L 12

```
   SSSSSSSSSSSS  YYY         YYY     SSSSSSSSSSSS
   SSSSSSSSSSSS  YYY         YYY     SSSSSSSSSSSS
   SSSSSSSSSSSS  YYY         YYY     SSSSSSSSSSSS
SSS              YYY         YYY  SSS
SSS              YYY         YYY  SSS
SSS              YYY         YYY  SSS
SSS                 YYY   YYY     SSS
SSS                 YYY   YYY     SSS
SSS                 YYY   YYY     SSS
   SSSSSSSSS           YYY           SSSSSSSSS
   SSSSSSSSS           YYY           SSSSSSSSS
   SSSSSSSSS           YYY           SSSSSSSSS
            SSS        YYY                    SSS
            SSS        YYY                    SSS
            SSS        YYY                    SSS
            SSS        YYY                    SSS
            SSS        YYY                    SSS
            SSS        YYY                    SSS
SSSSSSSSSSSS           YYY        SSSSSSSSSSSS
SSSSSSSSSSSS           YYY        SSSSSSSSSSSS
SSSSSSSSSSSS           YYY        SSSSSSSSSSSS
```

```
_$

Ps
--

YZ

Z$

Z$

Z$

Z$

Z$

Z$

Z$

Z$

Z$

Z$

Z$

Z$
```

FILEID**SYSADJSTK

```
  SSSSSSSS  YY      YY    SSSSSSSS    AAAAAA    DDDDDDDD            JJ    SSSSSSSS  TTTTTTTTTT  KK      KK
  SSSSSSSS  YY      YY    SSSSSSSS    AAAAAA    DDDDDDDD            JJ    SSSSSSSS  TTTTTTTTTT  KK      KK
SS          YY      YY  SS          AA      AA  DD      DD          JJ  SS              TT      KK      KK
SS          YY      YY  SS          AA      AA  DD      DD          JJ  SS              TT      KK      KK
SS            YY  YY    SS          AA      AA  DD      DD          JJ  SS              TT      KK    KK
SS            YY  YY    SS          AA      AA  DD      DD          JJ  SS              TT      KK    KK
  SSSSSS        YY        SSSSSS    AA      AA  DD      DD          JJ    SSSSSS        TT      KKKKKK
  SSSSSS        YY        SSSSSS    AA      AA  DD      DD          JJ    SSSSSS        TT      KKKKKK
        SS      YY              SS  AAAAAAAAAA  DD      DD  JJ      JJ          SS      TT      KK    KK
        SS      YY              SS  AAAAAAAAAA  DD      DD  JJ      JJ          SS      TT      KK    KK
        SS      YY              SS  AA      AA  DD      DD  JJ      JJ          SS      TT      KK      KK      ....
        SS      YY              SS  AA      AA  DD      DD  JJ      JJ          SS      TT      KK      KK      ....
SSSSSSSS        YY      SSSSSSSS    AA      AA  DDDDDDDD      JJJJJJ    SSSSSSSS        TT      KK      KK      ....
SSSSSSSS        YY      SSSSSSSS    AA      AA  DDDDDDDD      JJJJJJ    SSSSSSSS        TT      KK      KK      ....

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            .TITLE  SYSADJSTK - SYSTEM SERVICE ADJUST OUTER MODE STACK POINTER
0000            .IDENT  'V04-000'
0000
0000      ;
0000      ;****************************************************************************
0000      ;*                                                                          *
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0000      ;*                                                                          *
0000      ;*                                                                          *
0000      ;****************************************************************************
0000      ;
0000      ; D. N. CUTLER 9-JAN-77
0000      ;
0000      ;
0000      ; MODIFIED BY:
0000      ;
0000      ;       V03-003 TMK0001         Todd M. Katz            19-Nov-1983
0000      ;               Change a BSBW (to EXE$EXPANDSTK) to a JSB.
0000      ;
0000      ;       V03-002 SRB0068         Steve Beckhardt         22-Feb-1983
0000      ;               Removed most of ACG0310.
0000      ;
0000      ;       V03-001 ACG0310         Andrew C. Goldstein,    31-Jan-1983  13:37
0000      ;               Fix stack adjustment when stack is expanded
0000      ;
0000      ;       02      RIH0031         RICHARD I. HUSTVEDT             6-AUG-1979
0000      ;               ADD CALL TO EXE$EXPANDSTK TO IMPLEMENT AUTOMATIC STACK
0000      ;               EXPANSION FOR USER MODE STACK.
