```
RRRRRRRRRRR      MMM          MMM      SSSSSSSSSSS
RRRRRRRRRRRR     MMM          MMM      SSSSSSSSSSSS
RRRRRRRRRRRR     MMM          MMM      SSSSSSSSSSSS
RRR          RRR MMMMMMM    MMMMMMM   SSS
RRR          RRR MMMMMMM    MMMMMMM   SSS
RRR          RRR MMMMMMM    MMMMMMM   SSS
RRR          RRR MMM   MMM   MMM   MMM SSS
RRR          RRR MMM   MMM   MMM   MMM SSS
RRR          RRR MMM   MMM   MMM   MMM SSS
RRRRRRRRRRR      MMM          MMM      SSSSSSSSS
RRRRRRRRRRRR     MMM          MMM      SSSSSSSSS
RRRRRRRRRRRR     MMM          MMM      SSSSSSSSS
RRR    RRR       MMM          MMM               SSS
RRR    RRR       MMM          MMM               SSS
RRR    RRR       MMM          MMM               SSS
RRR       RRR    MMM          MMM               SSS
RRR       RRR    MMM          MMM               SSS
RRR       RRR    MMM          MMM               SSS
RRR          RRR MMM          MMM  SSSSSSSSSSS
RRR       RRR    MMM          MMM               SSS
RRR          RRR MMM          MMM  SSSSSSSSSSS
RRR          RRR MMM          MMM  SSSSSSSSSSS
RRR          RRR MMM          MMM  SSSSSSSSSSS
```

```
RRRRRRRR    MM      MM    333333    BBBBBBBB    KK      KK  TTTTTTTTTT    IIIIII      000000
RRRRRRRR    MM      MM    333333    BBBBBBBB    KK      KK  TTTTTTTTTT    IIIIII      000000
RR      RR  MMMM  MMMM  33      33  BB      BB  KK      KK      TT          II      00      00
RR      RR  MMMM  MMMM  33      33  BB      BB  KK      KK      TT          II      00      00
RR      RR  MM  MM  MM        33    BB      BB  KK    KK        TT          II      00      00
RR      RR  MM  MM  MM        33    BB      BB  KK    KK        TT          II      00      00
RRRRRRRR    MM      MM      33      BBBBBBBB    KKKKKK          TT          II      00      00
RRRRRRRR    MM      MM      33      BBBBBBBB    KKKKKK          TT          II      00      00
RR  RR      MM      MM        33    BB      BB  KK    KK        TT          II      00      00
RR  RR      MM      MM        33    BB      BB  KK    KK        TT          II      00      00
RR    RR    MM      MM  33    33    BB      BB  KK      KK      TT          II      00      00      ....
RR    RR    MM      MM  33    33    BB      BB  KK      KK      TT          II      00      00      ....
RR      RR  MM      MM    333333    BBBBBBBB    KK      KK      TT      IIIIII      000000        ....
RR      RR  MM      MM    333333    BBBBBBBB    KK      KK      TT      IIIIII      000000        ....
```

```
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
```

```
;  1          0001  0
;  2          0002  0 MODULE RM3BKTIO (LANGUAGE (BLISS32) ,
;  3          0003  0                  IDENT = 'V04-000'
;  4          0004  0                  ) =
;  5          0005  1 BEGIN
;  6          0006  1 !
;  7          0007  1 !**************************************************************************
;  8          0008  1 !*                                                                        *
;  9          0009  1 !*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                             *
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; 26          0026  1 !*                                                                      *
; 27          0027  1 !*                                                                      *
; 28          0028  1 !**************************************************************************
; 29          0029  1
; 30          0030  1 !++
; 31          0031  1 !
; 32          0032  1 ! FACILITY:     RMS32 INDEX SEQUENTIAL FILE ORGANIZATION
; 33          0033  1 !
; 34          0034  1 ! ABSTRACT:
; 35          0035  1 !                This module performs IO for IDX file buckets checking and
; 36          0036  1 !                updating the reliablity data in the bucket overhead area.
; 37          0037  1 !
; 38          0038  1 !
; 39          0039  1 ! ENVIRONMENT:
; 40          0040  1 !
; 41          0041  1 !                VAX/VMS OPERATING SYSTEM
; 42          0042  1 !
