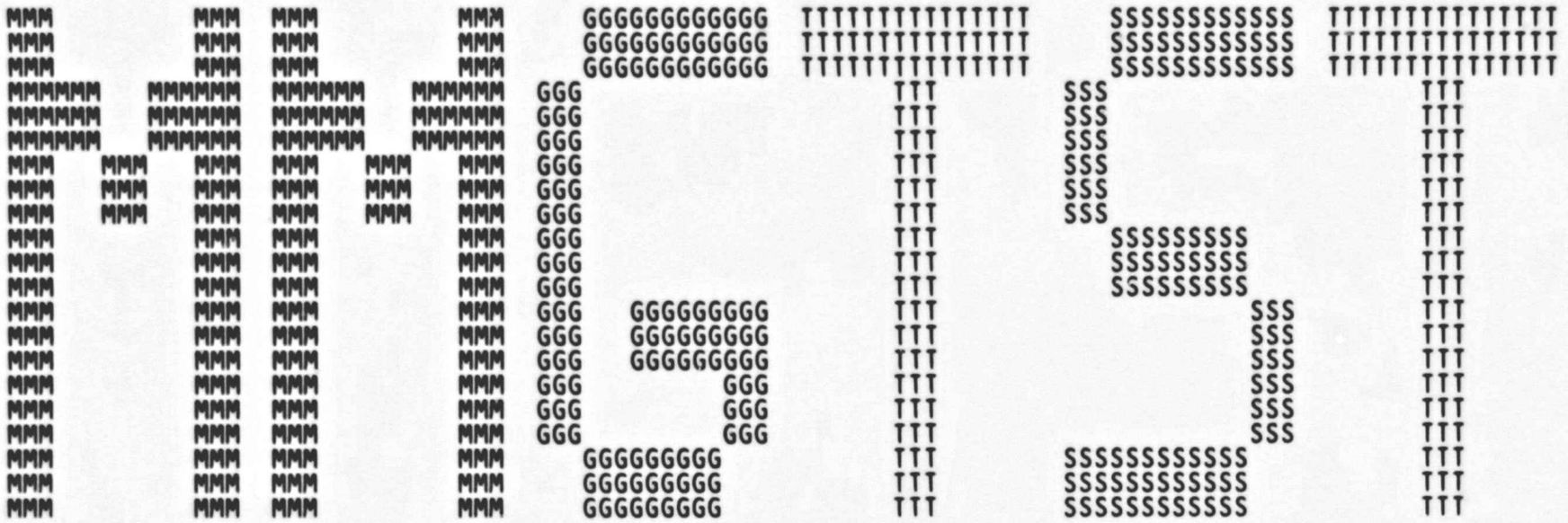
MMM MMM MMM MMM GGGGGGGGGGG TTTTTTTTTTTTTTT SSSSSSSSSSS TTTTTTTTTTTTTTT
MMMMMMM MMMMMMM MMMMMMM MMMMMMM GGG TTT SSS TTT
MMM MMM MMM MMM MMM MMM GGG TTT SSS TTT
MMM MMM MMM MMM MMM MMM GGG TTT SSS TTT
MMM MMM MMM MMM GGG TTT SSSSSSSSS TTT
MMM MMM MMM MMM GGG TTT SSS TTT
MMM MMM MMM MMM GGG GGGGGGGGG TTT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

```
MM      MM  MM      MM    GGGGGGGG  NN      NN   SSSSSSSS  FFFFFFFFFF  WW      WW   SSSSSSSS  LL
MM      MM  MM      MM    GGGGGGGG  NN      NN   SSSSSSSS  FFFFFFFFFF  WW      WW   SSSSSSSS  LL
MMMM  MMMM  MMMM  MMMM  GG          NN      NN  SS         FF          WW      WW  SS         LL
MMMM  MMMM  MMMM  MMMM  GG          NN      NN  SS         FF          WW      WW  SS         LL
MM  MM  MM  MM  MM  MM  GG          NNNN    NN  SS         FF          WW      WW  SS         LL
MM  MM  MM  MM  MM  MM  GG          NNNN    NN  SS         FF          WW      WW  SS         LL
MM      MM  MM      MM  GG          NN  NN  NN    SSSSSS   FFFFFFFF    WW      WW    SSSSSS   LL
MM      MM  MM      MM  GG          NN  NN  NN    SSSSSS   FFFFFFFF    WW      WW    SSSSSS   LL
MM      MM  MM      MM  GG  GGGGGG  NN    NNNN          SS  FF          WW  WW  WW          SS  LL
MM      MM  MM      MM  GG  GGGGGG  NN    NNNN          SS  FF          WW  WW  WW          SS  LL
MM      MM  MM      MM  GG      GG  NN      NN          SS  FF          WWWW  WWWW          SS  LL                ....
MM      MM  MM      MM  GG      GG  NN      NN          SS  FF          WWWW  WWWW          SS  LL                ....
MM      MM  MM      MM    GGGGGG    NN      NN  SSSSSSSS  FF          WW      WW  SSSSSSSS    LLLLLLLLLL        ....
MM      MM  MM      MM    GGGGGG    NN      NN  SSSSSSSS  FF          WW      WW  SSSSSSSS    LLLLLLLLLL        ....

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 #8
0000     3 ;
0000     4 ;
0000     5 ;          .TITLE  MMGNSFWSL - TEST MMG SERVICES WITH LOW WSQUOTA/WSLIMIT
0000     6 ;          .IDENT  'V04-000'
0000     7 ;
0000     8 ;*****************************************************************************
0000     9 ;*                                                                           *
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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 SHZ0006         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 TSC0008         Tom Clark               25-Jul-1980
0000    48 ;               Added further tests to system services tested in this
0000    49 ;               program.
