F 9

```
LLL                 IIIIIIIII     NNN         NNN  KKK         KKK  EEEEEEEEEEEEEEE  RRRRRRRRRRRR
LLL                 IIIIIIIII     NNN         NNN  KKK         KKK  EEEEEEEEEEEEEEE  RRRRRRRRRRRR
LLL                 IIIIIIIII     NNN         NNN  KKK         KKK  EEEEEEEEEEEEEEE  RRRRRRRRRRRR
LLL                    III        NNN         NNN  KKK         KKK  EEE              RRR         RRR
LLL                    III        NNN         NNN  KKK         KKK  EEE              RRR         RRR
LLL                    III        NNN         NNN  KKK         KKK  EEE              RRR         RRR
LLL                    III        NNNNNN      NNN  KKK      KKK     EEE              RRR         RRR
LLL                    III        NNNNNN      NNN  KKK      KKK     EEE              RRR         RRR
LLL                    III        NNNNNN      NNN  KKK      KKK     EEE              RRR         RRR
LLL                    III        NNN   NNN   NNN  KKKKKKKKK        EEEEEEEEEEEE     RRRRRRRRRRRR
LLL                    III        NNN   NNN   NNN  KKKKKKKKK        EEEEEEEEEEEE     RRRRRRRRRRRR
LLL                    III        NNN   NNN   NNN  KKKKKKKKK        EEEEEEEEEEEE     RRRRRRRRRRRR
LLL                    III        NNN      NNNNNN  KKK      KKK     EEE              RRR   RRR
LLL                    III        NNN      NNNNNN  KKK      KKK     EEE              RRR   RRR
LLL                    III        NNN      NNNNNN  KKK      KKK     EEE              RRR   RRR
LLL                    III        NNN         NNN  KKK         KKK  EEE              RRR      RRR
LLL                    III        NNN         NNN  KKK         KKK  EEE              RRR      RRR
LLL                    III        NNN         NNN  KKK         KKK  EEE              RRR      RRR
LLLLLLLLLLLLLLL     IIIIIIIII     NNN         NNN  KKK         KKK  EEEEEEEEEEEEEEE  RRR         RRR
LLLLLLLLLLLLLLL     IIIIIIIII     NNN         NNN  KKK         KKK  EEEEEEEEEEEEEEE  RRR         RRR
LLLLLLLLLLLLLLL     IIIIIIIII     NNN         NNN  KKK         KKK  EEEEEEEEEEEEEEE  RRR         RRR
```

```
**FILE**ID**LNKSYMTBL                              C 15








LL          NN      NN  KK      KK    SSSSSSSS  YY      YY  MM      MM  TTTTTTTTTT  BBBBBBBB    LL
LL          NN      NN  KK      KK    SSSSSSSS  YY      YY  MM      MM  TTTTTTTTTT  BBBBBBBB    LL
LL          NN      NN  KK      KK  SS          YY      YY  MMMM  MMMM      TT      BB      BB  LL
LL          NN      NN  KK      KK  SS          YY      YY  MMMM  MMMM      TT      BB      BB  LL
LL          NNNN    NN  KK    KK    SS            YY  YY    MM  MM  MM      TT      BB      BB  LL
LL          NNNN    NN  KK    KK    SS            YY  YY    MM  MM  MM      TT      BB      BB  LL
LL          NN  NN  NN  KKKKKK        SSSSSS        YY      MM      MM      TT      BBBBBBBB    LL
LL          NN  NN  NN  KKKKKK        SSSSSS        YY      MM      MM      TT      BBBBBBBB    LL
LL          NN    NNNN  KK    KK            SS      YY      MM      MM      TT      BB      BB  LL
LL          NN    NNNN  KK    KK            SS      YY      MM      MM      TT      BB      BB  LL
LL          NN      NN  KK      KK          SS      YY      MM      MM      TT      BB      BB  LL              ....
LL          NN      NN  KK      KK          SS      YY      MM      MM      TT      BB      BB  LL              ....
LLLLLLLLLL  NN      NN  KK      KK  SSSSSSSS        YY      MM      MM      TT      BBBBBBBB    LLLLLLLLLL      ....
LLLLLLLLLL  NN      NN  KK      KK  SSSSSSSS        YY      MM      MM      TT      BBBBBBBB    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
```

```
0 MODULE LNK_SYMSERINS (IDENT='V04-000',
0                       ADDRESSING_MODE(EXTERNAL=GENERAL,
0                                       NONEXTERNAL=LONG_RELATIVE)
0                       ) =
0
1 BEGIN
1 !
1 !
1 !****************************************************************************
1 !*                                                                          *
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1 !*                                                                          *
1 !*                                                                          *
1 !****************************************************************************
1 !
1 !
1 !
1 !
1 !
1 !++
1 !
1 ! MODULE: LNK_SYMSERINS
1 !
1 ! FACILITY: LINKER
1 !
1 ! ABSTRACT: SYMBOL TABLE SEARCH AND INSERT
1 !
1 ! HISTORY:
1 !
1 !       VERSION: X01.00
1 !
1 !       AUTHOR: T.J. PORTER 18-FEB-77
1 !
1 ! MODIFIED BY:
1 !
1 !       V03-002 JWT0062         Jim Teague              22-Oct-1982
1 !               Replaced symbol hashing algorithm.
1 !
1 !       V03-001 JWT0031         Jim Teague              25-May-1982
1 !               Zero hashtable before use for module local symbols
1 !
```

```
;    58        0058  1 !        V03-003 BLS0090         Benn Schreiber          31-Oct-1981
;    59        0059  1 !                Add LNK$SEARCHLOCAL routine
;    60        0060  1 !
;    61        0061  1 !        V03-002 BLS0025         Benn Schreiber          10-Nov-1980
;    62        0062  1 !                Enhancements to shareable images.
;    63        0063  1 !
;    64        0064  1 !        V03-001 BLS0007         Benn Schreiber,         3-Jun-1980
;    65        0065  1 !                Convert to MDL data structures.
;    66        0066  1 !--
;   1 !
;   1 !++
;   1 !
;   1 ! FUNCTIONAL DESCRIPTION:
;   1 !
;   1 !        THIS MODULE CONTAINS THE SYMBOL TABLE SEARCH AND INSERT
;   1 !        ROUTINES. THE SYMBOL TABLE IS A HASH
;   1 !        TABLE USING A CHAIN OF ALTERNATES WHEN COLLOSIONS OCCUR.
;   1 !        THE TABLE CONSISTS OF SYM$C TBLSIZ CONTIGUOUS DESCRIPTORS
;   1 !        EACH DESCRIPTOR CONTAINS A POINTER WHICH IS THE HEAD OF
;   1 !        A SINGLY LINKED LIST, USED IF A COLLISION OCCURS ON
;   1 !        THAT ENTRY. MULTIPLE COLLISIONS ARE INSERTED IN THIS LIST,
;   1 !        THE LAST HAVING A ZERO POINTER.