; 43          0043  1 !--
; 44          0044  1
; 45          0045  1 !
; 46          0046  1 ! AUTHOR:       E. H. Marison           28-Mar-1978
; 47          0047  1 !
; 48          0048  1 ! MODIFIED BY:
; 49          0049  1 !
; 50          0050  1 !       V03-004 MCN0002         Maria del C. Nasr       22-Mar-1983
; 51          0051  1 !               More linkages reorganization
; 52          0052  1 !
; 53          0053  1 !       V03-003 MCN0001         Maria del C. Nasr       24-Feb-1983
; 54          0054  1 !               Reorganize linkages.
; 55          0055  1 !
; 56          0056  1 !       V03-002 TMK0001         Todd M. Katz            01-Nov-1982
; 57          0057  1 !               Make a modification to the bucket format checking done in
```

```
;    58          0058  1 !                RM$GETBKT. This routine scans the bucket in order to make sure
;    59          0059  1 !                that the records in the bucket actually end where the freespace
;    60          0060  1 !                offset pointer says they do. Actually one of several scans was
;    61          0061  1 !                done based upon the level of the bucket, prologue version of
;    62          0062  1 !                the file, and the state of key compression. It is now possible
;    63          0063  1 !                to do the same scan for every possible combination because I
;    64          0064  1 !                have re-written the routine RM$REC_OVHD to take into account
;    65          0065  1 !                every concievable combination of prologue version, key
;    66          0066  1 !                compression state, and bucket level. This change was necessary
;    67          0067  1 !                because the format checking of prologue 3 SIDR buckets was
;    68          0068  1 !                incorrect, and would occassionally result in an IRC error when
;    69          0069  1 !                the bucket actually had the correct structure.
;    70          0070  1 !
;    71          0071  1 !        V03-001 KBT0154         Keith B. Thompson       21-Aug-1982
;    72          0072  1 !                Reorganize psects
;    73          0073  1 !
;    74          0074  1 !        V02-017 CDS0006         C Saether                8-Feb-1982
;    75          0075  1 !                Only do bucket pre-scan when locking bucket.
;    76          0076  1 !
;    77          0077  1 !        V02-016 CDS0005         C Saether               28-Jan-1982
;    78          0078  1 !                Make check for BLB instead of BDB in RLSBKT so that
;    79          0079  1 !                the cache value is stored in gbpb's.
;    80          0080  1 !
;    81          0081  1 !        V02-015 CDS0004         C Saether               29-Dec-1981
;    82          0082  1 !                RLSBKT also needs to check whether bucket was locked
;    83          0083  1 !                before incrementing check characters.
;    84          0084  1 !
;    85          0085  1 !        V02-014 CDS0003         C Saether                9-Dec-1981
;    86          0086  1 !                Comment out references to the CSH$M_READAHEAD flag.
;    87          0087  1 !
;    88          0088  1 !        V02-013 PSK0005         Paulina S. Knibbe       04-Oct-1981
;    89          0089  1 !                Fix 012 below.
;    90          0090  1 !
;    91          0091  1 !        V02-012 PSK0004         Paulina S. Knibbe       01-Oct-1981
;    92          0092  1 !                Make sure prologue one/two tests are not applied
;    93          0093  1 !                to prologue three buckets.
;    94          0094  1 !
;    95          0095  1 !        V02-011 CDS0002         C Saether               10-Sep-1981
;    96          0096  1 !                Correction to 010.
;    97          0097  1 !
;    98          0098  1 !        V02-010 CDS0001         C Saether               30-Aug-1981
;    99          0099  1 !                Have rm$rlsbkt handle bdb value of 0 - this occurs
;   100          0100  1 !                when trying to release a lock bdb and the file
;   101          0101  1 !                is not shared.  Also store cache value.
;   102          0102  1 !
;   103          0103  1 !        V02-009 PSK0003         Paulina S. Knibbe       06-May-1981
;   104          0104  1 !                Fix infinite loop in check of compressed index
;   105          0105  1 !                buckets.
;   106          0106  1 !
;   107          0107  1 !        V02-008 PSK0002         Paulina S. Knibbe       17-Apr-1981
;   108          0108  1 !                Change variable names
;   109          0109  1 !