0000    50 ;
```

```
                        .SBTTL  DECLARATIONS
                ;
                ; INCLUDE FILES:
                ;
                        .SBTTL  MACROS
                ;
                ; MACROS:
                ;
                        .MACRO  LIST
                        .LIST   MEB
                        .ENDM   LIST
                
                        .MACRO  NLIST
                        .NLIST  MEB
                        .ENDM   NLIST
                
                        .MACRO  READ SIZ=#1,ADR=(R2),?L1,?L2
                        IFNORD  <SIZ>,<ADR>,L1
                        BRB     L2
                L1:     MOVAL   W^READERR,R1
                        BSBW    PROBERR
                L2:
                        .ENDM   READ
                
                        .MACRO  WRITE SIZ=#1,ADR=(R2),?L1,?L2
                        IFNOWRT <SIZ>,<ADR>,L1
                        BRB     L2
                L1:     MOVAL   W^WRITERR,R1
                        BSBW    PROBERR
                L2:
                        .ENDM   WRITE
                
                        .MACRO  NOREAD SIZ=#1,ADR=(R2),?L1
                        IFNORD  <SIZ>,<ADR>,L1
                        MOVAL   W^NOREADERR,R1
                        BSBW    PROBERR
                L1:
                        .ENDM   NOREAD
                
                        .MACRO  NOWRITE SIZ=#1,ADR=(R2),?L1
                        IFNOWRT <SIZ>,<ADR>,L1
                        MOVAL   W^NOWRITERR,R1
                        BSBW    PROBERR
                L1:
                        .ENDM   NOWRITE
                
                        .MACRO  ADJWSL  PAGCNT,LIMIT=#0,WSETLM,STATUS=S^#SS$_NORMAL
                        LIST
                                MOVZWL  STATUS,R3
                                MOVL    PAGCNT,R4
                                MOVL    LIMIT,R5
                                .IF     B,WSETLM
                                .IF     DIF,<LIMIT>,<#0>
                                MOVAL   W^WRKSETLIM,R6
                                .IFF
                                CLRL    R6
                                .ENDC
```

```
0000   109                      .IFF
0000   110                      MOVAL   WSETLM,R6
0000   111                      .ENDC
0000   112                      BSBW    ADJWSLSUBR
0000   113              NLIST
0000   114              .ENDM   ADJWSL
0000   115
0000   116              .MACRO  CNTREG  PAGCNT,REGION=#0,STATUS=S^#SS$_NORMAL,-
0000   117                      RETADR=W^RETRANGE
0000   118              LIST
0000   119                      MOVZWL  STATUS,R3
0000   120                      MOVL    PAGCNT,R4
0000   121                      MOVAL   RETADR,R1
0000   122                      .IF     IDN,<REGION>,<#0>
0000   123                      CLRL    R5
0000   124                      .IFF
0000   125                      MOVL    REGION,R5
0000   126                      .ENDC
0000   127                      BSBW    CNTREGSUBR
0000   128              NLIST
0000   129              .ENDM   CNTREG
0000   130
0000   131              .MACRO  CRETVA STARTVA,ENDVA,STATUS=S^#SS$_NORMAL,-
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    CRETVASUBR
0000   144              NLIST
0000   145              .ENDM   CRETVA
0000   146
0000   147              .MACRO  DELTVA STARTVA,ENDVA,STATUS=S^#SS$_NORMAL,-
0000   148                             INADR=W^INRANGE,RETADR=W^RETRANGE
0000   149              LIST
0000   150                      .IF     NB,STARTVA
0000   151                      MOVL    STARTVA,W^INRANGE
0000   152                      .ENDC
0000   153                      .IF     NB,ENDVA
0000   154                      MOVL    ENDVA,W^INRANGE+4
0000   155                      .ENDC
0000   156                      MOVZWL  STATUS,R3
0000   157                      MOVAL   INADR,R0
0000   158                      MOVAL   RETADR,R1
0000   159                      BSBW    DELTVASUBR
0000   160              NLIST
0000   161              .ENDM   DELTVA
0000   162
0000   163              .MACRO  EXPREG  PAGCNT,REGION=#0,STATUS=S^#SS$_NORMAL,-
0000   164                      RETADR=W^RETRANGE
0000   165              LIST
```

```
0000   166                     MOVZWL  STATUS,R3
0000   167                     MOVL    PAGCNT,R4
0000   168                     MOVAL   RETADR,R1
0000   169                     .IF     IDN,<REGION>,<#0>
0000   170                     CLRL    R5
0000   171                     .IFF
0000   172                     MOVL    REGION,R5
0000   173                     .ENDC
0000   174                     BSBW    EXPREGSUBR
0000   175             NLIST
0000   176             .ENDM   EXPREG
0000   177
0000   178             .MACRO  LKWSET STARTVA,ENDVA,STATUS=S^#SS$_WASCLR,-
0000   179                             INADR=W^INRANGE,RETADR=W^RETRANGE
0000   180             LIST
0000   181                     .IF     NB,STARTVA
0000   182                     MOVL    STARTVA,W^INRANGE
0000   183                     .ENDC
0000   184                     .IF     NB,ENDVA
0000   185                     MOVL    ENDVA,W^INRANGE+4
0000   186                     .ENDC
0000   187                     MOVZWL  STATUS,R3
0000   188                     MOVAL   INADR,R0
0000   189                     MOVAL   RETADR,R1
0000   190                     BSBW    LKWSETSUBR
0000   191             NLIST
0000   192             .ENDM   LKWSET
0000   193
0000   194             .MACRO  ULWSET STARTVA,ENDVA,STATUS=S^#SS$_WASSET,-
0000   195                             INADR=W^INRANGE,RETADR=W^RETRANGE
0000   196             LIST
0000   197                     .IF     NB,STARTVA
0000   198                     MOVL    STARTVA,W^INRANGE
0000   199                     .ENDC
0000   200                     .IF     NB,ENDVA
0000   201                     MOVL    ENDVA,W^INRANGE+4
0000   202                     .ENDC
0000   203                     MOVZWL  STATUS,R3
0000   204                     MOVAL   INADR,R0
0000   205                     MOVAL   RETADR,R1
0000   206                     BSBW    ULWSETSUBR
0000   207             NLIST
0000   208             .ENDM   ULWSET
0000   209
0000   210             .MACRO  RANGECHK ONOROFF
0000   211             LIST
0000   212             .IF     IDN <ONOROFF>,<OFF>
0000   213                     BICL    #CTL$M_RNGCHK,W^CTLFLG
0000   214             .IFF
0000   215                     BISL    #CTL$M_RNGCHK,W^CTLFLG
0000   216             .ENDC
0000   217             NLIST
0000   218             .ENDM   RANGECHK
0000   219
0000   220 ;
0000   221 ; EQUATED SYMBOLS:
0000   222 ;
```

```
                0000   223          $SECDEF
                0000   224          $SSDEF
                0000   225          $PRTDEF
                0000   226          $GBLINI
                0000   227          $VIELD  CTL,0,<-                        ;DEFINE CONTROL BITS IN R3
                0000   228                  <MEMLOOP,,MASK>,-               ;LOOP IN MEMORY WRITE LOOP
                0000   229                  <TSTLOOP,,MASK>,-               ;REDO ENTIRE TEST FROM TOP
                0000   230                  <PIDMSG,,MASK>,-                ;PUT PROCESS ID IN EACH TYPEOUT
                0000   231                  <RNGCHK,,MASK>-                 ;ON IF CHECKING RETURN RANGE
                0000   232          >
00000010        0000   233          PRT$C_NONE=1@4
                0000   234 ;
                0000   235 ; OWN STORAGE:
                0000   236 ;
```

```
                        0000   238          .SBTTL  DATA STORAGE AND MESSAGE STRINGS
                    00000000   239          .PSECT  DATA0,PAGE,WRT,NOEXE
                        0000   240 INRANGE:
                    00000008   241          .BLKL   2
                        0008   242 RETRANGE:
                    00000010   243          .BLKL   2
                    00000006   244 CTLFLG: .LONG   CTL$M_TSTLOOP!CTL$M_PIDMSG