;   1 !        THE COLLISION LIST ENTRIES ARE ALLOCATED (BY INSERT) FROM
;   1 !        DYNAMIC MEMORY.
;   1 !
;   1 !        THE CALLING SEQUENCES ARE:
;   1 !                LNK$SEARCH (TARGSYMBOL, DESCRADR, SNBADR)
;   1 !                LNK$INSERT (TARGSYMBOL, DESCRADR, SNBADR)
;   1 !                LNK$SEARCHLOCAL(TARGSYMBOL, ENVINDEX, DESCRADR, SNBADR, ENVDESCADR)
;   1 !        WHERE:  TARGSYMBOL IS THE ADDRESS OF AN ASCII STRING TO
;   1 !                        BE FOUND OR INSERTED.
;   1 !
;   1 !                DESCRADR IS THE ADDRESS OF CELL TO STORE THE ADDRESS
;   1 !                OF A FOUND ENTRY OR ADDRESS OF AN INSERTED ENTRY.
;   1 !
;   1 !                SNBADR IS THE ADDRESS OF A CELL TO STORE THE ADDRESS
;   1 !                OF A FOUND ENTRY SYMBOL NAME BLOCK OR THE ADDRESS
;   1 !                OF THE SYMBOL NAME BLOCK IF THE ENTRY WAS INSERTED.
;   1 !
;   1 !        SEARCH HAS THE VALUE TRUE IF THE SYMBOL WAS FOUND,
;   1 !        FALSE IF NOT.
;   1 !
;   1 !        CALLS TO INSERT MUST BE PRECEDED BY AN UNSUCCESSFUL
;   1 !        SEARCH CALL, IN THIS CASE INFORMATION IS
;   1 !        RECORDED TO OBVIATE ANOTHER SEARCH AND
;   1 !        DESCRADR IS RETURNED WITH THE ADDRESS OF THE DESCRIPTOR
;   1 !        WHICH HAS THE STRING COPIED INTO IT.
;   1 !
;   1 !        HASH VALUE H = SUM OF CHARACTERS, DIVIDED BY THE TABLE SIZE.
;   1 !
;   1 !--
;   1 !
;   1 LIBRARY
;   1         'STARLETL32';
;   1 REQUIRE
;   1         'PREFIX';                                     ! GET GENERAL DEFINITIONS
;   1 LIBRARY
;   1         'DATBAS';                                     ! LINKER DATA STRUCTURES
;   1
;   1 EXTERNAL ROUTINE
;   1         LNK$ALLOBLK,                                  ! DYNAMIC MEMORY ALLOCATOR
;   1         LNK$FNDENVMAP;                                ! FIND ENVIRONMENT MAPPING TABLE ENTRY
;   1
;   1 LITERAL
;   1         NINE = 9,
;   1         THIRTEEN = 13;
;   125          0238  1
;   126          0239  1 EXTERNAL LITERAL
;   127          0240  1         SYM$C_ALLOBLK : BYTLIT;                     ! NUMBER OF PAGES TO PREALLOCATE
;   128          0241  1
;   129          0242  1 OWN
;   130          0243  1         SYMENTRY : REF BLOCK[,BYTE];                        ! CURRENT SYMBOL ENTRY
;   131          0244  1 GLOBAL
;   132          0245  1         LNK$GL_SYMALLOC : VECTOR[2,LONG],                   ! SIZE AND POINTER TO PREALLOCTED TABLE
;   133          0246  1         SYM$GL_HASHTBL : REF VECTOR[SYM$C_TBLSIZ,LONG]; ! THE HASH TABLE FOR SYMBOLS
```

```
1 GLOBAL ROUTINE LNK$SEARCH (TARGSYMBOL, DESCRADR, SNBADR) =
1 !
2 BEGIN
2 !
2 !       TARGSYMBOL IS ADDRESS OF AN ASCIC STRING
2 !       DESCRADR IS ADDRESS OF CELL TO RECEIVE THE ENTRY
2 !       ADDRESS IF SYMBOL IS IN TABLE
2 !       SNBADR IS ADDRESS OF CELL TO RECEIVE THE SYMBOL NAME BLOCK
2 !       ADDRESS IF SYMBOL IS IN TABLE
2 !
2 MAP
2         TARGSYMBOL : REF VECTOR[,BYTE];
2 !
2 BUILTIN
2         ROT;
2
2 REGISTER
2         HASHINDEX;
2
2 LOCAL
2         LEFTOVER,
2         LONGWORDS,
2         CH_RESULT,
2         PREVENTRY,
2         POINTER;
2 !
2 !       COMPUTE THE HASH INDEX AND GET ENTRY ADDRESS
2 !
2 HASHINDEX = .TARGSYMBOL[0];                                             ! INITIALIZE THE HASH VALUE
2 LEFTOVER = .HASHINDEX AND 3;
2 LONGWORDS = .HASHINDEX ^ -2;
2 POINTER = TARGSYMBOL[1];                                ! SET CHARACTER POINTER TO INCLUDE STRING LENGTH
2 INCR I FROM 1 TO .LONGWORDS DO
3         BEGIN
3         HASHINDEX = ..POINTER XOR .HASHINDEX;
3         POINTER = .POINTER + 4;
3         HASHINDEX = ROT (.HASHINDEX ,NINE);
2         END;
2 INCR I FROM 1 TO  .LEFTOVER DO
3         BEGIN
3         HASHINDEX = CH$RCHAR_A(POINTER) XOR .HASHINDEX;
3         HASHINDEX = ROT ( .HASHINDEX, THIRTEEN);
2         END;
2
2 HASHINDEX = (.HASHINDEX AND %X'7FFFFFFF') MOD SYM$C_TBLSIZ;              ! THEN TAKE MODULO TABLE SIZE
2 SYMENTRY = (SYM$GL_HASHTBL[.HASHINDEX]);                ! GET ADDRESS OF HASH TABLE ENTRY
2 IF .SYMENTRY[SNB$L_COLIST] EQL 0
2         THEN RETURN FALSE
3         ELSE BEGIN
3         PREVENTRY = .SYMENTRY;                          ! REMEMBER PREVIOUS
3         SYMENTRY = .SYMENTRY[SNB$L_COLIST];             ! POINT TO THE FIRST ENTRY
3 !
3 !       NOW COMPARE THE SYMBOL IN THE
3 !       ENTRY FOR A MATCH. IF IT MATCHES RETURN ENTRY
3 !       ADDRESS AND SUCCESS CONDITION.
3 !       IF IT DOES NOT MATCH SEARCH DOWN THE COLLISION
3 !       LIST UNTIL:
```

```
;  192       0304  3 !          1.      FIND A MATCH - RETURN THE ADDRESS OF MATCHED
;  193       0305  3 !                  ENTRY AND SUCCESS
;  194       0306  3 !          2.      REACH END OF LIST. SAVE ADDRESS OF LAST
;  195       0307  3 !                  ENTRY IN LIST FOR POSSIBLE SUBSEQUENT
;  196       0308  3 !                  INSERT AND RETURN FAILURE.
