVL    W^RETRANGE+4,W^INRANGE+4
           53    09   3C   0872                        MOVZWL  S^#SS$_WASSET,R3
      50   0000'CF    DE   0875                        MOVAL   W^INRANGE,R0
      51   0008'CF    DE   087A                        MOVAL   W^RETRANGE,R1
              029B    30   087F                        BSBW    ULWSETSUBR
                      0882   526        DELTVA                                  ;DELETE WHAT WE CREATED
           53    01   3C   0882                        MOVZWL  S^#SS$_NORMAL,R3
      50   0000'CF    DE   0885                        MOVAL   W^INRANGE,R0
      51   0008'CF    DE   088A                        MOVAL   W^RETRANGE,R1
              0263    30   088F                        BSBW    DELTVASUBR
                      0892   527        $DGBLSC_S       -                       ;DELETE THE SECTION
                      08A2   528                       GSDNAM=<W^GBLSECNAM>
0000'CF    0014'CF    D0   08A1   529        MOVL    W^SAVEND,W^INRANGE
0004'CF    0014'CF    D0   08A8   530        MOVL    W^SAVEND,W^INRANGE+4
                      08AF   531        CREMAPSEC       -                       ;CREATE A WRITABLE GLOBAL SECTION
                      08AF   532                       INADR=<W^INRANGE>,-
                      08AF   533                       FLAGS=#<SEC$M_GBL!SEC$M_WRT!SEC$M_PERM>,-
                      08AF   534                       PAGCNT=#10,-
                      08AF   535                       RETADR=<W^RETRANGE>
           53    01   3C   08AF                        MOVZWL  S^#SS$_NORMAL,R3
                      08B2        30001$:
                00    DD   08B2                        PUSHL   #0
                0A    DD   08B4                        PUSHL   #10
           FB7A CF    DF   08B6                        PUSHAL  W^FILENAME
                00    DD   08BA                        PUSHL   #0
           FB6C CF    DF   08BC                        PUSHAL  W^GBLSECNAM
      00004009 8F     DD   08C0                        PUSHL   #<SEC$M_GBL!SEC$M_WRT!SEC$M_PERM>
           0008'CF    DF   08C6                        PUSHAL  W^RETRANGE
           0000'CF    DF   08CA                        PUSHAL  W^INRANGE
00000000'EF    08    FB   08CE                        CALLS   #8,LIB$_CREMAPSEC
50   0001828A 8F     D1   08D5                        CMPL    #^X1828A,R0             ;IF PREVIOUS GBL SECTION HASN'T
                D4   13   08DC                        BEQL    30001$                  ;BEEN DELETED TRY CREMAPSEC AGAIN.
     51   FAFA CF    DE   08DE                        MOVAL   W^CRMPSCERR,R1
              0249    30   08E3                        BSBW    CHECK1
                      08E6   536        LKWSET  W^RETRANGE,W^RETRANGE+4,STATUS=#SS$_NOPRIV      ;TRY TO LOCK IT
0000'CF    0008'CF    D0   08E6                        MOVL    W^RETRANGE,W^INRANGE
0004'CF    000C'CF    D0   08ED                        MOVL    W^RETRANGE+4,W^INRANGE+4
           53    24   3C   08F4                        MOVZWL  #SS$_NOPRIV,R3
      50   0000'CF    DE   08F7                        MOVAL   W^INRANGE,R0
      51   0008'CF    DE   08FC                        MOVAL   W^RETRANGE,R1
              0205    30   0901                        BSBW    LKWSETSUBR
                      0904   537        DELTVA                                  ;DELETE WHAT WE CREATED
           53    01   3C   0904                        MOVZWL  S^#SS$_NORMAL,R3
      50   0000'CF    DE   0907                        MOVAL   W^INRANGE,R0
      51   0008'CF    DE   090C                        MOVAL   W^RETRANGE,R1
              01E1    30   0911                        BSBW    DELTVASUBR
                      0914   538        $DGBLSC_S       -                       ;DELETE THE SECTION
                      0914   539                       GSDNAM=<W^GBLSECNAM>
                      0923   540 ;
                      0923   541 ; END OF LOOP