                    00000018   245 SAVEND: .BLKL   1
                        0018   246 HIGHPOADR:
                    0000001C   247          .BLKL   1                              ;LAST BYTE ADDRESS IN PO SPACE
                    00000020   248 PID:    .BLKL   1                              ;PROCESS ID
                        0020   249 MAXPASSCNT:
                    00000003   250          .LONG   3                              ;NUMBER OF PASSES TO RUN
                        0024   251 PASSCNT:
                    00000028   252          .BLKL   1                              ;PASS COUNTER
                        0028   253 WRKSETLIM:
                    0000002C   254          .BLKL   1                              ;RETURNED NEW WORKING SET LIMIT
                        002C   255 WRKSETDEF:
                    00000044   256          .BLKL   6                              ;DEFAULT, MAX, MIN WORKING SET LIMIT
                    00000034   257          WRKSETMAX=WRKSETDEF+8
                    0000003C   258          WRKSETMIN=WRKSETDEF+16
                        0044   259 WRKSETMAXADD:
                    00000048   260          .BLKL   1                              ;WRKSETMAX-WRKSETDEF
                        0048   261 PREVPROT:
                               262 FAB:     $FAB    FAC=PUT, FNA=OUTNAMADR, FNS=OUTNAMSIZ ;FAB FOR OUTPUT
                        0098   263 RAB:     $RAB    FAB=FAB                        ;RECORD ACCESS BLOCK FOR OUTPUT
                    000000E0   264 MSGLEN: .BLKL   1                              ;RETURN LENGTH FROM FAO
          000000FE'000000A0'   265 MSGBUFD:.LONG   MSGBUFSIZ,MSGBUF               ;MESSAGE BUFFER DESCRIPTOR
                        00E8   266 PIDMSGD:
          000000FA'00000004'   267          .LONG   MSGBUF-PIDMSG,PIDMSG
                        00F0   268 ;
                        00F0   269 ; ***** DO NOT SEPARATE OR REORDER THE FOLLOWING LINES
                        00F0   270 ;
                        00F0   271 MSGBUFID:
                     0A 0D      00F0   272 CRLF:    .BYTE   ^015,^012
     20 53 53 45 43 4F 52 50    00F2   273          .ASCII  $PROCESS $
                  20 20 20 20   00FA   274 PIDMSG: .ASCII  $    $
                    0000019E    00FE   275 MSGBUF: .BLKB   160                    ;MESSAGE BUFFER USED BY FAO
                    000000A0    019E   276          MSGBUFSIZ=.-MSGBUF
                                019E   277 ;
                                019E   278 ; ***** DO NOT SEPARATE OR REORDER THE PRECEEDING LINES
                                019E   279 ;
                                019E   280
```

```
                                00000000    282          .PSECT  CODE,PAGE,NOWRT,EXE
                                      0000  283
                                      0000  284 OUTNAMADR:
      54 55 50 54 55 4F 24 53 59 53   0000  285          .ASCII  /SYS$OUTPUT/
                                0000000A  000A  286          OUTNAMSIZ=.-OUTNAMADR
                                      000A  287
                                      000A  288 CRETVAERRADR:
52 52 45 20 41 56 54 45 52 43 2F 21   000A  289          .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  290          .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  291          CRETVAERRSIZ=.-CRETVAERRADR
                                      006D  292
                                      006D  293 DELTVAERRADR:
52 52 45 20 41 56 54 4C 45 44 2F 21   006D  294          .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  295          .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  296          DELTVAERRSIZ=.-DELTVAERRADR
                                      00D0  297
                                      00D0  298 LKWSETERRADR:
52 52 45 20 54 45 53 57 4B 4C 2F 21   00D0  299          .ASCII  $!/LKWSET ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
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  300          .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  301          LKWSETERRSIZ=.-LKWSETERRADR
                                      0133  302
                                      0133  303 ULWSETERRADR:
52 52 45 20 54 45 53 57 4C 55 2F 21   0133  304          .ASCII  $!/ULWSET ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
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  305          .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  306          ULWSETERRSIZ=.-ULWSETERRADR
                                      0196  307
                                      0196  308 CNTREGERRADR:
52 52 45 20 47 45 52 54 4E 43 2F 21   0196  309          .ASCII  $!/CNTREG ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
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 20 2C 4C 58 21 20 53  01BA
          4C 58 21 20 45 42 20 44    01C6
20 3D 20 54 4E 43 47 41 50 09 2F 21  01CE    310          .ASCII  $!/     PAGCNT = !UL, REGION = P!UB SPACE, $
20 4E 4F 49 47 45 52 20 2C 4C 55 21  01DA
45 43 41 50 53 20 42 55 21 50 20 3D  01E6
                      20 2C          01F2
4C 58 21 20 3D 20 52 44 41 54 45 52  01F4    311          .ASCII  $RETADR = !XL - !XL!/$
             2F 21 4C 58 21 20 2D 20 0200
                      00000072       0208    312          CNTREGERRSIZ=.-CNTREGERRADR
                                     0208    313
                                     0208    314 EXPREGERRADR:
52 52 45 20 47 45 52 50 58 45 2F 21  0208    315          .ASCII  $!/EXPREG ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F  0214
41 57 20 53 55 54 41 54 53 20 2C 4C  0220
4C 55 4F 48 53 20 2C 4C 58 21 20 53  022C
          4C 58 21 20 45 42 20 44    0238
20 3D 20 54 4E 43 47 41 50 09 2F 21  0240    316          .ASCII  $!/     PAGCNT = !SL, REGION = P!UB SPACE, $
20 4E 4F 49 47 45 52 20 2C 4C 53 21  024C
45 43 41 50 53 20 42 55 21 50 20 3D  0258
                      20 2C          0264
4C 58 21 20 3D 20 52 44 41 54 45 52  0266    317          .ASCII  $RETADR = !XL - !XL!/$
             2F 21 4C 58 21 20 2D 20 0272
                      00000072       027A    318          EXPREGERRSIZ=.-EXPREGERRADR
                                     027A    319
                                     027A    320 ADJWSLERRADR:
52 45 20 20 4C 53 57 4A 44 41 2F 21  027A    321          .ASCII  $!/ADJWSL  ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
21 20 3D 20 43 50 20 2D 20 52 4F 52  0286
57 20 53 55 54 41 54 53 20 2C 4C 58  0292
55 4F 48 53 20 2C 4C 58 21 20 53 41  029E
          4C 58 21 20 45 42 20 44 4C 02AA
20 3D 20 54 4E 43 47 41 50 09 2F 21  02B3    322          .ASCII  $!/     PAGCNT = !SL, LIMIT WAS !UW, SHOULD BE !UW!/$
57 20 54 49 4D 49 4C 20 2C 4C 53 21  02BF
55 4F 48 53 20 2C 57 55 21 20 53 41  02CB
   2F 21 57 55 21 20 45 42 20 44 4C  02D7
                      00000068       02E2    323          ADJWSLERRSIZ=.-ADJWSLERRADR
                                     02E2    324
                                     02E2    325 WSETLMCTLADR:
45 53 20 47 4E 49 4B 52 4F 57 2F 21  02E2    326          .ASCII  $!/WORKING SET SIZE/LOCKED LIMITS:  $
45 4B 43 4F 4C 2F 45 5A 49 53 20 54  02EE
   20 20 3A 53 54 49 4D 49 4C 20 44  02FA
2F 4C 55 21 20 54 4C 55 41 46 45 44  0305    327          .ASCII  $DEFAULT !UL/!UL, MAX !UL/!UL, MIN !UL/!UL!/$
4C 55 21 20 58 41 4D 20 2C 4C 55 21  0311
55 21 20 4E 49 4D 20 2C 4C 55 21 2F  031D
                2F 21 4C 55 21 2F 4C 0329
                      0000004E       0330    328          WSETLMCTLSIZ=.-WSETLMCTLADR
                                     0330    329
                                     0330    330 READERRADR:
4F 52 52 45 20 44 41 45 52 20 2F 21  0330    331          .ASCII  $!/ READ ERROR - LOCATION = !XL !/$
4E 4F 49 54 41 43 4F 4C 20 2D 20 52  033C
          2F 21 20 4C 58 21 20 3D 20 0348
                      00000021       0351    332          READERRSIZ=.-READERRADR
                                     0351    333
                                     0351    334 NOREADERRADR:
45 20 44 41 45 52 2D 4F 4E 20 2F 21  0351    335          .ASCII  $!/ NO-READ ERROR - LOCATION = !XL !/$
54 41 43 4F 4C 20 2D 20 52 4F 52 52  035D
2F 21 20 4C 58 21 20 3D 20 4E 4F 49  0369
```

```
                                00000024  0375    336          NOREADERRSIZ=.-NOREADERRADR
                                          0375    337
                                          0375    338 WRITERRADR:
52 52 45 20 45 54 49 52 57 20 2F 21       0375    339          .ASCII  $!/ WRITE ERROR - LOCATION = !XL !/$
4F 49 54 41 43 4F 4C 20 2D 20 52 4F       0381
      2F 21 20 4C 58 21 20 3D 20 4E       038D
                                00000022  0397    340          WRITERRSIZ=.-WRITERRADR
                                          0397    341
                                          0397    342 NOWRITERRADR:
20 45 54 49 52 57 2D 4F 4E 20 2F 21       0397    343          .ASCII  $!/ NO-WRITE ERROR - LOCATION = !XL !/$
41 43 4F 4C 20 2D 20 52 4F 52 52 45       03A3
21 20 4C 58 21 20 3D 20 4E 4F 49 54       03AF
                                   2F     03BB
                                00000025  03BC    344          NOWRITERRSIZ=.-NOWRITERRADR
                                          03BC    345
                                          03BC    346 MEMLOOPCTLADR:
4F 4F 4C 20 59 52 4F 4D 45 4D 2F 21       03BC    347          .ASCII  $!/MEMORY LOOP ERROR$
                  52 4F 52 52 45 20 50    03C8
43 4F 4C 42 20 45 4C 49 46 09 2F 21       03CF    348          .ASCII  $!/     FILE BLOCK      WAS !XL, SHOULD BE !XL$
53 20 2C 4C 58 21 20 53 41 57 09 4B       03DB
4C 58 21 20 45 42 20 44 4C 55 4F 48       03E7
44 41 20 59 52 4F 4D 45 4D 09 2F 21       03F3    349          .ASCII  $!/     MEMORY ADR      WAS !XL, SHOULD BE !XL$
53 20 2C 4C 58 21 20 53 41 57 09 52       03FF
4C 58 21 20 45 42 20 44 4C 55 4F 48       040B
49 20 53 53 45 43 4F 52 50 09 2F 21       0417    350          .ASCII  $!/     PROCESS ID      WAS !XL, SHOULD BE !XL$
53 20 2C 4C 58 21 20 53 41 57 09 44       0423
4C 58 21 20 45 42 20 44 4C 55 4F 48       042F
                                00000081  043B    351          MEMLOOPCTLSIZ=.-MEMLOOPCTLADR
                                          043B    352
                                          043B    353 RANGERRADR:
4E 41 52 20 4E 52 55 54 45 52 2F 21       043B    354          .ASCII  $!/RETURN RANGE ERROR - LOCATION = !XL$
4C 20 2D 20 52 4F 52 52 45 20 45 47       0447
58 21 20 3D 20 4E 4F 49 54 41 43 4F       0453
                                   4C     045F
21 20 3D 20 52 44 41 4E 49 09 2F 21       0460    355          .ASCII  $!/     INADR = !XL - !XL, RETADR = !XL - !XL!/$
45 52 20 2C 4C 58 21 20 2D 20 4C 58       046C
2D 20 4C 58 21 20 3D 20 52 44 41 54       0478
                  2F 21 4C 58 21 20       0484
                                00000051  048A    356          RANGERRSIZ=.-RANGERRADR
                                          048A    357
                                          048A    358 IDMSGADR:
4E 41 4D 20 59 52 4F 4D 45 4D 2F 21       048A    359          .ASCII  $!/MEMORY MANAGEMENT SERVICES TEST #8 (NSFWSL), PASS !UL!/$
56 52 45 53 20 54 4E 45 4D 45 47 41       0496
38 23 20 54 53 45 54 20 53 45 43 49       04A2
50 20 2C 29 4C 53 57 46 53 4E 28 20       04AE
         2F 21 4C 55 21 20 53 53 41       04BA
                                00000039  04C3    360          IDMSGSIZ=.-IDMSGADR
                                          04C3    361
                                          04C3    362 RUN1_MSGADR:
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21       04C3    363          .ASCII  $!/   *****   TEST WILL NOW BE RUN USING NORMAL VA SPACE   *****$
4E 20 4C 4C 49 57 20 54 53 45 54 20       04CF
53 55 20 4E 55 52 20 45 42 20 57 4F       04DB
56 20 4C 41 4D 52 4F 4E 20 47 4E 49       04E7
2A 2A 20 20 20 45 43 41 50 53 20 41       04F3
                                2A 2A 2A  04FF
                                20 2F 21  0502    364          .ASCII  $!/ $
                                00000042  0505    365          RUN1_MSGSIZ=.-RUN1_MSGADR
```

```
                        0505    366
                        0505    367 PIDCTLADR:
4C 55 21                0505    368             .ASCII  $!UL$
00000003                0508    369             PIDCTLSIZ=.-PIDCTLADR
                        0508    370
```

```
                        0508   372 ;
                        0508   373 ; STRING DESCRIPTORS
                        0508   374 ;
                        0508   375         .ALIGN  LONG
                        0508   376
                        0508   377 CRETVAERR:
0000000A'00000063       0508   378         .LONG   CRETVAERRSIZ,CRETVAERRADR
                        0510   379 DELTVAERR:
0000006D'00000063       0510   380         .LONG   DELTVAERRSIZ,DELTVAERRADR
                        0518   381 CNTREGERR:
00000196'00000072       0518   382         .LONG   CNTREGERRSIZ,CNTREGERRADR
                        0520   383 EXPREGERR:
00000208'00000072       0520   384         .LONG   EXPREGERRSIZ,EXPREGERRADR
                        0528   385 LKWSETERR:
000000D0'00000063       0528   386         .LONG   LKWSETERRSIZ,LKWSETERRADR
                        0530   387 ULWSETERR:
00000133'00000063       0530   388         .LONG   ULWSETERRSIZ,ULWSETERRADR
                        0538   389 ADJWSLERR:
0000027A'00000068       0538   390         .LONG   ADJWSLERRSIZ,ADJWSLERRADR
                        0540   391 WSETLMCTL:
000002E2'0000004E       0540   392         .LONG   WSETLMCTLSIZ,WSETLMCTLADR
                        0548   393 READERR:
00000330'00000021       0548   394         .LONG   READERRSIZ,READERRADR
                        0550   395 NOREADERR:
00000351'00000024       0550   396         .LONG   NOREADERRSIZ,NOREADERRADR
                        0558   397 WRITERR:
00000375'00000022       0558   398         .LONG   WRITERRSIZ,WRITERRADR
                        0560   399 NOWRITERR:
00000397'00000025       0560   400         .LONG   NOWRITERRSIZ,NOWRITERRADR
                        0568   401 MEMLOOPCTL:
000003BC'0000007F       0568   402         .LONG   MEMLOOPCTLSIZ,MEMLOOPCTLADR
                        0570   403 RANGERR:
0000043B'0000004F       0570   404         .LONG   RANGERRSIZ,RANGERRADR
                        0578   405 IDMSG:
0000048A'00000039       0578   406         .LONG   IDMSGSIZ,IDMSGADR
                        0580   407 RUN1_MSG:
000004C3'00000042       0580   408         .LONG   RUN1_MSGSIZ,RUN1_MSGADR
                        0588   409 PIDCTL:
00000505'00000003       0588   410         .LONG   PIDCTLSIZ,PIDCTLADR
                        0590   411
```

```
                        0590   413          .SBTTL  INITIALIZATION
                        0590   414 ;*****************************************************************************
                        0590   415 ;PROGRAM DESCRIPTION:
                        0590   416 ;
                        0590   417 ;          THIS PROGRAM TESTS THE FOLLOWING SYSTEM SERVICES:
                        0590   418 ;               $CRETVA, $EXPREG
                        0590   419 ;
                        0590   420 ;          THE PROGRAM DOES EACH OF THESE SYSTEM SERVICES WHEN
                        0590   421 ;        THE WSQUOTA/WSLIMIT IS SET TO A MINIMUM IN ORDER TO FORCE KNOWN
                        0590   422 ;        ERROR PATHS.  THREE PASSES ARE MADE THROUGH THE TEST LOOP IN
                        0590   423 ;        ORDER TO ENSURE PATH REPEATABILITY.  ONLY REGULAR VA SPACE IS
                        0590   424 ;        USED IN THIS PROGRAM.
                        0590   425 ;
                        0590   426 ;          REFER TO MASD$:[MMGTST.COM]MMGTST.RAP FOR FURTHER INFORMATION
                        0590   427 ;        REGARDING JUST HOW COMPLETELY THE ABOVE MENTIONED SYSTEM SERVICES
                        0590   428 ;        ARE TESTED BY THIS PROGRAM.