;  197       0309  3 !
;  198       0310  4 DO IF (CH_RESULT = CH$COMPARE(.TARGSYMBOL[0], TARGSYMBOL[1], ! COMPARE SYMBOLS
;  199       0311  3                 .SYMENTRY[SNB$B_NAMLNG], SYMENTRY[SNB$T_NAME])) EQL 0
;  200       0312  4         THEN BEGIN                                    ! SYMBOL MATCHES
;  201       0313  4                 .DESCRADR = .SYMENTRY + .SYMENTRY[SNB$B_NAMLNG] + SNB$C_FXDLEN;
;  202       0314  4                 .SNBADR = .SYMENTRY;                  ! RETURN SYMBOL NAME BLOCK
;  203       0315  4                                                       ! AND VALUE BLOCK ADDRESSES
;  204       0316  4                 RETURN TRUE;                          ! AND RETURN SUCCESS
;  205       0317  4             END
;  206       0318  4
;  207       0319  4 UNTIL (IF .CH_RESULT LSS 0                            ! OTHERWISE, QUIT IF PAST THE SPOT
;  208       0320  5                     THEN BEGIN
;  209       0321  5                         SYMENTRY = .PREVENTRY;        ! RESET POINTER TO INSERT SPOT
;  210       0322  5                         TRUE
;  211       0323  5                         END
;  212       0324  5                     ELSE BEGIN
;  213       0325  5                         PREVENTRY = .SYMENTRY;        ! SAVE PREVIOUS
;  214       0326  5                         IF .SYMENTRY[SNB$L_COLIST] EQL 0 ! IF AT END OF LIST
;  215       0327  5                             THEN TRUE
;  216       0328  6                             ELSE BEGIN
;  217       0329  6                                 SYMENTRY = .SYMENTRY [SNB$L_COLIST]; ! LINK TO NEXT
;  218       0330  6                                 FALSE
;  219       0331  6                                 END
;  220       0332  5                         END
;  221       0333  3                 );
;  222       0334  3                                           ! END OF THE COLLISION LIST.
;  223       0335  3 RETURN FALSE;                             ! THE LAST ENTRY EXAMINED
;  224       0336  3                                           ! IS PRESERVED IN SYMENTRY.
;  225       0337  2         END;                                          ! END OF NON-0 HASH TABLE ENTRY
;  226       0338  1 END;                            ! END OF SEARCH ROUTINE


                                                                .TITLE  LNK_SYMSERINS
                                                                .IDENT  \V04-000\

                                                                .PSECT  $OWN$,NOEXE,2

                                                00000 SYMENTRY:
                                                                .BLKB   4

                                                                .PSECT  $GLOBAL$,NOEXE,2

                                                00000 LNK$GL_SYMALLOC::
                                                                .BLKB   8
                                                00008 SYM$GL_HASHTBL::
                                                                .BLKB   4

                                                                .EXTRN  LNK$ALLOBLK, LNK$FNDENVMAP
                                                                .EXTRN  SYM$C_ALLOBLK

                                                                .PSECT  $CODE$,NOWRT,2
                                                07FC 00000       .ENTRY   LNK$SEARCH, Save R2,R3,R4,R5,R6,R7,R8,R9,-            ; 0247
                                                                          R10                                                   ;
                                5A 00000000'  EF  9E 00002       MOVAB    SYMENTRY, R10                                         ;
                                50       04   BC  9A 00009       MOVZBL   @TARGSYMBOL, HASHINDEX                                ; 0275
54            50                02            00  EF 0000D       EXTZV    #0, #2, HASHINDEX, LEFTOVER                           ; 0276
              53                50       FE   8F  78 00012       ASHL     #-2, HASHINDEX, LONGWORDS                             ; 0277
                                57       04   AC  D0 00017       MOVL     TARGSYMBOL, R7                                        ; 0278
                                52       01   A7  9E 0001B       MOVAB    1(R7), POINTER                                        ;
                                              51  D4 0001F       CLRL     I                                                     ; 0279
                                              07  11 00021       BRB      2$                                                    ;
                                50            82  CC 00023 1$:   XORL2    (POINTER)+, HASHINDEX                                 ; 0281
              50                50            09  9C 00026       ROTL     #9, HASHINDEX, HASHINDEX                              ; 0283
              F5                51            53  F3 0002A 2$:   AOBLEQ   LONGWORDS, I, 1$                                      ; 0279
                                              51  D4 0002E       CLRL     I                                                     ; 0285
                                              0A  11 00030       BRB      4$                                                    ;
                                53            82  9A 00032 3$:   MOVZBL   (POINTER)+, R3                                        ; 0287
                                50            53  CC 00035       XORL2    R3, HASHINDEX                                         ;
              50                50            0D  9C 00038       ROTL     #13, HASHINDEX, HASHINDEX                             ; 0288
              F2                51            54  F3 0003C 4$:   AOBLEQ   LEFTOVER, I, 3$                                       ; 0285
50            50                1F            00  EF 00040       EXTZV    #0, #31, HASHINDEX, HASHINDEX                         ; 0291
7E            00                50            01  7A 00045       EMUL     #1, HASHINDEX, #0, -(SP)                              ;
50            50                8E 00000115   8F  7B 0004A       EDIV     #277, (SP)+, HASHINDEX, HASHINDEX                     ;
                                6A 00000000'FF40  DE 00053       MOVAL    @SYM$GL_HASHTBL[HASHINDEX], SYMENTRY                  ; 0292
                                50            6A  D0 0005B       MOVL     SYMENTRY, R0                                          ; 0293
                                              60  D5 0005E       TSTL     (R0)                                                  ;
                                              47  13 00060       BEQL     9$                                                    ;
                                58            50  D0 00062       MOVL     R0, PREVENTRY                                         ; 0296
                                6A            60  D0 00065       MOVL     (R0), SYMENTRY                                        ; 0297
                                50       04   BC  9A 00068 5$:   MOVZBL   @TARGSYMBOL, R0                                       ; 0310
                                54            6A  D0 0006C       MOVL     SYMENTRY, R4                                          ; 0311
                                55       04   A4  9A 0006F       MOVZBL   4(R4), R5                                             ;
                                56            01  D0 00073       MOVL     #1, R6                                                ;
55            00          01    A7            50  2D 00076       CMPC5    R0, 1(R7), #0, R5, 5(R4)                              ;
                                         05   A4     0007C                                                                      ;
                                              03  1A 0007E       BGTRU    6$                                                    ;
                                56            01  D9 00080       SBWC     #1, R6                                                ;
                                59            56  D0 00083 6$:   MOVL     R6, CH_RESULT                                         ;
                                              0E  12 00086       BNEQ     7$                                                    ;
                          08    BC       05 A544  9E 00088       MOVAB    5(R5)[R4], @DESCRADR                                  ; 0313
                          0C    BC            54  D0 0008E       MOVL     R4, @SNBADR                                           ; 0314
                                50            01  D0 00092       MOVL     #1, R0                                                ; 0316
                                                  04 00095       RET                                                            ;
                                              05  18 00096 7$:   BGEQ     8$                                                    ; 0319
                                6A            58  D0 00098       MOVL     PREVENTRY, SYMENTRY                                   ; 0321
                                              0C  11 0009B       BRB      9$                                                    ;
                                58            54  D0 0009D 8$:   MOVL     R4, PREVENTRY                                         ; 0325
                                              64  D5 000A0       TSTL     (R4)                                                  ; 0326
                                              05  13 000A2       BEQL     9$                                                    ;
                                6A            64  D0 000A4       MOVL     (R4), SYMENTRY                                        ; 0329
                                              BF  11 000A7       BRB      5$                                                    ;
                                              50  D4 000A9 9$:   CLRL     R0                                                    ; 0335
                                                  04 000AB       RET                                                            ; 0338

; Routine Size:  172 bytes,    Routine Base:  $CODE$ + 0000
;  228        0339  1 GLOBAL ROUTINE LNK$INSERT(TARGSYMBOL, DESCRADR, SNBADR) : NOVALUE =
;  229        0340  2 BEGIN
;  230        0341  2 !