                      0923   542 ;
03 0020'CF    001C'CF   F3   0923   543        AOBLEQ  W^MAXPASSCNT,W^PASSCNT,160$
              0003    31   092B   544        BRW     PFNMAP_MESSAGE
              FE8C    31   092E   545 160$:   BRW     RSTART_2
```

```
                                0931    547          .SBTTL  TEST/FORCE ERRORS IN LOCK/UNLOCK GLOBAL SECTS
                                0931    548 ;
                                0931    549 ;TEST & FORCE ERRORS IN LOCKING/UNLOCKING PFN MAPPED SECTIONS
                                0931    550 ;
                                0931    551 PFNMAP_MESSAGE:
0010'CF    04    C8             0931    552          BISL    #CTL$M_PIDMSG,W^CTLFLG          ;ALLOW PROCESS ID TO PRINT
                                0936    553          $FAO_S  RUN3_MSG,MSGLEN,MSGBUFD         ;INFORM OPR PFN MAPPING BEING
          0321    30            094D    554          BSBW    TYPEMSGBUF                      ;USED FOR TESTS
0010'CF    04    CA             0950    555          BICL    #CTL$M_PIDMSG,W^CTLFLG          ;STOP PROCESS ID FROM PRINTING
0020'CF    01    D0             0955    556          MOVL    #1,W^PASSCNT                    ;REINITIALIZE THE PASS COUNT
                                095A    557
                                095A    558 RSTART_3:
                                095A    559          RANGECHK ON
0010'CF    08    C8             095A                         BISL    #CTL$M_RNGCHK,W^CTLFLG
                                095F    560          $FAO_S  IDMSG,MSGLEN,MSGBUFD,PASSCNT
          02F2    30            097C    561          BSBW    TYPEMSGBUF
                                097F    562          EXPREG  #1
     53    01    3C             097F                         MOVZWL  S^#SS$_NORMAL,R3
     54    01    D0             0982                         MOVL    #1,R4
51   0008'CF    DE             0985                         MOVAL   W^RETRANGE,R1
          55    D4             098A                         CLRL    R5
        01FF    30             098C                         BSBW    EXPREGSUBR
52   0008'CF    7D             098F    563          MOVQ    W^RETRANGE,R2
0000'CF    52    7D             0994    564          MOVQ    R2,W^INRANGE
0014'CF    52    D0             0999    565          MOVL    R2,W^SAVEND
                                099E    566
0000'CF    0014'CF    D0        099E    567          MOVL    W^SAVEND,W^INRANGE              ;DEFINE INRANGE AT END OF CODE
0004'CF    0014'CF    D0        09A5    568          MOVL    W^SAVEND,W^INRANGE+4
     53    01    3C             09AC    569          MOVZWL  S^#SS$_NORMAL,R3                ;SET EXPECTED RETURN STATUS
                                09AF    570 L1:
                                09AF    571          $CRMPSC_S       -                       ;CREATE PFN MAPPED SECTION
                                09AF    572                  INADR=<W^INRANGE>,-
                                09AF    573                  RETADR=<W^RETRANGE>,-
                                09AF    574                  GSDNAM=<W^GBLSECNAM>,-
                                09AF    575                  VBN=#0,-
                                09AF    576                  FLAGS=#<SEC$M_GBL!SEC$M_PERM!SEC$M_PFNMAP>,-
                                09AF    577                  PAGCNT=#25
                                09D7    578 ;*****
                                09D7    579 ;IN ORDER TO REMOVE THE TEMPORARY FIX EXPLAINED ABOVE REMOVE THE LINES
                                09D7    580 ;STARTING FROM HERE AND EXTENDING THE THE NEXT SET OF ASTERICS.
                                09D7    581 ;
50   0001828A    8F    D1        09D7    582                  CMPL    #^X1828A,R0             ;IF PREVIOUS GBL SECTION HASN'T
                CF    13        09DE    583                  BEQL    L1                      ;BEEN DELETED TRY CREMAPSEC AGAIN.