0000      ;
0000      ; SYSTEM SERVICE ADJUST OUTER MODE STACK POINTER
0000      ;
0000      ; MACRO LIBRARY CALLS
0000      ;
0000
0000            $PSLDEF                         ;DEFINE PROCESSOR STATUS FIELDS
0000            $SSDEF                          ;DEFINE SYSTEM STATUS VALUES
0000
0000      ;
0000      ; LOCAL SYMBOLS
0000      ;
0000      ; ARGUMENT LIST OFFSET DEFINITIONS
```

```
                 0000     58 ;
                 0000     59
       00000004  0000     60 ACMODE=4                                        ;ACCESS MODE TO ADJUST STACK POINTER FOR
       00000008  0000     61 ADJUST=8                                        ;16-BIT SIGNED ADJUSTMENT VALUE
       0000000C  0000     62 NEWADR=12                                       ;ADDRESS OF LONGWORD TO STORE UPDATED VALUE
```

```
                                 0000              .SBTTL  ADJUST OUTER MODE STACK POINTER
                                 0000       ;+
                                 0000       ; EXE$ADJSTK - ADJUST OUTER MODE STACK POINTER
                                 0000       ;
                                 0000       ; THIS SERVICE PROVIDES THE CAPABILITY TO ADJUST THE STACK POINTER FOR
                                 0000       ; A MODE THAT IS LESS PRIVILEGED THAN THE CALLING ACCESS MODE. IT CAN BE
                                 0000       ; USED TO LOAD AN INITIAL VALUE INTO THE SPECIFIED MODE'S STACK POINTER OR
                                 0000       ; TO ADJUST ITS CURRENT VALUE.
                                 0000       ;
                                 0000       ; INPUTS:
                                 0000       ;
                                 0000       ;               ACMODE(AP) = ACCESS MODE TO ADJUST STACK POINTER FOR.
                                 0000       ;               ADJUST(AP) = 16-BIT SIGNED ADJUSTMENT VALUE.
                                 0000       ;               NEWADR(AP) = ADDRESS OF LONGWORD TO STORE UPDATED VALUE.
                                 0000       ;                       IF THE INITIAL CONTENTS OF @NEWADR(AP) ARE NONZERO,
                                 0000       ;                       THEN THE VALUE IS TAKEN AS THE CURRENT TOP OF STACK.
                                 0000       ;                       ELSE THE CURRENT STACK POINTER FOR THE SPECIFIED MODE
                                 0000       ;                       IS USED.
                                 0000       ;
                                 0000       ; OUTPUTS:
                                 0000       ;
                                 0000       ;       R0 LOW BIT CLEAR INDICATES FAILURE TO ADJUST STACK POINTER.
                                 0000       ;
                                 0000       ;               R0 = SS$_ACCVIO - LONGWORD TO STORE UPDATED STACK POINTER
                                 0000       ;                       OR PART OF NEW STACK SEGMENT CANNOT BE WRITTEN BY
                                 0000       ;                       CALLING ACCESS MODE.
                                 0000       ;
                                 0000       ;               R0 = SS$_NOPRIV - SPECIFED ACCESS MODE IS EQUAL OR MORE
                                 0000       ;                       PRIVILEGED THAN CALLING ACCESS MODE.
                                 0000       ;
                                 0000       ;       R0 LOW BIT SET INDICATES SUCCESSFUL COMPLETION.
                                 0000       ;
                                 0000       ;               R0 = SS$_NORMAL - NORMAL COMPLETION.
                                 0000       ;-
                                 0000
                             00000000              .PSECT  Y$EXEPAGED
                             007C 0000             .ENTRY  EXE$ADJSTK,^M<R2,R3,R4,R5,R6>
                55   0C AC   D0   0002             MOVL    NEWADR(AP),R5             ;GET ADDRESS TO STORE NEW STACK VALUE
    53   04 AC   02   00     EF   0006             EXTZV   #0,#2,ACMODE(AP),R3       ;GET ACCESS MODE TO MODIFY STACK POINTER FOR
                      52     DC   000C             MOVPSL  R2                        ;READ CURRENT PSL
       53   52   02   16     ED   000E             CMPZV   #PSL$V_PRVMOD,#PSL$S_PRVMOD,R2,R3 ;PREVIOUS MODE MORE PRIVILEGED?
                      55     18   0013             BGEQ    60$                       ;IF GEQ NO
                                  0015             IFNOWRT #4,(R5),40$               ;CAN NEW STACK VALUE BE WRITTEN?
                 56   65     D0   001B      5$:    MOVL    (R5),R6                   ;GET SPECIFIED STACK VALUE
                      03     12   001E             BNEQ    10$                       ;IF NEQ VALUE SPECIFIED
                 56   53     DB   0020             MFPR    R3,R6                     ;
             50   08 AC      32   0023      10$:   CVTWL   ADJUST(AP),R0             ;GET ADJUSTMENT VALUE
                 56   50     C0   0027             ADDL    R0,R6                     ;CALCULATE NEW TOP OF STACK
                 50   50     CE   002A             MNEGL   R0,R0                     ;ALLOCATION OF STACK SPACE?