;   110          0110  1 !        V02-007 PSK0001         Paulina S. Knibbe       29-Mar-1981
;   111          0111  1 !                Add checks appropriate for prologue Version 3.0 index
;   112          0112  1 !                and SIDR buckets
;   113          0113  1 !
;   114          0114  1 !        V02-006 REFORMAT        Frederick E. Deen, Jr.      23-Jul-1980
```

```
;  115          0115  1 !               This code was reformatted to adhere to RMS standards
;  116          0116  1 !
;  117          0117  1 !
;  118          0118  1 ! REVISION HISTORY:
;  119          0119  1 !
;  120          0120  1 !   Christian Saether,  14-Aug-1978
;  121          0121  1 !   X0002 - RLSBKT to check if buffer there
;  122          0122  1 !
;  123          0123  1 !   Christian Saether,  11-Oct-1978
;  124          0124  1 !   X0003 - modify GETBKT to use REC_OVHD, reduce stack at IO
;  125          0125  1 !
;  126          0126  1 !   Christian Saether,  19-Oct-1978
;  127          0127  1 !   X0004 - GETBKT always releases bucket on error if still accessed
;  128          0128  1 !
;  129          0129  1 !   Wendy Koenig,       24-Oct-1978
;  130          0130  1 !   X0005 - Make changes caused by sharing conventions
;  131          0131  1 !
;  132          0132  1 !****
;  133          0133  1
;  134          0134  1 LIBRARY 'RMSLIB:RMS';
;  135          0135  1
;  136          0136  1 REQUIRE 'RMSSRC:RMSIDXDEF';
;  137          0201  1
;  138          0202  1 ! Define default PSECTS
;  139          0203  1 !
;  140          0204  1
;  141          0205  1 PSECT
;  142          0206  1     CODE = RM$RMS3(PSECT_ATTR),
;  143          0207  1     PLIT = RM$RMS3(PSECT_ATTR);
;  144          0208  1
;  145          0209  1 ! Linkages
;  146          0210  1 !
;  147          0211  1
;  148          0212  1 LINKAGE
;  149          0213  1     L_PRESERVE1,
;  150          0214  1     L_RABREG_457,
;  151          0215  1     L_REC_OVHD,
;  152          0216  1     L_CACHE,
;  153          0217  1     L_RELEASE;
;  154          0218  1
;  155          0219  1 ! Forward Routines
;  156          0220  1 !
;  157          0221  1
;  158          0222  1 FORWARD ROUTINE
;  159          0223  1     RM$RLSBKT   : RL$PRESERVE1;
;  160          0224  1
;  161          0225  1 ! External Routines
;  162          0226  1 !
;  163          0227  1
;  164          0228  1 EXTERNAL ROUTINE
;  165          0229  1     RM$CACHE    : RL$CACHE,
;  166          0230  1     RM$REC_OVHD : RL$REC_OVHD,
;  167          0231  1     RM$RELEASE  : RL$RELEASE;
;  168          0232  1
```

```
;  170     0233  1 GLOBAL ROUTINE RM$GETBKT (VBN, SIZE) : RL$RABREG_457 =
;  171     0234  1
;  172     0235  1 !++
;  173     0236  1 !
;  174     0237  1 ! RM$GETBKT
;  175     0238  1 !
;  176     0239  1 ! This routine calls the RMS cache routine (RMOCACHE) for
;  177     0240  1 ! the requested bucket (VBN,SIZE). If an actual IO was done
;  178     0241  1 ! (i.e., the CSH$V_NOREAD, CSH$V_READAHEAD, or CSH$V_NOBUFFER bits
;  179     0242  1 ! are all off) and it was successful then the bucket's overhead
;  180     0243  1 ! area data is checked and if in error a status value of
;  181     0244  1 ! RMS$_CHK, RMS$_IRC, or RMS$_IBF is returned depending on
;  182     0245  1 ! the nature of the error.  IRAB[IRB$B_CACHEFLAGS] is always zeroed.
;  183     0246  1 !
;  184     0247  1 ! CALLING SEQUENCE:
;  185     0248  1 !       RM$GETBKT (VBN,SIZE)
;  186     0249  1 !
;  187     0250  1 ! INPUT PARAMETERS:
;  188     0251  1 !       VBN - Start VBN for bucket
;  189     0252  1 !       SIZE - Number of bytes in bucket
;  190     0253  1 !