                                09E0    584 ;*****
     51    F9F8    CF    DE      09E0    585                  MOVAL   W^CRMPSCERR,R1
              0147    30        09E5    586                  BSBW    CHECK1
                                09E8    587
                                09E8    588          LKWSET  W^RETRANGE,W^RETRANGE+4         ;LOCK READ-ONLY PFN MAPPED SECTION
0000'CF    0008'CF    D0        09E8                         MOVL    W^RETRANGE,W^INRANGE
0004'CF    000C'CF    D0        09EF                         MOVL    W^RETRANGE+4,W^INRANGE+4
     53    01    3C             09F6                         MOVZWL  S^#SS$_WASCLR,R3
     50    0000'CF    DE        09F9                         MOVAL   W^INRANGE,R0
     51    0008'CF    DE        09FE                         MOVAL   W^RETRANGE,R1
              0103    30        0A03                         BSBW    LKWSETSUBR
                                0A06    589          ULWSET  W^RETRANGE,W^RETRANGE+4         ;UNLOCK WHAT WE LOCKED
0000'CF    0008'CF    D0        0A06                         MOVL    W^RETRANGE,W^INRANGE
0004'CF    000C'CF    D0        0A0D                         MOVL    W^RETRANGE+4,W^INRANGE+4
```

```
                53   09    3C   0A14                    MOVZWL  S^#SS$_WASSET,R3
           50   0000'CF    DE   0A17                    MOVAL   W^INRANGE,R0
           51   0008'CF    DE   0A1C                    MOVAL   W^RETRANGE,R1
                   00F9    30   0A21                    BSBW    ULWSETSUBR
                           0A24    590          DELTVA                                  ;DELETE WHAT WE CREATED
                53   01    3C   0A24                    MOVZWL  S^#SS$_NORMAL,R3
           50   0000'CF    DE   0A27                    MOVAL   W^INRANGE,R0
           51   0008'CF    DE   0A2C                    MOVAL   W^RETRANGE,R1
                   00C1    30   0A31                    BSBW    DELTVASUBR
                           0A34    591          $DGBLSC_S       -                       ;DELETE THE SECTION
                           0A34    592                  GSDNAM=<W^GBLSECNAM>
0000'CF    0014'CF    D0   0A43    593          MOVL    W^SAVEND,W^INRANGE
0004'CF    0014'CF    D0   0A4A    594          MOVL    W^SAVEND,W^INRANGE+4
                53   01    3C   0A51    595          MOVZWL  S^#SS$_NORMAL,R3                ;SET EXPECTED RETURN STATUS
                           0A54    596 L2:
                           0A54    597          $CRMPSC_S       -                       ;CREATE PFN MAPPED WRITABLE SECTION
                           0A54    598                  INADR=<W^INRANGE>,-
                           0A54    599                  RETADR=<W^RETRANGE>,-
                           0A54    600                  GSDNAM=<W^GBLSECNAM>,-
                           0A54    601                  VBN=#0,-
                           0A54    602                  FLAGS=#<SEC$M_GBL!SEC$M_PERM!SEC$M_PFNMAP!SEC$M_WRT>,-
                           0A54    603                  PAGCNT=#25
                           0A7C    604 ;*****
                           0A7C    605 ;IN ORDER TO REMOVE THE TEMPORARY FIX EXPLAINED ABOVE REMOVE THE LINES
                           0A7C    606 ;STARTING FROM HERE AND EXTENDING THE THE NEXT SET OF ASTERICS.
                           0A7C    607 ;
     50   0001828A 8F      D1   0A7C    608                  CMPL    #^X1828A,R0             ;IF PREVIOUS GBL SECTION HAS N
                     CF     13   0A83    609                  BEQL    L2                      ;BEEN DELETED TRY CREMAPSEC AGAIN.