                        0590   429 ;
                        0590   430 ;       *PRIVILEGES:
                        0590   431 ;          THIS PROGRAM NEEDS NO SPECIAL PRIVILEGES TO EXECUTE.
                        0590   432 ;*****************************************************************************
                        0590   433 ;
                        0590   434 ; START HERE
                        0590   435 ;
                   0000 0590   436 START:  .WORD   0                               ;ENTRY MASK
                        0592   437          $OPEN   W^FAB                          ;OPEN THE FILE ''$OUTPUT''
                 0E 50  E9 059D   438          BLBC    R0,10$                         ;BRANCH IF ERROR
                        05A0   439          $CONNECT W^RAB                         ;CONNECT THE RECORD ACCESS BLOCK
                 09 50  E8 05AB   440          BLBS    R0,20$
                        05AE   441 10$:     $EXIT_S R0                             ;EXIT WITH STATUS IN R0
 00000024'EF    01  D0 05B7   442 20$:     MOVL    #1,PASSCNT                     ;INITIALIZE THE PASS COUNT
                        05BE   443          $RESUME_S PID                          ;SET UP PROCESS ID
 50    0000001C'EF   3C 05CD   444          MOVZWL  PID,R0
                        05D4   445          $FAO_S  PIDCTL,MSGLEN,PIDMSGD,R0       ;INIT THE PROCESS ID STRING
                        05EC   446 ;
                        05EC   447 ; INFORM OPERATOR THAT TESTS WILL BE RUN USING ONLY NORMAL VA SPACE
                        05EC   448 ;
                        05EC   449          $FAO_S  RUN1_MSG,MSGLEN,MSGBUFD        ;INFORM OPR NORMAL VA USED FOR TEST
             02B3   30  0602   450          BSBW    TYPEMSGBUF
 0010'CF      04   CA  0605   451          BICL    #CTL$M_PIDMSG,W^CTLFLG         ;STOP PROCESS ID FROM PRINTING
                        060A   452 RSTART:
                        060A   453          RANGECHK ON
 0010'CF      08   C8  060A                       BISL    #CTL$M_RNGCHK,W^CTLFLG
                        060F   454          $FAO_S  IDMSG,MSGLEN,MSGBUFD,PASSCNT
             0289   30  062C   455          BSBW    TYPEMSGBUF
                        062F   456          EXPREG  #1
          53    01   3C 062F                       MOVZWL  S^#SS$_NORMAL,R3
          54    01   D0 0632                       MOVL    #1,R4
 51     0008'CF   DE  0635                       MOVAL   W^RETRANGE,R1
                 55   D4 063A                       CLRL    R5
             0143   30  063C                       BSBW    EXPREGSUBR
 52     0008'CF   7D  063F   457          MOVQ    W^RETRANGE,R2
 0000'CF    52   7D  0644   458          MOVQ    R2,W^INRANGE
 0014'CF    52   D0  0649   459          MOVL    R2,W^SAVEND
                        064E   460
                        064E   461
```

```
                                064E   463          .SBTTL  FORCE ERRORS IN CRETVA
                                064E   464 ;
                                064E   465 ; FORCE ERRORS FROM CRETVA
                                064E   466 ;
                                064E   467          CRETVA  W^SAVEND,#1@30-1,#SS$_INSFWSL   ;EXCEED WORKING SET LIMIT
      0000'CF    0014'CF   D0  064E                          MOVL    W^SAVEND,W^INRANGE
0004'CF    3FFFFFFF  8F   D0  0655                          MOVL    #1@30-1,W^INRANGE+4
           53     011C 8F   3C  065E                       MOVZWL  #SS$_INSFWSL,R3
           50     0000'CF   DE  0663                       MOVAL   W^INRANGE,R0
           51     0008'CF   DE  0668                       MOVAL   W^RETRANGE,R1
                    005B    30  066D                       BSBW    CRETVASUBR
      0000'CF    0008'CF   7D  0670   468          MOVQ    W^RETRANGE,W^INRANGE
                           0677   469          DELTVA                                  ;DELETE WHAT WE CREATED
           53     01        3C  0677                       MOVZWL  S^#SS$_NORMAL,R3
           50     0000'CF   DE  067A                       MOVAL   W^INRANGE,R0
           51     0008'CF   DE  067F                       MOVAL   W^RETRANGE,R1
                    0058    30  0684                       BSBW    DELTVASUBR
                           0687   470
```

```
                                0687   472          .SBTTL  FORCE ERROR IN EXPREG
                                0687   473 ;
                                0687   474 ; FORCE ERRORS FROM EXPREG
                                0687   475 ;
                                0687   476          EXPREG  #1@21-1,#0,STATUS=#SS$_INSFWSL  ;EXCEED WORKING SET LIMIT
                     53  011C 8F   3C  0687                  MOVZWL  #SS$_INSFWSL,R3
                54  001FFFFF 8F   D0  068C                  MOVL    #1@21-1,R4
                     51  0008'CF   DE  0693                  MOVAL   W^RETRANGE,R1
                                 55   D4  0698                  CLRL    R5
                               00E5   30  069A                  BSBW    EXPREGSUBR
              0000'CF  0008'CF   7D  069D  477          MOVQ    W^RETRANGE,W^INRANGE
                                     06A4  478          DELTVA                          ;DELETE WHAT WE CREATED
                     53    01   3C  06A4                  MOVZWL  S^#SS$_NORMAL,R3
                50   0000'CF   DE  06A7                  MOVAL   W^INRANGE,R0
                51   0008'CF   DE  06AC                  MOVAL   W^RETRANGE,R1
                       002B    30  06B1                  BSBW    DELTVASUBR
                                     06B4  479 ;
                                     06B4  480 ;         END OF LOOP
                                     06B4  481 ;
           0C 0024'CF   0020'CF   F3  06B4  482          AOBLEQ  W^MAXPASSCNT,W^PASSCNT,160$
                     50    01   D0  06BC  483 150$:     MOVL    #1,R0
                                     06BF  484          $EXIT_S R0
                         FF3F   31  06C8  485 160$:     BRW     RSTART
                                     06CB  486
```

```
                        06CB   488          .SBTTL  SUBROUTINES TO CALL THE SERVICES
                        06CB   489 ;
                        06CB   490 ; INPUT:
                        06CB   491 ;
                        06CB   492 ;       R0 = INADR
                        06CB   493 ;       R1 = RETADR
                        06CB   494 ;       R3 = DESIRED STATUS
                        06CB   495 ;
                        06CB   496 ; OUTPUT:
                        06CB   497 ;
                        06CB   498 ;       R2 PRESERVED
                        06CB   499 ;
                        06CB   500 CRETVASUBR:
                        06CB   501          $CRETVA_S (R0),(R1)
51   FE2C CF    DE      06D8   502          MOVAL   W^CRETVAERR,R1                  ;ERROR CONTROL STRING
           3A    11      06DD   503          BRB     CHECK1
                        06DF   504 ;
                        06DF   505 ; INPUT:
                        06DF   506 ;
                        06DF   507 ;       R0 = INADR
                        06DF   508 ;       R1 = RETADR
                        06DF   509 ;       R3 = DESIRED STATUS
                        06DF   510 ;
                        06DF   511 ; OUTPUT:
                        06DF   512 ;
                        06DF   513 ;       R2 PRESERVED
                        06DF   514 ;
                        06DF   515 DELTVASUBR:
                        06DF   516          $DELTVA_S (R0),(R1)
51   FE20 CF    DE      06EC   517          MOVAL   W^DELTVAERR,R1                  ;ERROR CONTROL STRING
           26    11      06F1   518          BRB     CHECK1