;  231        0342  2 !       TARGSYMBOL IS ADDRESS OF AN ASCIC STRING, AN ENTRY
;  232        0343  2 !       FOR WHICH IS TO BE INSERTED IN THE SYMBOL TABLE. THE
;  233        0344  2 !       ADDRESS OF THIS ENTRY IS TO BE RETURNED IN THE CELL
;  234        0345  2 !       DESCRADR.  THE ADDRESS OF THE SYMBOL NAME BLOCK IS RETURNED
;  235        0346  2 !       IN THE CELL POINTED TO BY SNBADR.  THIS ROUTINE REQUIRES THAT
;  236        0347  2 !       AN UNSUCCESSFULL CALL ON SEARCH PRECEDED IT AND SAVED THE
;  237        0348  2 !       ADDRESS OF THE LAST ENTRY EXAMINED.
;  238        0349  2 !
;  239        0350  2 MAP
;  240        0351  2         TARGSYMBOL : REF VECTOR[, BYTE];
;  241        0352  2 LOCAL
;  242        0353  2         BLOCKSIZE,
;  243        0354  2         NEWENTRY : REF BLOCK[,BYTE];
;  244        0355  2 !
;  245        0356  2 BLOCKSIZE = (SYM$C_SIZE+SNB$C_FXDLEN+.TARGSYMBOL[0] + 3) AND NOT 3;
;  246        0357  2 IF .LNK$GL_SYMALLOC[0] LEQU .BLOCKSIZE
;  247        0358  3 THEN BEGIN
;  248        0359  3     LNK$ALLOBLK(SYM$C_ALLOBLK*512,LNK$GL_SYMALLOC[1]);
;  249        0360  3     LNK$GL_SYMALLOC[0] = SYM$C_ALLOBLK*512;
;  250        0361  2     END;
;  251        0362  2 NEWENTRY = .LNK$GL_SYMALLOC[1];
;  252        0363  2 LNK$GL_SYMALLOC[0] = .LNK$GL_SYMALLOC[0] - .BLOCKSIZE;          ! ALLOCATE A BLOCK
;  253        0364  2 LNK$GL_SYMALLOC[1] = .LNK$GL_SYMALLOC[1] + .BLOCKSIZE;
;  254        0365  2                                                                 ! WHICH CONSISTS OF
;  255        0366  2                                                                 ! SYMBOL VALUE BLOCK +
;  256        0367  2                                                                 ! SIZE OF NAME
;  257        0368  2                                                                 ! + NAME BLOCK OVERHEAD
;  258        0369  2 NEWENTRY[SNB$L_COLIST] = .SYMENTRY[SNB$L_COLIST];                ! LINK INTO THE LIST
;  259        0370  2 SYMENTRY[SNB$L_COLIST] = .NEWENTRY;                              ! LINK IT ON TO COLLISION LIST
;  260        0371  2 SYMENTRY = .NEWENTRY;                                            ! AND REPLACE OLD POINTER
;  261        0372  2 !
;  262        0373  2 !       HAVE AN EMPTY DESCRIPTOR - COPY IN THE SYMBOL
;  263        0374  2 !       STRING
;  264        0375  2 !
;  265        0376  2 CH$MOVE(.TARGSYMBOL[0]+1,TARGSYMBOL[0],                 ! COPY NAME
;  266        0377  2                 SYMENTRY[SNB$B_NAMLNG]);                ! (NO EXTRA BYTES IN NAME)
;  267        0378  2 .SNBADR = .SYMENTRY;                                     ! RETURN SYMBOL NAME BLOCK ADDRESS
;  268        0379  2 SYMENTRY = .SYMENTRY + .TARGSYMBOL[0] + SNB$C_FXDLEN;    ! POINT TO SYMBOL VALUE BLOCK
;  269        0380  2 CH$FILL(0,SYM$C_SIZE,.SYMENTRY);                         ! ZERO THE ENTRY
;  270        0381  2 SYMENTRY[SYM$B_NAMLNG] = .TARGSYMBOL[0];                 ! SET LENGTH INTO VALUE BLOCK
;  271        0382  2 .DESCRADR = .SYMENTRY;                                   ! RETURN ITS ADDRESS
;  272        0383  2 RETURN;                                                  ! AND THAT'S IT
;  273        0384  1 END;                                                     ! OF INSERT ROUTINE.