                           0A85    610 ;*****
          51   F953 CF      DE   0A8A    611                  MOVAL   W^CRMPSCERR,R1
                   00A2    30   0A8A    612                  BSBW    CHECK1
                           0A8D    613
                           0A8D    614          LKWSET  W^RETRANGE,W^RETRANGE+4,STATUS=#SS$_NOPRIV      ;TRY TO LOCK IT
     0000'CF    0008'CF    D0   0A8D                    MOVL    W^RETRANGE,W^INRANGE
     0004'CF    000C'CF    D0   0A94                    MOVL    W^RETRANGE+4,W^INRANGE+4
                53   24    3C   0A9B                    MOVZWL  #SS$_NOPRIV,R3
           50   0000'CF    DE   0A9E                    MOVAL   W^INRANGE,R0
           51   0008'CF    DE   0AA3                    MOVAL   W^RETRANGE,R1
                   005E    30   0AA8                    BSBW    LKWSETSUBR
                           0AAB    615          DELTVA                                  ;DELETE WHAT WE CREATED
                53   01    3C   0AAB                    MOVZWL  S^#SS$_NORMAL,R3
           50   0000'CF    DE   0AAE                    MOVAL   W^INRANGE,R0
           51   0008'CF    DE   0AB3                    MOVAL   W^RETRANGE,R1
                   003A    30   0AB8                    BSBW    DELTVASUBR
                           0ABB    616          $DGBLSC_S       -                       ;DELETE THE SECTION
                           0ABB    617                  GSDNAM=<W^GBLSECNAM>
                           0ACA    618 ;
                           0ACA    619 ; END OF LOOP
                           0ACA    620 ;
OC 0020'CF    001C'CF      F3   0ACA    621          AOBLEQ  W^MAXPASSCNT,W^PASSCNT,170$
                50   01    D0   0AD2    622          MOVL    #1,R0
                           0AD5    623          $EXIT_S R0
                   FE79    31   0ADE    624 170$:    BRW     RSTART_3
                           0AE1    625
```

```
                     0AE1    627          .SBTTL  SUBROUTINES TO CALL THE SERVICES
                     0AE1    628 ;
                     0AE1    629 ; INPUT:
                     0AE1    630 ;
                     0AE1    631 ;       R0 = INADR
                     0AE1    632 ;       R1 = RETADR
                     0AE1    633 ;       R3 = DESIRED STATUS
                     0AE1    634 ;
                     0AE1    635 ; OUTPUT:
                     0AE1    636 ;
                     0AE1    637 ;       R2 PRESERVED
                     0AE1    638 ;
                     0AE1    639 CRETVASUBR:
                     0AE1    640          $CRETVA_S (R0),(R1)
 51    F8DA CF   DE  0AEE    641          MOVAL   W^CRETVAERR,R1                  ;ERROR CONTROL STRING
             3A   11  0AF3    642          BRB     CHECK1
                     0AF5    643 ;
                     0AF5    644 ; INPUT:
                     0AF5    645 ;
                     0AF5    646 ;       R0 = INADR
                     0AF5    647 ;       R1 = RETADR
                     0AF5    648 ;       R3 = DESIRED STATUS
                     0AF5    649 ;
                     0AF5    650 ; OUTPUT:
                     0AF5    651 ;
                     0AF5    652 ;       R2 PRESERVED
                     0AF5    653 ;
                     0AF5    654 DELTVASUBR:
                     0AF5    655          $DELTVA_S (R0),(R1)
 51    F8CE CF   DE  0B02    656          MOVAL   W^DELTVAERR,R1                  ;ERROR CONTROL STRING
             26   11  0B07    657          BRB     CHECK1
                     0B09    658 ;
                     0B09    659 ; INPUT:
                     0B09    660 ;
                     0B09    661 ;       R0 = INADR
                     0B09    662 ;       R1 = RETADR
                     0B09    663 ;       R3 = DESIRED STATUS
                     0B09    664 ;
                     0B09    665 ; OUTPUT:
                     0B09    666 ;
                     0B09    667 ;       R2 PRESERVED
                     0B09    668 ;
                     0B09    669 LKWSETSUBR:
                     0B09    670          $LKWSET_S (R0),(R1)
 51    F8D2 CF   DE  0B16    671          MOVAL   W^LKWSETERR,R1                  ;ERROR CONTROL STRING
             12   11  0B1B    672          BRB     CHECK1
                     0B1D    673 ;
                     0B1D    674 ; INPUT:
                     0B1D    675 ;
                     0B1D    676 ;       R0 = INADR
                     0B1D    677 ;       R1 = RETADR
                     0B1D    678 ;       R3 = DESIRED STATUS
                     0B1D    679 ;
                     0B1D    680 ; OUTPUT:
                     0B1D    681 ;