                      17     15   002D             BLEQ    30$                       ;IF LEQ NO
                 51   56     D0   002F             MOVL    R6,R1                     ;COPY NEW STACK VALUE
           52   FE00 8F      32   0032             CVTWL   #-^X200,R2                ;SET ADDITION CONSTANT
                                  0037      20$:   IFNOWRT R0,(R1),40$,R3            ;CAN ALLOCATED STACK SEGMENT BE WRITTEN?
                 51   52     C2   003D             SUBL    R2,R1                     ;UPDATE ADDRESS IN STACK
              50   6042      3E   0040             MOVAW   (R0)[R2],R0               ;UPDATE REMAINING LENGTH
                      F1     18   0044             BGEQ    20$                       ;IF GEQ MORE TO CHECK
                 53   56     DA   0046      30$:   MTPR    R6,R3                     ;
```

```
          65    56   D0  0049    121           MOVL    R6,(R5)                 ;STORE NEW STACK VALUE
          50    01   3C  004C    122           MOVZWL  #SS$_NORMAL,R0          ;SET NORMAL COMPLETION
                     04  004F    123           RET                             ;
          53    03   D1  0050    124 40$:      CMPL    #PSL$C_USER,R3          ;IS THIS FOR USER MODE STACK?
                11   12  0053    125           BNEQ    50$                     ;BR IF NOT
                3E   BB  0055    126           PUSHR   #^M<R1,R2,R3,R4,R5>     ;SAVE REGISTERS
          52    51   D0  0057    127           MOVL    R1,R2                   ;STACK BASE ADDRESS
     00000000'EF     16  005A    128           JSB     EXE$EXPANDSTK           ;AUGMENT STACK TO MAKE ACCESSIBLE
                3E   BA  0060    129           POPR    #^M<R1,R2,R3,R4,R5>     ;RESTORE REGISTERS
             B6 50   E8  0062    130           BLBS    R0,5$                   ;REPEAT CHECKS
                     04  0065    131           RET                             ;RETURN ERROR CODE
          50    0C   3C  0066    132 50$:      MOVZWL  #SS$_ACCVIO,R0          ;SET ACCESS VIOLATION
                     04  0069    133           RET                             ;
          50    24   3C  006A    134 60$:      MOVZWL  #SS$_NOPRIV,R0          ;SET NO PRIVILEGE
                     04  006D    135           RET                             ;
                         006E    136
                         006E    137           .END
```

```
ACMODE                            = 00000004
ADJUST                            = 00000008
EXE$ADJSTK                          00000000 RG    02
EXE$EXPANDSTK                       ********    X  02
NEWADR                            = 0000000C
PSL$C_USER                        = 00000003
PSL$S_PRVMOD                      = 00000002
PSL$V_PRVMOD                      = 00000016
SS$_ACCVIO                        = 0000000C
SS$_NOPRIV                        = 00000024
SS$_NORMAL                        = 00000001

                                              +----------------+
                                              ! 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
Y$EXEPAGED                        0000006E  (   110.)  02 (  2.)  NOPIC    USR    CON    REL    LCL NOSHR   EXE   RD     WRT NOVEC BYTE

                                           +------------------------+
                                           ! Performance indicators !
                                           +------------------------+

Phase                        Page faults    CPU Time       Elapsed Time
-----                        -----------    --------       ------------
Initialization                        29    00:00:00.10    00:00:00.43
Command processing                   112    00:00:00.60    00:00:04.80
Pass 1                               202    00:00:04.25    00:00:14.53
Symbol table sort                      0    00:00:00.69    00:00:02.12
Pass 2                                42    00:00:00.76    00:00:05.12
Symbol table output                    3    00:00:00.02    00:00:00.03
Psect synopsis output                  2    00:00:00.03    00:00:00.03
Cross-reference output                 0    00:00:00.00    00:00:00.00
Assembler run totals                 392    00:00:06.45    00:00:27.07

The working set limit was 1200 pages.
22668 bytes (45 pages) of virtual memory were used to buffer the intermediate code.
There were 30 pages of symbol table space allocated to hold 451 non-local and 7 local symbols.
137 source lines were read in Pass 1, producing 16 object records in Pass 2.
10 pages of virtual memory were used to define 9 macros.

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

Macro library name                          Macros defined
------------------                          --------------
_$255$DUA28:[SYS.OBJ]LIB.MLB;1                         1
_$255$DUA28:[SYSLIB]STARLET.MLB;2                      5
TOTALS (all libraries)                                 6

516 GETS were required to define 6 macros.

There were no errors, warnings or information messages.
```

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

0381 AH-BT13A-SE
VAX/VMS V4.0

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