                                          03FC 00000          .ENTRY  LNK$INSERT, Save R2,R3,R4,R5,R6,R7,R8,R9     ; 0339
                 59 00000000'    EF    9E 00002          MOVAB   LNK$GL_SYMALLOC, R9                           ;
                 58 00000000'    EF    9E 00009          MOVAB   SYMENTRY, R8                                  ;
                 57       04     BC    9A 00010          MOVZBL  @TARGSYMBOL, R7                               ; 0356
                 50       2C     A7    9E 00014          MOVAB   44(R7), R0                                    ;
       52        50              03    CB 00018          BICL3   #3, R0, BLOCKSIZE                             ;
```

```
                                        52            69  D1 0001C         CMPL    LNK$GL_SYMALLOC, BLOCKSIZE                   ; 0357
                                                      17  1A 0001F         BGTRU   1$                                           ;
                                                  04  A9  9F 00021         PUSHAB  LNK$GL_SYMALLOC+4                            ; 0359
                                           00000000*  8F  DD 00024         PUSHL   #<SYM$C_ALLOBLK*512>                         ;
                              00000000G 00            02  FB 0002A         CALLS   #2, LNK$ALLOBLK                              ;
                                        69 00000000*  8F  D0 00031         MOVL    #<SYM$C_ALLOBLK*512>, LNK$GL_SYMALLOC        ; 0360
                                        50        04  A9  D0 00038 1$:     MOVL    LNK$GL_SYMALLOC+4, NEWENTRY                  ; 0362
                                        69            52  C2 0003C         SUBL2   BLOCKSIZE, LNK$GL_SYMALLOC                   ; 0363
                                   04   A9            52  C0 0003F         ADDL2   BLOCKSIZE, LNK$GL_SYMALLOC+4                 ; 0364
                                        60        00  B8  D0 00043         MOVL    @SYMENTRY, (NEWENTRY)                        ; 0369
                                   00   B8            50  D0 00047         MOVL    NEWENTRY, @SYMENTRY                          ; 0370
                                        68            50  D0 0004B         MOVL    NEWENTRY, SYMENTRY                           ; 0371
                                        50        01  A7  9E 0004E         MOVAB   1(R7), R0                                    ; 0376
                                        56            68  D0 00052         MOVL    SYMENTRY, R6                                 ; 0377
                     04   A6       04   BC            50  28 00055         MOVC3   R0, @TARGSYMBOL, 4(R6)                       ;
                                   0C   BC            56  D0 0005B         MOVL    R6, @SNBADR                                  ; 0378
                                        68      05  A746  9E 0005F         MOVAB   5(R7)[R6], SYMENTRY                          ; 0379
                                        56            68  D0 00064         MOVL    SYMENTRY, R6                                 ; 0380
           24             00            6E            00  2C 00067         MOVC5   #0, (SP), #0, #36, (R6)                      ;
                                                      66     0006C                                                              ;
                                   0F   A6            57  90 0006D         MOVB    R7, 15(R6)                                   ; 0381
                                   08   BC            56  D0 00071         MOVL    R6, @DESCRADR                                ; 0382
                                                          04 00075         RET                                                  ; 0384

; Routine Size:  118 bytes,    Routine Base:  $CODE$ + 00AC
```

```
1 GLOBAL ROUTINE LNK$SEARCHLOCAL (TARGSYMBOL, ENVINDEX, DESCRADR, SNBADR, ENVDESCADR) =
1 !
2 BEGIN
2 !
2 !       TARGSYMBOL IS ADDRESS OF AN ASCIC STRING
2 !       ENVINDEX IS THE ENVIRONMENT THAT SYMBOL IS FROM
2 !       DESCRADR IS ADDRESS OF CELL TO RECEIVE THE ENTRY
2 !       ADDRESS IF SYMBOL IS IN TABLE
2 !       SNBADR IS ADDRESS OF CELL TO RECEIVE THE SYMBOL NAME BLOCK
2 !               ADDRESS IF SYMBOL IS IN TABLE
2 !       ENVDESCADR IS ADDRESS OF CELL TO RECEIVE THE ENVIRONMENT
2 !               DESCRIPTOR BLOCK ADDRESS OR 0 IF NOT DEFINED
2 !               OR REFERENCED (OPTIONAL PARAMETER)
2 !
2 MAP
2         TARGSYMBOL : REF VECTOR[,BYTE];
2
2 BUILTIN
2         NULLPARAMETER;
2
2 BUILTIN
2         ROT;
2
2 REGISTER
2         HASHINDEX;
2
2 LOCAL
2         LONGWORDS,
2         LEFTOVER,
2         MAPENT : REF BLOCK[,BYTE],
2         ENVDESC : REF BLOCK[,BYTE],
2         ENVNODE : REF BLOCK[,BYTE],
2         HASHTABLE : REF VECTOR[,LONG],
2         CH_RESULT,
2         PREVENTRY,
2         POINTER;
2 !
2 !       COMPUTE THE HASH INDEX
2 !
2 HASHINDEX = .TARGSYMBOL[0];                                               ! INITIALIZE THE HASH VALUE
2 LEFTOVER = .HASHINDEX AND 3;
2 LONGWORDS = .HASHINDEX ^ -2;
2 POINTER = TARGSYMBOL[1];                                 ! SET CHARACTER POINTER TO INCLUDE STRING LENGTH
2 INCR I FROM 1 TO .LONGWORDS DO
3         BEGIN
3         HASHINDEX = ..POINTER XOR .HASHINDEX;
3         POINTER = .POINTER + 4;
3         HASHINDEX = ROT (.HASHINDEX ,NINE);
2         END;
2 INCR I FROM 1 TO  .LEFTOVER DO
3         BEGIN
3         HASHINDEX = CH$RCHAR_A(POINTER) XOR .HASHINDEX;
3         HASHINDEX = ROT ( .HASHINDEX, THIRTEEN);
2         END;
2
2 HASHINDEX = (.HASHINDEX AND %X'7FFFFFFF') MOD SYM$C_TBLSIZ;                ! THEN TAKE MODULO TABLE SIZE
2 !
```

```
;   332        0442  2 ! FIND ENVIRONMENT SYMBOL HASH TABLE
;   333        0443  2 !
;   334        0444  2 MAPENT = LNK$FNDENVMAP(.ENVINDEX);
;   335        0445  2 IF (ENVNODE = .MAPENT[PMT$L_PSCDES]) NEQ 0
;   336        0446  3 THEN BEGIN
;   337        0447  3     ENVDESC = .ENVNODE + NODE$C_SHORT;
;   338        0448  3     HASHTABLE = .ENVDESC[NVD$L_SYMTBL];
;   339        0449  3     END
;   340        0450  3 ELSE BEGIN
;   341        0451  3     HASHTABLE = .MAPENT[PMT$L_SYMLST];
;   342        0452  3     ENVDESC = 0;
;   343        0453  2     END;
;   344        0454  2 IF .HASHTABLE EQL 0
;   345        0455  3 THEN BEGIN
;   346        0456  3     LNK$ALLOBLK(SYM$C_TBLSIZ*4,HASHTABLE);       ! ALLOCATE TABLE AND
;   347        0457  3     CH$FILL(0,SYM$C_TBLSIZ*4,.HASHTABLE);        ! ZERO IT BEFORE USE
;   348        0458  3     IF .ENVNODE NEQ 0
;   349        0459  3         THEN ENVDESC[NVD$L_SYMTBL] = .HASHTABLE
;   350        0460  3         ELSE MAPENT[PMT$L_SYMLST] = .HASHTABLE;
;   351        0461  2     END;
;   352        0462  2 IF NOT NULLPARAMETER(5)
;   353        0463  2     THEN .ENVDESCADR = .ENVDESC;
;   354        0464  2 SYMENTRY = (HASHTABLE[.HASHINDEX]);                      ! GET ADDRESS OF HASH TABLE ENTRY
;   355        0465  2 IF .SYMENTRY[SNB$L_COLIST] EQL 0
;   356        0466  2         THEN RETURN FALSE
;   357        0467  3         ELSE BEGIN
;   358        0468  3         PREVENTRY = .SYMENTRY;                           ! REMEMBER PREVIOUS
;   359        0469  3         SYMENTRY = .SYMENTRY[SNB$L_COLIST];              ! POINT TO THE FIRST ENTRY
;   360        0470  3 !
;   361        0471  3 !       NOW COMPARE THE SYMBOL IN THE
;   362        0472  3 !       ENTRY FOR A MATCH. IF IT MATCHES RETURN ENTRY
;   363        0473  3 !       ADDRESS AND SUCCESS CONDITION.