                     0B1D    682 ;       R2 PRESERVED
                     0B1D    683 ;
```

```
                    0B1D   684 ULWSETSUBR:
                    0B1D   685          $ULWSET_S (R0),(R1)
          51  F8C6 CF   DE  0B2A   686          MOVAL   W^ULWSETERR,R1                  ;ERROR CONTROL STRING
```

```
                     0B2F   688 CHECK1:
      53    50   D1  0B2F   689          CMPL    R0,R3                           ;STATUS AS DESIRED
            57   13  0B32   690          BEQL    10$                             ;BRANCH IF YES
53    0244 8F   B1  0B34   691          CMPW    #SS$_VASFULL,R3                 ;IF EXPECTING VIRTUAL ADDRESS SPACE
            05   12  0B39   692          BNEQ    15$
      50    1C   B1  0B3B   693          CMPW    #SS$_EXQUOTA,R0                 ;THEN EXCEEDS QUOTA MAY ALSO BE RETU
            4B   13  0B3E   694          BEQL    10$
                     0B40   695 15$:
      53    01   B1  0B40   696          CMPW    #SS$_NORMAL,R3                  ;IF EXPECTING NORMAL
            07   12  0B43   697          BNEQ    5$                              ;COMPLETION FOR CRMPSC
50    0619 8F   B1  0B45   698          CMPW    #SS$_CREATED,R0                 ;THEN GLOBAL SECTION CREATED
            3F   13  0B4A   699          BEQL    10$                             ;MAY BE RETURNED
            54   DD  0B4C   700 5$:      PUSHL   R4
  54    04 AE   D0  0B4E   701          MOVL    4(SP),R4                        ;ADDRESS OF ERROR
                     0B52   702          $FAO_S  (R1),MSGLEN,MSGBUFD,R4,R0,R3,-
                     0B52   703                  INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
            10   BA  0B85   704          POPR    #^M<R4>
          00E7   30  0B87   705          BSBW    TYPEMSGBUF
                     0B8A   706          RSB
                     0B8B   707 10$:
          0069   31  0B8B   708          BRW     RANGECHK                        ;GO CHECK THE RETURN RANGE
```

```
                        0B8E    710 ;
                        0B8E    711 ; INPUT:
                        0B8E    712 ;
                        0B8E    713 ;       R1 = RETADR
                        0B8E    714 ;       R3 = DESIRED STATUS
                        0B8E    715 ;       R4 = PAGCNT
                        0B8E    716 ;       R5 = REGION
                        0B8E    717 ;
                        0B8E    718 ; OUTPUT:
                        0B8E    719 ;
                        0B8E    720 ;       R2 PRESERVED
                        0B8E    721 ;
                        0B8E    722 EXPREGSUBR:
                        0B8E    723         $EXPREG_S R4,(R1),,R5
          51    F843 CF   DE    0B9D    724         MOVAL   W^EXPREGERR,R1                  ;ERROR CONTROL STRING
                        0BA2    725
                        0BA2    726 CHECK2:
              53    50    D1    0BA2    727         CMPL    R0,R3                           ;STATUS AS DESIRED?
                    39    13    0BA5    728         BEQL    10$                             ;BRANCH IF YES
                    56    DD    0BA7    729         PUSHL   R6
            56    04 AE   D0    0BA9    730         MOVL    4(SP),R6                        ;ADDRESS OF ERROR
                        0BAD    731         $FAO_S  (R1),MSGLEN,MSGBUFD,R6,R0,R3,R4,R5,-
                        0BAD    732                 RETRANGE,RETRANGE+4
              0040 8F   BA    0BD8    733         POPR    #^M<R6>
                 0092   30    0BDC    734         BSBW    TYPEMSGBUF
                        05    0BDF    735         RSB
      0000'CF   0008'CF   D0    0BE0    736 10$:    MOVL    W^RETRANGE,W^INRANGE            ;MAKE INPUT RANGE LOOK LIKE CRETVA/D
                    54    D7    0BE7    737         DECL    R4
          54    54    09    78    0BE9    738         ASHL    #9,R4,R4
0004'CF   0000'CF   54    C1    0BED    739         ADDL3   R4,W^INRANGE,W^INRANGE+4
                    00    11    0BF5    740         BRB     RANGECHK                        ;AND CHECK THE RETURN RANGE
                        0BF7    741
```

```
                          0BF7    743 RANGECHK:
73 0010'CF    03    E1    0BF7    744         BBC     #CTL$V_RNGCHK,W^CTLFLG,40$      ;BRANCH IF RANGE CHECK IS DISABLED
         70 50      E9    0BFD    745         BLBC    R0,40$                          ;IF ERROR IN SERVICE, SKIP THE RANGE
   50    0000'CF    7D    0C00    746         MOVQ    W^INRANGE,R0                    ;R0 = STARVA, R1 = ENDVA
         51    50   D1    0C05    747         CMPL    R0,R1                           ;WHICH DIRECTION?