                        06F3   519 ;
                        06F3   520 ; INPUT:
                        06F3   521 ;
                        06F3   522 ;       R0 = INADR
                        06F3   523 ;       R1 = RETADR
                        06F3   524 ;       R3 = DESIRED STATUS
                        06F3   525 ;
                        06F3   526 ; OUTPUT:
                        06F3   527 ;
                        06F3   528 ;       R2 PRESERVED
                        06F3   529 ;
                        06F3   530 LKWSETSUBR:
                        06F3   531          $LKWSET_S (R0),(R1)
51   FE24 CF    DE      0700   532          MOVAL   W^LKWSETERR,R1                  ;ERROR CONTROL STRING
           12    11      0705   533          BRB     CHECK1
                        0707   534 ;
                        0707   535 ; INPUT:
                        0707   536 ;
                        0707   537 ;       R0 = INADR
                        0707   538 ;       R1 = RETADR
                        0707   539 ;       R3 = DESIRED STATUS
                        0707   540 ;
                        0707   541 ; OUTPUT:
                        0707   542 ;
                        0707   543 ;       R2 PRESERVED
                        0707   544 ;
```

```
                     0707   545 ULWSETSUBR:
                     0707   546         $ULWSET_S (R0),(R1)
51   FE18 CF    DE   0714   547         MOVAL   W^ULWSETERR,R1                  ;ERROR CONTROL STRING
                     0719   548 CHECK1:
     53   50    D1   0719   549         CMPL    R0,R3                           ;STATUS AS DESIRED
               4B    13   071C   550         BEQL    10$                             ;BRANCH IF YES
53   0244 8F    B1   071E   551         CMPW    #SS$_VASFULL,R3                 ;IF EXPECTING VIRTUAL ADDRESS SPACE
               05    12   0723   552         BNEQ    5$
     50   1C    B1   0725   553         CMPW    #SS$_EXQUOTA,R0                 ;THEN EXCEEDS QUOTA MAY ALSO BE RETU
               3F    13   0728   554         BEQL    10$
               54    DD   072A   555 5$:      PUSHL   R4
  54   04 AE    D0   072C   556         MOVL    4(SP),R4                        ;ADDRESS OF ERROR
                     0730   557         $FAO_S  (R1),MSGLEN,MSGBUFD,R4,R0,R3,-
                     0730   558                 INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
              10    BA   0763   559         POPR    #^M<R4>
            0150    30   0765   560         BSBW    TYPEMSGBUF
                  05   0768   561         RSB
                     0769   562 10$:
            007F    31   0769   563         BRW     RANGECHK                        ;GO CHECK THE RETURN RANGE
                     076C   564 ;
                     076C   565 ; INPUT:
                     076C   566 ;
                     076C   567 ;       R1 = RETADR
                     076C   568 ;       R3 = DESIRED STATUS
                     076C   569 ;       R4 = PAGCNT
                     076C   570 ;       R5 = REGION
                     076C   571 ;
                     076C   572 ; OUTPUT:
                     076C   573 ;
                     076C   574 ;       R2 PRESERVED
                     076C   575 ;
                     076C   576 CNTREGSUBR:
                     076C   577         $CNTREG_S R4,(R1),,R5
51   FD99 CF    DE   077B   578         MOVAL   W^CNTREGERR,R1                  ;ERROR CONTROL STRING
               14    11   0780   579         BRB     CHECK2
                     0782   580 ;
                     0782   581 ; INPUT:
                     0782   582 ;
                     0782   583 ;       R1 = RETADR
                     0782   584 ;       R3 = DESIRED STATUS
                     0782   585 ;       R4 = PAGCNT
                     0782   586 ;       R5 = REGION
                     0782   587 ;
                     0782   588 ; OUTPUT:
                     0782   589 ;
                     0782   590 ;       R2 PRESERVED
                     0782   591 ;
                     0782   592 EXPREGSUBR:
                     0782   593         $EXPREG_S R4,(R1),,R5
51   FD8B CF    DE   0791   594         MOVAL   W^EXPREGERR,R1                  ;ERROR CONTROL STRING
                     0796   595 CHECK2:
     53   50    D1   0796   596         CMPL    R0,R3                           ;STATUS AS DESIRED?
               39    13   0799   597         BEQL    10$                             ;BRANCH IF YES
               56    DD   079B   598         PUSHL   R6
  56   04 AE    D0   079D   599         MOVL    4(SP),R6                        ;ADDRESS OF ERROR
                     07A1   600         $FAO_S  (R1),MSGLEN,MSGBUFD,R6,R0,R3,R4,R5,-
                     07A1   601                 RETRANGE,RETRANGE+4
```

```
                0040 8F    BA  07CC   602          POPR    #^M<R6>
                   00E5    30  07D0   603          BSBW    TYPEMSGBUF
                           05  07D3   604          RSB
      0000'CF    0008'CF   D0  07D4   605 10$:     MOVL    W^RETRANGE,W^INRANGE            ;MAKE INPUT RANGE LOOK LIKE CRETVA/D
                           D7  07DB   606          DECL    R4
            54     54      09  78  07DD   607          ASHL    #9,R4,R4
 0004'CF    0000'CF        54  C1  07E1   608          ADDL3   R4,W^INRANGE,W^INRANGE+4
                           00  11  07E9   609          BRB     RANGECHK                        ;AND CHECK THE RETURN RANGE
                               07EB   610
                               07EB   611 RANGECHK:
          73 0010'CF       03  E1  07EB   612          BBC     #CTL$V_RNGCHK,W^CTLFLG,40$      ;BRANCH IF RANGE CHECK IS DISABLED
                 70        50  E9  07F1   613          BLBC    R0,40$                          ;IF ERROR IN SERVICE, SKIP THE RANGE
             50  0000'CF    7D  07F4   614          MOVQ    W^INRANGE,R0                    ;R0 = STARVA, R1 = ENDVA
                 51    50    D1  07F9   615          CMPL    R0,R1                           ;WHICH DIRECTION?
                           12  1A  07FC   616          BGTRU   10$                             ;BRANCH IF BACKWARDS
                           04  1F  07FE   617          BLSSU   5$                              ;BRANCH IF FORWARDS
                  0C 50    1E  E0  0800   618          BBS     #30,R0,10$                      ;FOR EQUAL, P0 SPACE FORWARDS, P1 BA
                               0804   619 ;
                               0804   620 ; REQUESTED RANGE IS FORWARDS
                               0804   621 ;
                50   01FF 8F    AA  0804   622 5$:      BICW    #^X1FF,R0                       ;FROM BYTE 0 OF STARTVA
                51   01FF 8F    A8  0809   623          BISW    #^X1FF,R1                       ;THROUGH LAST BYTE OF ENDVA
                           0A  11  080E   624          BRB     20$                             ;
                               0810   625 ;
                               0810   626 ; GOING BACKWARDS IN VIRTUAL ADDRESS SPACE
                               0810   627 ;
                50   01FF 8F    A8  0810   628 10$:     BISW    #^X1FF,R0                       ;LAST BYTE OF STARTVA
                51   01FF 8F    AA  0815   629          BICW    #^X1FF,R1                       ;THROUGH FIRST BYTE OF ENDVA
                0008'CF    50  D1  081A   630 20$:     CMPL    R0,W^RETRANGE                   ;IS THIS WHAT WAS RETURNED?
                           07  12  081F   631          BNEQ    30$                             ;BRANCH IF NOT, ERROR
                000C'CF    51  D1  0821   632          CMPL    R1,W^RETRANGE+4                 ;THIS ONE OK TOO?