;   364        0474  3 !       IF IT DOES NOT MATCH SEARCH DOWN THE COLLISION
;   365        0475  3 !       LIST UNTIL:
;   366        0476  3 !       1.      FIND A MATCH - RETURN THE ADDRESS OF MATCHED
;   367        0477  3 !               ENTRY AND SUCCESS
;   368        0478  3 !       2.      REACH END OF LIST. SAVE ADDRESS OF LAST
;   369        0479  3 !               ENTRY IN LIST FOR POSSIBLE SUBSEQUENT
;   370        0480  3 !               INSERT AND RETURN FAILURE.
;   371        0481  3 !
;   372        0482  4 DO IF (CH_RESULT = CH$COMPARE(.TARGSYMBOL[0], TARGSYMBOL[1], ! COMPARE SYMBOLS
;   373        0483  3                         .SYMENTRY[SNB$B_NAMLNG], SYMENTRY[SNB$T_NAME])) EQL 0
;   374        0484  4         THEN BEGIN                                       ! SYMBO[ MATCHES
;   375        0485  4                 .DESCRADR = .SYMENTRY + .SYMENTRY[SNB$B_NAMLNG] + SNB$C_FXDLEN;
;   376        0486  4                 .SNBADR = .SYMENTRY;                     ! RETURN SYMBOL NAME BLOCK
;   377        0487  4                                                          ! AND VALUE BLOCK ADDRESSES
;   378        0488  4                 RETURN TRUE;                             ! AND RETURN SUCCESS
;   379        0489  4              END
;   380        0490  4
;   381        0491  4 UNTIL (IF .CH_RESULT LSS 0                               ! OTHERWISE, QUIT IF PAST THE SPOT
;   382        0492  5                         THEN BEGIN
;   383        0493  5                             SYMENTRY = .PREVENTRY;       ! RESET POINTER TO INSERT SPOT
;   384        0494  5                             TRUE
;   385        0495  5                             END
;   386        0496  5                         ELSE BEGIN
;   387        0497  5                             PREVENTRY = .SYMENTRY;       ! SAVE PREVIOUS
;   388        0498  5                             IF .SYMENTRY[SNB$L_COLIST] EQL 0 ! IF AT END OF LIST
;  389          0499 5                                 THEN TRUE
;  390          0500 6                                 ELSE BEGIN
;  391          0501 6                                     SYMENTRY = .SYMENTRY [SNB$L_COLIST]; ! LINK TO NEXT
;  392          0502 6                                     FALSE
;  393          0503 6                                     END
;  394          0504 5                             END
;  395          0505 3                 );
;  396          0506 3                                         ! END OF THE COLLISION LIST.
;  397          0507 3 RETURN FALSE;                           ! THE LAST ENTRY EXAMINED
;  398          0508 3                                         ! IS PRESERVED IN SYMENTRY.
;  399          0509 2         END;                                            ! END OF NON-0 HASH TABLE ENTRY
;  400          0510 1 END;                            ! END OF SEARCH ROUTINE



                                                       0FFC 00000         .ENTRY  LNK$SEARCHLOCAL, Save R2,R3,R4,R5,R6,R7,R8,-; 0385
                                                                                  R9,R10,R11                                  ;
                                       5B 00000000'  EF  9E 00002         MOVAB   SYMENTRY, R11                               ;
                                       56       04   BC  9A 00009         MOVZBL  @TARGSYMBOL, HASHINDEX                      ; 0424
           53           56             02            00  EF 0000D         EXTZV   #0, #2, HASHINDEX, LEFTOVER                 ; 0425
                        52             56       FE   8F  78 00012         ASHL    #-2, HASHINDEX, LONGWORDS                   ; 0426
                                       5A       04   AC  D0 00017         MOVL    TARGSYMBOL, R10                             ; 0427
                                       51       01   AA  9E 0001B         MOVAB   1(R10), POINTER                             ;
                                                     50  D4 0001F         CLRL    I                                           ; 0428
                                                     07  10 00021         BSBB    2$                                          ;
                                       56            81  CC 00023 1$:     XORL2   (POINTER)+, HASHINDEX                       ; 0430
                        56             56            09  9C 00026         ROTL    #9, HASHINDEX, HASHINDEX                    ; 0432
                        F5             50            52  F3 0002A 2$:     AOBLEQ  LONGWORDS, I, 1$                            ; 0428
                                                     50  D4 0002E         CLRL    I                                           ; 0434
                                                     0A  11 00030         BRB     4$                                          ;
                                       52            81  9A 00032 3$:     MOVZBL  (POINTER)+, R2                              ; 0436
                                       56            52  CC 00035         XORL2   R2, HASHINDEX                               ;
                        56             56            0D  9C 00038         ROTL    #13, HASHINDEX, HASHINDEX                   ; 0437
                        F2             50            53  F3 0003C 4$:     AOBLEQ  LEFTOVER, I, 3$                             ; 0434
           56           56             1F            00  EF 00040         EXTZV   #0, #31, HASHINDEX, HASHINDEX               ; 0440
           7E           00             56            01  7A 00045         EMUL    #1, HASHINDEX, #0, -(SP)                    ;
           56           56             8E 00000115   8F  7B 0004A         EDIV    #277, (SP)+, HASHINDEX, HASHINDEX           ;
                                                08   AC  DD 00053         PUSHL   ENVINDEX                                    ; 0444
                            00000000G  00            01  FB 00056         CALLS   #1, LNK$FNDENVMAP                           ;
                                       59            50  D0 0005D         MOVL    R0, MAPENT                                  ;
                                       58            69  D0 00060         MOVL    (MAPENT), ENVNODE                           ; 0445
                                                     0A  13 00063         BEQL    5$                                          ;
                                       57       0A   A8  9E 00065         MOVAB   10(R8), ENVDESC                             ; 0447
                                       6E       08   A7  D0 00069         MOVL    8(ENVDESC), HASHTABLE                       ; 0448
                                                     06  11 0006D         BRB     6$                                          ; 0445
                                       6E       04   A9  D0 0006F 5$:     MOVL    4(MAPENT), HASHTABLE                        ; 0451
                                                     57  D4 00073         CLRL    ENVDESC                                     ; 0452
                                                     6E  D5 00075 6$:     TSTL    HASHTABLE                                   ; 0454
                                                     25  12 00077         BNEQ    8$                                          ;
                                                     5E  DD 00079         PUSHL   SP                                          ; 0456
                                       7E     0454   8F  3C 0007B         MOVZWL  #1108, -(SP)                                ;
                            00000000G  00            02  FB 00080         CALLS   #2, LNK$ALLOBLK                             ;
    0454   8F           00             6E            00  2C 00087         MOVC5   #0, (SP), #0, #1108, @HASHTABLE             ; 0457