               12   1A    0C08    748         BGTRU   10$                             ;BRANCH IF BACKWARDS
               04   1F    0C0A    749         BLSSU   5$                              ;BRANCH IF FORWARDS
      0C 50    1E   E0    0C0C    750         BBS     #30,R0,10$                      ;FOR EQUAL, P0 SPACE FORWARDS, P1 BA
                          0C10    751 ;
                          0C10    752 ; REQUESTED RANGE IS FORWARDS
                          0C10    753 ;
   50    01FF  8F    AA   0C10    754 5$:     BICW    #^X1FF,R0                       ;FROM BYTE 0 OF STARTVA
   51    01FF  8F    A8   0C15    755         BISW    #^X1FF,R1                       ;THROUGH LAST BYTE OF ENDVA
               0A    11   0C1A    756         BRB     20$                             ;
                          0C1C    757 ;
                          0C1C    758 ; GOING BACKWARDS IN VIRTUAL ADDRESS SPACE
                          0C1C    759 ;
   50    01FF  8F    A8   0C1C    760 10$:    BISW    #^X1FF,R0                       ;LAST BYTE OF STARTVA
   51    01FF  8F    AA   0C21    761         BICW    #^X1FF,R1                       ;THROUGH FIRST BYTE OF ENDVA
   0008'CF     50    D1   0C26    762 20$:    CMPL    R0,W^RETRANGE                   ;IS THIS WHAT WAS RETURNED?
               07    12   0C2B    763         BNEQ    30$                             ;BRANCH IF NOT, ERROR
   000C'CF     51    D1   0C2D    764         CMPL    R1,W^RETRANGE+4                 ;THIS ONE OK TOO?
               3C    13   0C32    765         BEQL    40$                             ;BRANCH IF YES, RANGE OK
               53    DD   0C34    766 30$:    PUSHL   R3                              ;SAVE REGISTER
     53   04 AE    D0   0C36    767         MOVL    4(SP),R3                        ;TO USE FOR ERROR PC
                          0C3A    768         $FAO_S  <W^RANGERR>,MSGLEN,MSGBUFD,R3,- ;FORMAT THE ERROR MESSAGE
                          0C3A    769                 INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
                08    BA   0C6B    770         POPR    #^M<R3>                         ;RESTORE SAVE REGISTER
                  0001  30   0C6D    771         BSBW    TYPEMSGBUF                      ;OUTPUT THE ERROR MESSAGE
                        05   0C70    772 40$:    RSB                                     ;AND RETURN
```

```
                        0C71    774          .SBTTL  MISCELLANEOUS SUBROUTINES
                        0C71    775 ;
                        0C71    776 ; TYPE A MESSAGE
                        0C71    777 ;       MSGBUF IS THE ADDRESS OF THE BEGINNING OF THE STRING
                        0C71    778 ;       MSGLEN CONTAINS THE SIZE (IN BYTES) OF THE STRING
                        0C71    779 ;
                        0C71    780 TYPEMSGBUF:
   50   00B8'CF    D0  0C71    781          MOVL    W^MSGLEN,R0                     ;SIZE TO R0
   51   00DA'CF    DE  0C76    782          MOVAL   W^MSGBUF,R1                     ;ADDRESS TO R1
08 0010'CF    02    E1  0C7B    783          BBC     #CTL$V_PIDMSG,W^CTLFLG,5$       ;BRANCH IF NO PROCESS ID REQUIRED
   51   00CC'CF    DE  0C81    784          MOVAL   W^MSGBUFID,R1                   ;ADDRESS INCLUDING PID MSG
        50    0E'   C0  0C86    785          ADDL    S^#<MSGBUF-MSGBUFID>,R0         ;INCLUDE EXTRA BYTES IN COUNT