                           3C  13  0826   633          BEQL    40$                             ;BRANCH IF YES, RANGE OK
                           53  DD  0828   634 30$:     PUSHL   R3                              ;SAVE REGISTER
                  53   04 AE    D0  082A   635          MOVL    4(SP),R3                        ;TO USE FOR ERROR PC
                               082E   636          $FAO_S  <W^RANGERR>,MSGLEN,MSGBUFD,R3,- ;FORMAT THE ERROR MESSAGE
                               082E   637                  INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
                     08    BA  085F   638          POPR    #^M<R3>                         ;RESTORE SAVE REGISTER
                   0054    30  0861   639          BSBW    TYPEMSGBUF                      ;OUTPUT THE ERROR MESSAGE
                           05  0864   640 40$:     RSB                                     ;AND RETURN
                               0865   641 ;
                               0865   642 ; INPUT:
                               0865   643 ;
                               0865   644 ;       R3 = DESIRED STATUS
                               0865   645 ;       R4 = PAGCNT
                               0865   646 ;       R5 = DESIRED LIMIT
                               0865   647 ;       R6 = ADDRESS TO RETURN NEW WORKING SET LIMIT
                               0865   648 ;
                               0865   649 ; OUTPUT:
                               0865   650 ;
                               0865   651 ;       R2 PRESERVED
                               0865   652 ;
                               0865   653 ADJWSLSUBR:
                               0865   654          $ADJWSL_S R4,(R6)
                               0870   655          IFNOWRT #4,(R6),10$                     ;SKIP WORKING SET LIMIT CHECK
                               0876   656                                                  ;IF NEW LIMIT WAS NOT RETURNED
                     55    D5  0876   657          TSTL    R5                              ;ALSO SKIP THE CHECK
                     05    13  0878   658          BEQL    10$                             ;IF ZERO WAS SPECIFIED
```

```
                66   55   B1  087A   659          CMPW    R5,(R6)                         ;OTHERWISE CHECK DESIRED WORKING
                                087D   660                                                  ;SET LIMIT AGAINST THAT RETURNED
                     05   12  087D   661          BNEQ    20$                             ;BRANCH IF ERROR
                                087F   662 10$:
                53   50   D1  087F   663          CMPL    R0,R3                           ;STATUS AS DESIRED?
                     33   13  0882   664          BEQL    30$                             ;BRANCH IF YES
                                0884   665 20$:
                     57   DD  0884   666          PUSHL   R7
              57   04 AE   D0  0886   667          MOVL    4(SP),R7                        ;ADDRESS OF ERROR
                                088A   668          $FAO_S  ADJWSLERR,MSGLEN,MSGBUFD,R7,R0,R3,-
                                088A   669                  R4,WRKSETLIM,R5
                     57 8ED0  08B1   670          POPL    R7
                   0001   30  08B4   671          BSBW    TYPEMSGBUF
                                08B7   672 30$:
                          05  08B7   673          RSB
```

```
                     08B8   675          .SBTTL  MISCELLANEOUS SUBROUTINES
                     08B8   676 ;
                     08B8   677 ; TYPE A MESSAGE
                     08B8   678 ;       MSGBUF IS THE ADDRESS OF THE BEGINNING OF THE STRING
                     08B8   679 ;       MSGLEN CONTAINS THE SIZE (IN BYTES) OF THE STRING
                     08B8   680 ;
                     08B8   681 TYPEMSGBUF:
   50   00DC'CF   D0  08B8   682          MOVL    W^MSGLEN,R0                     ;SIZE TO R0
   51   00FE'CF   DE  08BD   683          MOVAL   W^MSGBUF,R1                     ;ADDRESS TO R1
08 0010'CF   02   E1  08C2   684          BBC     #CTL$V_PIDMSG,W^CTLFLG,5$       ;BRANCH IF NO PROCESS ID REQUIRED
   51   00F0'CF   DE  08C8   685          MOVAL   W^MSGBUFID,R1                   ;ADDRESS INCLUDING PID MSG
        50    0E'  C0  08CD   686          ADDL    S^#<MSGBUF-MSGBUFID>,R0         ;INCLUDE EXTRA BYTES IN COUNT
                     08D0   687 5$:
   00C0'CF   51   D0  08D0   688          MOVL    R1,W^RAB+RAB$L_RBF              ;SET BUFFER ADDRESS
   00BA'CF   50   B0  08D5   689          MOVW    R0,W^RAB+RAB$W_RSZ              ;AND SIZE
                     08DA   690          $PUT    W^RAB                           ;OUTPUT THE MESSAGE
         01 50   E9  08E5   691          BLBC    R0,20$
                     05  08E8   692          RSB
                     08E9   693 20$:     $EXIT_S R0                              ;EXIT WOTH ERROR STATUS
                     08F2   694 ;
                     08F2   695 ; INPUTS:
                     08F2   696 ;
                     08F2   697 ;       0(SP) = ADDRESS OF ERROR
                     08F2   698 ;       R1 = ADDRESS OF FORMAT CONTROL STRING
                     08F2   699 ;
                     08F2   700 ; OUTPUTS:
                     08F2   701 ;
                     08F2   702 ;       R2 PRESERVED
                     08F2   703 ;
                     08F2   704 PROBERR:
            55   DD  08F2   705          PUSHL   R5
      55    04 AE   D0  08F4   706          MOVL    4(SP),R5
                     08F8   707          $FAO_S  (R1),MSGLEN,MSGBUFD,R5
            20   BA  090F   708          POPR    #^M<R5>
          FFA4   30  0911   709          BSBW    TYPEMSGBUF
                     05  0914   710          RSB
                     0915   711
                     0915   712
                     0915   713 ;
                     0915   714 ; INPUT:
                     0915   715 ;
                     0915   716 ;       INRANGE CONTAINS INFINITE RANGE OF ADDRESSES PREVIOUSLY CREATED
                     0915   717 ;       RETRANGE CONTAINS A RANGE OF ADDRESSES
                     0915   718 ;       R10 CONTAINS ADDRESS TO STORE THE # OF PAGES SPANNED BY RETRANGE
                     0915   719 ;
                     0915   720 ; OUTPUT:
                     0915   721 ;
                     0915   722 ;       R10 UPDATED TO POINT AT NEXT LONG WORD
                     0915   723 ;
                     0915   724 MAXPAGLOCK:
                     0915   725          LKWSET  STATUS=#SS$_LKWSETFUL           ;LOCK AS MANY AS ALLOWED
      53   0194 8F   3C  0915                   MOVZWL  #SS$_LKWSETFUL,R3
      50   0000'CF   DE  091A                   MOVAL   W^INRANGE,R0
      51   0008'CF   DE  091F                   MOVAL   W^RETRANGE,R1
             FDCC   30  0924                   BSBW    LKWSETSUBR
50 000C'CF   0008'CF   C3  0927   726          SUBL3   W^RETRANGE,W^RETRANGE+4,R0  ;NUMBER OF BYTES IN RANGE
            24   13  092F   727          BEQL    20$                             ;BRANCH IF NONE LOCKED
```

```
                50   50    F7 8F    78  0931    728          ASHL    #-9,R0,R0                       ;NUMBER OF PAGES -1
                   8A   50    01    C1  0936    729          ADDL3   #1,R0,(R10)+                    ;STORE NUMBER OF PAGES
                                    0A  093A    730          RANGECHK OFF
                   0010'CF    08    CA  093A                 BICL    #CTL$M_RNGCHK,W^CTLFLG
                                    3C  093F    731          ULWSET  INADR=W^RETRANGE                ;UNLOCK THE ONES THAT WERE LOCKED
                         53   09        093F                 MOVZWL  S^#SS$_WASSET,R3
                   50    0008'CF    DE  0942                 MOVAL   W^RETRANGE,R0
                   51    0008'CF    DE  0947                 MOVAL   W^RETRANGE,R1
                            FDB8    30  094C                 BSBW    ULWSETSUBR
                                    0A  094F    732          RANGECHK ON
                   0010'CF    08    C8  094F                 BISL    #CTL$M_RNGCHK,W^CTLFLG