                                                00   BE     0008E                                                             ;
                                                     58  D5 00090         TSTL    ENVNODE                                     ; 0458
```

```
                                    06 13 00092       BEQL    7$                                  ;
                  08    A7          6E D0 00094       MOVL    HASHTABLE, 8(ENVDESC)               ; 0459
                                    04 11 00098       BRB     8$                                  ;
                  04    A9          6E D0 0009A 7$:   MOVL    HASHTABLE, 4(MAPENT)                ; 0460
                        05          6C 91 0009E 8$:   CMPB    (AP), #5                            ; 0462
                                    09 1F 000A1       BLSSU   9$                                  ;
                               14 AC   D5 000A3       TSTL    20(AP)                              ;
                                    04 13 000A6       BEQL    9$                                  ;
                  14    BC          57 D0 000A8       MOVL    ENVDESC, @ENVDESCADR                ; 0463
                        6B     00 BE46 DE 000AC 9$:   MOVAL   @HASHTABLE[HASHINDEX], SYMENTRY     ; 0464
                        50          6B D0 000B1       MOVL    SYMENTRY, R0                        ; 0465
                                    60 D5 000B4       TSTL    (R0)                                ;
                                    47 13 000B6       BEQL    14$                                 ;
                        56          50 D0 000B8       MOVL    R0, PREVENTRY                       ; 0468
                        6B          60 D0 000BB       MOVL    (R0), SYMENTRY                      ; 0469
                        50     04   BC 9A 000BE 10$:  MOVZBL  @TARGSYMBOL, R0                     ; 0482
                        54          6B D0 000C2       MOVL    SYMENTRY, R4                        ; 0483
                        55     04   A4 9A 000C5       MOVZBL  4(R4), R5                           ;
                        57          01 D0 000C9       MOVL    #1, R7                              ;
55        00      01    AA          50 2D 000CC       CMPC5   R0, 1(R10), #0, R5, 5(R4)           ;
                               05   A4    000D2                                                   ;
                                    03 1A 000D4       BGTRU   11$                                 ;
                        57          01 D9 000D6       SBWC    #1, R7                              ;
                        58          57 D0 000D9 11$:  MOVL    R7, CH_RESULT                       ;
                                    0E 12 000DC       BNEQ    12$                                 ;
                  0C    BC     05 A544 9E 000DE       MOVAB   5(R5)[R4], @DESCRADR                ; 0485
                  10    BC          54 D0 000E4       MOVL    R4, @SNBADR                         ; 0486
                        50          01 D0 000E8       MOVL    #1, R0                              ; 0488
                                       04 000EB       RET                                         ;
                                    05 18 000EC 12$:  BGEQ    13$                                 ; 0491
                        6B          56 D0 000EE       MOVL    PREVENTRY, SYMENTRY                 ; 0493
                                    0C 11 000F1       BRB     14$                                 ;
                        56          54 D0 000F3 13$:  MOVL    R4, PREVENTRY                       ; 0497
                                    64 D5 000F6       TSTL    (R4)                                ; 0498
                                    05 13 000F8       BEQL    14$                                 ;
                        6B          64 D0 000FA       MOVL    (R4), SYMENTRY                      ; 0501
                                    BF 11 000FD       BRB     10$                                 ;
                                    50 D4 000FF 14$:  CLRL    R0                                  ; 0507
                                       04 00101       RET                                         ; 0510

; Routine Size:  258 bytes,    Routine Base:  $CODE$ + 0122
;  402         0511  1 GLOBAL ROUTINE LNK$UPCASE_D (DESCR) =
;  403         0512  2 BEGIN
;  404         0513  2 !
;  405         0514  2 ! THIS ROUTINE UPCASES THE STRING DESCRIBED BY DESCR.
;  406         0515  2 !
;  407         0516  2 MAP
;  408         0517  2     DESCR : REF BBLOCK;
;  409         0518  2
;  410         0519  2 BIND
;  411         0520  2     BYTESTRING = .DESCR[DSC$A_POINTER] : VECTOR[,BYTE];
;  412         0521  2
;  413         0522  2 LOCAL
;  414         0523  2     CCHAR : BYTE;
;  415         0524  2
;  416         0525  2 IF .DESCR[DSC$W_LENGTH] NEQ 0
;  417         0526  2 THEN INCRU I FROM 0 TO .DESCR[DSC$W_LENGTH] - 1
;  418         0527  2     DO IF (CCHAR = .BYTESTRING[.I]) GEQU %ASCII 'a'
;  419         0528  2         AND .CCHAR LEQU %ASCII 'z'
;  420         0529  2     THEN BYTESTRING[.I] = .CCHAR - 32;
;  421         0530  2
;  422         0531  2 RETURN TRUE
;  423         0532  1 END;



                                      001C 00000          .ENTRY   LNK$UPCASE_D, Save R2,R3,R4          ; 0511
                        50     04   AC  D0 00002          MOVL     DESCR, R0                            ; 0520
                                    60  B5 00006          TSTW     (R0)                                 ; 0525
                                    2A  13 00008          BEQL     4$                                   ;
                        54          60  3C 0000A          MOVZWL   (R0), R4                             ; 0526
                                    54  D7 0000D          DECL     R4                                   ;
                                    51  D4 0000F          CLRL     I                                    ;
                                    1C  11 00011          BRB      3$                                   ;
                        52     04 B041  9A 00013 1$:      MOVZBL   @4(R0)[I], R2                        ; 0527
                        53          52  90 00018          MOVB     R2, CCHAR                            ;
                   61   8F          52  91 0001B          CMPB     R2, #97                              ;
                                    0C  1F 0001F          BLSSU    2$                                   ;
                   7A   8F          53  91 00021          CMPB     CCHAR, #122                          ; 0528
                                    06  1A 00025          BGTRU    2$                                   ;
          04 B041       53          20  83 00027          SUBB3    #32, CCHAR, @4(R0)[I]                ; 0529
                                    51  D6 0002D 2$:      INCL     I                                    ; 0527
                        54          51  D1 0002F 3$:      CMPL     I, R4                                ;
                                    DF  1B 00032          BLEQU    1$                                   ;
                        50          01  D0 00034 4$:      MOVL     #1, R0                               ; 0531
                                        04 00037          RET                                           ; 0532

; Routine Size:  56 bytes,    Routine Base:  $CODE$ + 0224

;  424         0533  1 GLOBAL ROUTINE LNK$UPCASE_C (STRINGADR) =
;  425         0534  2 BEGIN
;  426         0535  2 !
;  427         0536  2 ! THIS ROUTINE UPCASES THE ASCIC STRING POINTED TO BY STRINGADR
;  428         0537  2 !