                        0C89    786 5$:
   009C'CF    51    D0  0C89    787          MOVL    R1,W^RAB+RAB$L_RBF              ;SET BUFFER ADDRESS
   0096'CF    50    B0  0C8E    788          MOVW    R0,W^RAB+RAB$W_RSZ              ;AND SIZE
                        0C93    789          $PUT    W^RAB                           ;OUTPUT THE MESSAGE
         01 50    E9  0C9E    790          BLBC    R0,20$
                        05  0CA1    791          RSB
                        0CA2    792 20$:     $EXIT_S R0                              ;EXIT WITH ERROR STATUS
                        0CAB    793
                        0CAB    794          .END    START
```

$$.TAB	= 00000074	R	02	IDMSGSIZ	= 00000039					
$$.TABEND	= 00000088	R	02	INRANGE	00000000	R	02			
$$.TMP	= 00000000			L1	000009AF	R	03			
$$.TMP1	= 00000001			L2	00000A54	R	03			
$$.TMP2	= 000000CF			LIB$_CREMAPSEC	********	X	03			
$$T1	= 00000000			LKWSETERR	000003EC	R	03			
$$T2	= 00000008			LKWSETERRADR	00000133	R	03			
BIT...	= 00000004			LKWSETERRSIZ	= 00000063					
CHECK1	00000B2F	R	03	LKWSETSUBR	00000B09	R	03			
CHECK2	00000BA2	R	03	MAXPASSCNT	0000001C	R	02			
CRETVAERR	000003CC	R	03	MSGBUF	000000DA	R	02			
CRETVAERRADR	0000000A	R	03	MSGBUFD	000000BC	R	02			
CRETVAERRSIZ	= 00000063			MSGBUFID	000000CC	R	02			
CRETVASUBR	00000AE1	R	03	MSGBUFSIZ	= 000000A0					
CRETVA_MESSAGE	00000498	R	03	MSGLEN	000000B8	R	02			
CRLF	000000CC	R	02	OUTNAMADR	00000000	R	03			
CRMPSCERR	000003DC	R	03	OUTNAMSIZ	= 0000000A					
CRMPSCERRADR	000000D0	R	03	PASSCNT	00000020	R	02			
CRMPSCERRSIZ	= 00000063			PFNMAP_MESSAGE	00000931	R	03			
CTL$M_MEMLOOP	= 00000001			PID	00000018	R	02			
CTL$M_PIDMSG	= 00000004			PIDCTL	00000424	R	03			
CTL$M_RNGCHK	= 00000008			PIDCTLADR	000003B8	R	03			
CTL$M_TSTLOOP	= 00000002			PIDCTLSIZ	= 00000003					
CTL$V_MEMLOOP	= 00000000			PIDMSG	000000D6	R	02			
CTL$V_PIDMSG	= 00000002			PIDMSGD	000000C4	R	02			
CTL$V_RNGCHK	= 00000003			PREVPROT	00000024	R	02			
CTL$V_TSTLOOP	= 00000001			PRT$C_NONE	= 00000010					
CTLFLG	00000010	R	02	RAB	00000074	R	02			
DELTVAERR	000003D4	R	03	RAB$B_RAC	= 0000001E					
DELTVAERRADR	0000006D	R	03	RAB$C_BID	= 00000001					
DELTVAERRSIZ	= 00000063			RAB$C_BLN	= 00000044					
DELTVASUBR	00000AF5	R	03	RAB$C_SEQ	= 00000000					
EXPREGERR	000003E4	R	03	RAB$L_CTX	= 00000018					
EXPREGERRADR	000001F9	R	03	RAB$L_RBF	= 00000028					
EXPREGERRSIZ	= 00000072			RAB$L_ROP	= 00000004					
EXPREGSUBR	00000B8E	R	03	RAB$W_RSZ	= 00000022					
FAB	00000024	R	02	RANGECHK	00000BF7	R	03			
FAB$C_BID	= 00000003			RANGERR	000003FC	R	03			
FAB$C_BLN	= 00000050			RANGERRADR	0000026B	R	03			
FAB$C_SEQ	= 00000000			RANGERRSIZ	= 0000004F					
FAB$C_VAR	= 00000002			RETRANGE	00000008	R	02			
FAB$L_ALQ	= 00000010			RSTART_1	000004B7	R	03			
FAB$L_FOP	= 00000004			RSTART_2	000007BD	R	03			
FAB$V_CHAN_MODE	= 00000002			RSTART_3	0000095A	R	03			
FAB$V_FILE_MODE	= 00000004			RUN1_MSG	0000040C	R	03			
FAB$V_LNM_MODE	= 00000000			RUN1_MSGADR	000002F3	R	03			
FAB$V_PUT	= 00000000			RUN1_MSGSIZ	= 00000043					
FAB$W_GBC	= 00000048			RUN2_MSG	00000414	R	03			
FILENAME	00000434	R	03	RUN2_MSGADR	00000336	R	03			
FILENAMEADR	000003C1	R	03	RUN2_MSGSIZ	= 00000044					
FILENAMESIZ	= 0000000A			RUN3_MSG	0000041C	R	03			
GBLSECNAM	0000042C	R	03	RUN3_MSGADR	0000037A	R	03			
GBLSECNAMADR	000003BB	R	03	RUN3_MSGSIZ	= 0000003E					