                                    05  0954    733          RSB
                               8A   D4  0955    734 20$:     CLRL    (R10)+                          ;NO PAGES LOCKED
                                    05  0957    735          RSB
                                        0958    736
                                        0958    737
                                        0958    738          .END    START
```

```
$$.TAB                  = 00000098 R      02
$$.TABEND               = 000000DC R      02
$$.TMP                  = 00000000
$$.TMP1                 = 00000001
$$.TMP2                 = 000000CF
$$T1                    = 00000000
$$T2                    = 00000004
ADJWSLERR                 00000538 R      03
ADJWSLERRADR              0000027A R      03
ADJWSLERRSIZ            = 00000068
ADJWSLSUBR                00000865 R      03
BIT...                  = 00000004
CHECK1                    00000719 R      03
CHECK2                    00000796 R      03
CNTREGERR                 00000518 R      03
CNTREGERRADR              00000196 R      03
CNTREGERRSIZ            = 00000072
CNTREGSUBR                0000076C R      03
CRETVAERR                 00000508 R      03
CRETVAERRADR              0000000A R      03
CRETVAERRSIZ            = 00000063
CRETVASUBR                000006CB R      03
CRLF                      000000F0 R      02
CTL$M_MEMLOOP           = 0000C001
CTL$M_PIDMSG            = 00000004
CTL$M_RNGCHK            = 00000008
CTL$M_TSTLOOP           = 00000002
CTL$V_MEMLOOP           = 00000000
CTL$V_PIDMSG            = 00000002
CTL$V_RNGCHK            = 00000003
CTL$V_TSTLOOP           = 00000001
CTLFLG                    00000010 R      02
DELTVAERR                 00000510 R      03
DELTVAERRADR              0000006D R      03
DELTVAERRSIZ            = 00000063
DELTVASUBR                000006DF R      03
EXPREGERR                 00000520 R      03
EXPREGERRADR              00000208 R      03
EXPREGERRSIZ            = 00000072
EXPREGSUBR                00000782 R      03
FAB                       00000048 R      02
FAB$C_BID               = 00000003
FAB$C_BLN               = 00000050
FAB$C_SEQ               = 00000000
FAB$C_VAR               = 00000002
FAB$L_ALQ               = 00000010
FAB$L_FOP               = 00000004
FAB$V_CHAN_MODE         = 00000002
FAB$V_FILE_MODE         = 00000004
FAB$V_LNM_MODE          = 00000000
FAB$V_PUT               = 00000000
FAB$W_GBC               = 00000048
HIGHPOADR                 00000018 R      02
IDMSG                     00000578 R      03
IDMSGADR                  0000048A R      03
IDMSGSIZ                = 00000039
INRANGE                   00000000 R      02
LKWSETERR                 00000528 R      03
LKWSETERRADR              000000D0 R      03
LKWSETERRSIZ            = 00000063
LKWSETSUBR                000006F3 R      03
MAXPAGLOCK                00000915 R      03
MAXPASSCNT                00000020 R      02
MEMLOOPCTL                00000568 R      03
MEMLOOPCTLADR             000003BC R      03
MEMLOOPCTLSIZ           = 0000007F
MSGBUF                    000000FE R      02
MSGBUFD                   000000E0 R      02
MSGBUFID                  000000F0 R      02
MSGBUFSIZ               = 000000A0
MSGLEN                    000000DC R      02
NOREADERR                 00000550 R      03
NOREADERRADR              00000351 R      03
NOREADERRSIZ            = 00000024
NOWRITERR                 00000560 R      03
NOWRITERRADR              00000397 R      03
NOWRITERRSIZ            = 00000025
OUTNAMADR                 00000000 R      03
OUTNAMSIZ               = 0000000A
PASSCNT                   00000024 R      02
PID                       0000001C R      02
PIDCTL                    00000588 R      03
PIDCTLADR                 00000505 R      03
PIDCTLSIZ               = 00000003
PIDMSG                    000000FA R      02
PIDMSGD                   000000E8 R      02
PREVPROT                  00000048 R      02
PROBERR                   000008F2 R      03
PRT$C_NONE              = 00000010
RAB                       00000098 R      02
RAB$B_RAC               = 0000001E
RAB$C_BID               = 00000001
RAB$C_BLN               = 00000044
RAB$C_SEQ               = 00000000
RAB$L_CTX               = 00000018
RAB$L_RBF               = 00000028
RAB$L_ROP               = 00000004
RAB$W_RSZ               = 00000022
RANGECHK                  000007EB R      03
RANGERR                   00000570 R      03
RANGERRADR                0000043B R      03
RANGERRSIZ              = 0000004F
READERR                   00000548 R      03
READERRADR                00000330 R      03
READERRSIZ              = 00000021
RETRANGE                  00000008 R      02
RSTART                    0000060A R      03
RUN1_MSG                  00000580 R      03
RUN1_MSGADR               000004C3 R      03
RUN1_MSGSIZ             = 00000042
SAVEND                    00000014 R      02
SIZ...                  = 00000001
SS$_EXQUOTA             = 0000001C
SS$_INSFWSL             = 0000011C
```

```
SS$_LKWSETFUL                   = 00000194
SS$_NORMAL                      = 00000001
SS$_VASFULL                     = 00000244
SS$_WASSET                      = 00000009
START                             00000590 R      03
SYS$ADJWSL                        ******** GX     03
SYS$CNTREG                        ******** GX     03
SYS$CONNECT                       ******** GX     03
SYS$CRETVA                        ******** GX     03
SYS$DELTVA                        ******** GX     03
SYS$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                        000008B8 R      03
ULWSETERR                         00000530 R      03
ULWSETERRADR                      00000133 R      03
ULWSETERRSIZ                    = 00000063
ULWSETSUBR                        00000707 R      03
WRITERR                           00000558 R      03
WRITERRADR                        00000375 R      03
WRITERRSIZ                      = 00000022
WRKSETDEF                         0000002C R      02
WRKSETLIM                         00000028 R      02
WRKSETMAX                       = 00000034 R      02
WRKSETMAXADD                      00000044 R      02
WRKSETMIN                       = 0000003C R      02
WSETLMCTL                         00000540 R      03
WSETLMCTLADR                      000002E2 R      03
WSETLMCTLSIZ                    = 0000004E
```

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	0000019E (414.)	02 (2.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC PAGE
CODE	00000958 (2392.)	03 (3.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC PAGE

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	11	00:00:00.08	00:00:01.29
Command processing	93	00:00:00.80	00:00:05.15
Pass 1	326	00:00:11.60	00:00:38.06
Symbol table sort	0	00:00:01.28	00:00:03.19
Pass 2	151	00:00:02.84	00:00:10.16

```
Symbol table output              18     00:00:00.12    00:00:01.50
Psect synopsis output             2     00:00:00.01    00:00:00.49
Cross-reference output            0     00:00:00.00    00:00:00.00
Assembler run totals            603     00:00:16.75    00:00:59.98

The working set limit was 1500 pages.
65554 bytes (129 pages) of virtual memory were used to buffer the intermediate code.
There were 50 pages of symbol table space allocated to hold 900 non-local and 18 local symbols.
738 source lines were read in Pass 1, producing 21 object records in Pass 2.
54 pages of virtual memory were used to define 47 macros.

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

Macro library name                 Macros defined
------------------                 --------------
_$255$DUA28:[SYS.OBJ]LIB.MLB;1                1
_$255$DUA28:[SYSLIB]STARLET.MLB;2            29
TOTALS (all libraries)                       30

1151 GETS were required to define 30 macros.

There were no errors, warnings or information messages.

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

MMGEXPCNT
LIS

MMGSNSFWSL
LIS

MOM
MAP

MMGCRTDEL
LIS

MMGCRDLSP
LIS

MMGCRTFIL
LIS

MMGLKWULW
LIS

MMGXQUOTA
LIS

MMGSETPRT
LIS

MOM