;  429         0538  2 MAP
;  430          0539  2      STRINGADR : REF VECTOR[,BYTE];
;  431          0540  2
;  432          0541  2  LOCAL
;  433          0542  2      CCHAR : BYTE;
;  434          0543  2
;  435          0544  2  IF .STRINGADR[0] NEQ 0
;  436          0545  2  THEN INCRU I FROM 1 TO .STRINGADR[0]
;  437          0546  2      DO IF (CCHAR = .STRINGADR[.I]) GEQU %ASCII 'a'
;  438          0547  2          AND .CCHAR LEQU %ASCII 'z'
;  439          0548  2      THEN STRINGADR[.I] = .CCHAR - 32;
;  440          0549  2
;  441          0550  2  RETURN TRUE
;  442          0551  1  END;



                                          000C 00000          .ENTRY  LNK$UPCASE_C, Save R2,R3                      ; 0533
                         52       04    BC  9A 00002          MOVZBL  @STRINGADR, R2                                ; 0544
                                        26  13 00006          BEQL    4$                                            ;
                         50             01  D0 00008          MOVL    #1, I                                         ; 0545
                                        1C  11 0000B          BRB     3$                                            ;
                         51       04 BC40   9A 0000D 1$:      MOVZBL  @STRINGADR[I], R1                             ; 0546
                         53             51  90 00012          MOVB    R1, CCHAR                                     ;
                  61     8F             51  91 00015          CMPB    R1, #97                                       ;
                                        0C  1F 00019          BLSSU   2$                                            ;
                  7A     8F             53  91 0001B          CMPB    CCHAR, #122                                   ; 0547
                                        06  1A 0001F          BGTRU   2$                                            ;
         04 BC40         53             20  83 00021          SUBB3   #32, CCHAR, @STRINGADR[I]                     ; 0548
                                        50  D6 00027 2$:      INCL    I                                             ; 0546
                         52             50  D1 00029 3$:      CMPL    I, R2                                         ;
                                        DF  1B 0002C          BLEQU   1$                                            ;
                         50             01  D0 0002E 4$:      MOVL    #1, R0                                        ; 0550
                                            04 00031          RET                                                   ; 0551

; Routine Size:  50 bytes,    Routine Base:  $CODE$ + 025C


;  443          0552  0 END ELUDOM



;                                    PSECT SUMMARY
;
;      Name                      Bytes                          Attributes
;
;   $OWN$                            4  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;   $GLOBAL$                        12  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;   $CODE$                         654  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;                                    Library Statistics
;
;                                                  -------- Symbols --------          Pages        Processing
;       File                                       Total    Loaded   Percent          Mapped       Time
;
;  _$255$DUA28:[SYSLIB]STARLET.L32;1                9776         6         0             581          00:01.0
;  _$255$DUA28:[LINKER.OBJ]DATBAS.L32;1              538        11         2              28          00:00.4



;                                            COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:LNKSYMTBL/OBJ=OBJ$:LNKSYMTBL MSRC$:LNKSYMTBL/UPDATE=(ENH$:LNKSYMTBL)

; Size:           654 code + 16 data bytes
; Run Time:          00:14.6
; Elapsed Time:      00:44.9
; Lines/CPU Min:       2266
; Lexemes/CPU-Min:  14751
; Memory Used:  111 pages
; Compilation Complete
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0219 AH-BT13A-SE
VAX/VMS V4.0

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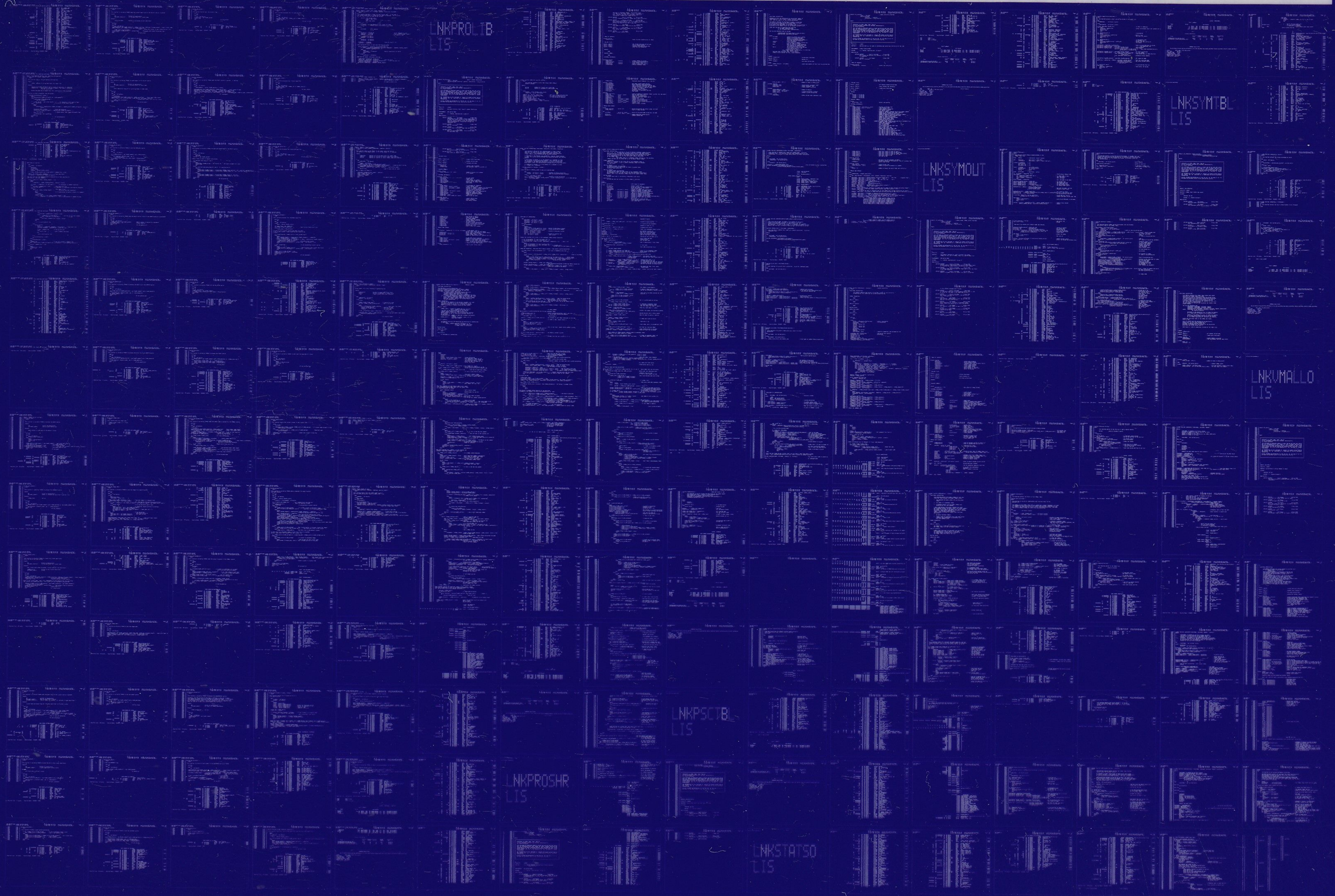

LNKPROLIB
LIS

LNKSYMTBL
LIS

LNKSYMOUT
LIS

LNKVMALLO
LIS

LNKPSCTBL
LIS

LNKPROSHR
LIS

LNKSTATSO
LIS