GBLSECNAMSIZ	= 00000006			SAVEND	00000014	R	02			
GBL_SEC_MESSAGE	00000794	R	03	SEC$M_GBL	= 00000001					
IDMSG	00000404	R	03	SEC$M_PERM	= 00004000					
IDMSGADR	000002BA	R	03	SEC$M_PFNMAP	= 00010000					

```
SEC$M_WRT                       = 00000008
SIZ...                          = 00000001
SS$_ACCVIO                      = 0000000C
SS$_CREATED                     = 00000619
SS$_EXQUOTA                     = 0000001C
SS$_LKWSETFUL                   = 00000194
SS$_NOPRIV                      = 00000024
SS$_NORMAL                      = 00000001
SS$_PAGOWNVIO                   = 000001EC
SS$_VASFULL                     = 00000244
SS$_WASCLR                      = 00000001
SS$_WASSET                      = 00000009
START                             0000043C R      03
SYS$CONNECT                       ******** GX     03
SYS$CRETVA                        ******** GX     03
SYS$CRMPSC                        ******** GX     03
SYS$DELTVA                        ******** GX     03
SYS$DGBLSC                        ******** GX     03
SYS$EXIT                          ******** GX     03
SYS$EXPREG                        ******** GX     03
SYS$FAO                           ********  X     03
SYS$LKWSET                        ******** GX     03
SYS$OPEN                          ******** GX     03
SYS$PUT                           ******** GX     03
SYS$RESUME                        ******** GX     03
SYS$ULWSET                        ******** GX     03
TYPEMSGBUF                        00000C71 R      03
ULWSETERR                         000003F4 R      03
ULWSETERRADR                      00000196 R      03
ULWSETERRSIZ                    = 00000063
ULWSETSUBR                        00000B1D R      03
```

Psect synopsis

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
ABS	00000000 (0.)	01 (1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
DATA0	0000017A (378.)	02 (2.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC PAGE
CODE	00000CAB (3243.)	03 (3.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC PAGE

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	17	00:00:00.07	00:00:00.41
Command processing	87	00:00:00.83	00:00:04.66
Pass 1	375	00:00:13.91	00:00:43.76
Symbol table sort	0	00:00:01.26	00:00:04.53
Pass 2	196	00:00:03.63	00:00:11.14
Symbol table output	18	00:00:00.13	00:00:00.14
Psect synopsis output	2	00:00:00.02	00:00:00.25
Cross-reference output	0	00:00:00.00	00:00:00.00

Assembler run totals 697 00:00:19.87 00:01:04.90

The working set limit was 1500 pages.
89826 bytes (176 pages) of virtual memory were used to buffer the intermediate code.
There were 50 pages of symbol table space allocated to hold 889 non-local and 18 local symbols.
794 source lines were read in Pass 1, producing 24 object records in Pass 2.
50 pages of virtual memory were used to define 42 macros.

+----------------------------+
! Macro library statistics !
+----------------------------+

Macro library name	Macros defined
_255DUA28:[SYS.OBJ]LIB.MLB;1	0
_255DUA28:[SYSLIB]STARLET.MLB;2	30
TOTALS (all libraries)	30

1168 GETS were required to define 30 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS$:MMGLKWULW/OBJ=OBJ$:MMGLKWULW MSRC$:MMGLKWULW/UPDATE=(ENH$:MMGLKWULW)+EXECML$/LIB

MMGEXPCNT
LIS

MMGSNSFWSL
LIS

MOM
MAP

MMGCRTDEL
LIS

MMGCRDLSP
LIS

MMGCRTFIL
LIS

MMGLKWULW
LIS

MMGXQUOTA
LIS

MMGSETPRT
LIS

MOM