;  191     0254  1 ! IMPLICIT INPUTS:
;  192     0255  1 !       IRAB [ CACHEFLGS ] - cacheflags for CACHE (See RMOCACHE)
;  193     0256  1 !       IDX_DFN - used by RM$GETNEXT_REC routine
;  194     0257  1 !
;  195     0258  1 ! OUTPUT PARAMETERS:
;  196     0259  1 !       BDB - Address of BDB for bucket
;  197     0260  1 !       BKT_ADDR - Address of the bucket buffer
;  198     0261  1 !       RAB [ STV ] - VBN of bucket on IRC and IBF errors
;  199     0262  1 !
;  200     0263  1 ! IMPLICIT OUTPUTS:
;  201     0264  1 !       IRAB [ CACHEFLAGS ] zeroed
;  202     0265  1 !
;  203     0266  1 ! ROUTINE VALUE:
;  204     0267  1 !       Internal RMS status code
;  205     0268  1 !
;  206     0269  1 ! SIDE EFFECTS:
;  207     0270  1 !       R1,R2,R3,AP are destroyed
;  208     0271  1 !
;  209     0272  1 !--
;  210     0273  1
;  211     0274  2     BEGIN
;  212     0275  2
;  213     0276  2     LABEL
;  214     0277  2         BLK;
;  215     0278  2
;  216     0279  2     EXTERNAL REGISTER
;  217     0280  2         COMMON_IO_STR,
;  218     0281  2         R_IDX_DFN_STR,
;  219     0282  2         COMMON_RAB_STR;
;  220     0283  2
;  221     0284  2     LITERAL
;  222     0285  3         NODATABITS = (CSH$M_NOREAD
;  223     0286  3 !                   OR
;  224     0287  3 !                   CSH$M_READAHEAD
;  225     0288  3                     OR
;  226     0289  2                     CSH$M_NOBUFFER),
```

```
;  227     0290  2          PVN1_BITS = BKT$M_LASTBKT
;  228     0291  2                  OR
;  229     0292  2                  BKT$M_ROOTBKT;
;  230     0293  2
;  231     0294  3      BEGIN
;  232     0295  3
;  233     0296  3      LOCAL
;  234     0297  3          STATUS;
;  235     0298  3
;  236     0299  4      IF (STATUS = RM$CACHE(.VBN, .SIZE, .IRAB[IRB$B_CACHEFLGS]))
;  237     0300  3      THEN
;  238     0301  4          BEGIN
;  239     0302  4
;  240     0303  5          IF (.IRAB[IRB$B_CACHEFLGS]
;  241     0304  5              AND
;  242     0305  4              NODATABITS) NEQ 0
;  243     0306  4          THEN
;  244     0307  5              BEGIN
;  245     0308  5              IRAB[IRB$B_CACHEFLGS] = 0;
;  246     0309  5              RETURN .STATUS
;  247     0310  5
;  248     0311  5              END
;  249     0312  5
;  250     0313  4          END
;  251     0314  3      ELSE
;  252     0315  4          BEGIN
;  253     0316  4          IRAB[IRB$B_CACHEFLGS] = 0;
;  254     0317  4          RETURN .STATUS
;  255     0318  4
;  256     0319  3          END;
;  257     0320  3
;  258     0321  2      END;                                    ! of this local STATUS
;  259     0322  2
;  260     0323  3      BEGIN
;  261     0324  3
;  262     0325  3      LOCAL
;  263     0326  3          STATUS;
;  264     0327  3
;  265     0328  3      STATUS =
;  266     0329  3  BLK :
;  267     0330  4      BEGIN
;  268     0331  4
;  269     0332  4      LOCAL
;  270     0333  4          REC_SIZE,
;  271     0334  4          EOB,
;  272     0335  4          LEVEL;
;  273     0336  4
;  274     0337  4      GLOBAL REGISTER
;  275     0338  4          R_REC_ADDR;
;  276     0339  4
;  277     0340  5      IF (.BKT_ADDR[BKT$W_ADRSAMPLE] NEQU .(BDB[BDB$L_VBN])<0, 16>
;  278     0341  5          OR
;  279     0342  5          .BKT_ADDR[BKT$B_CHECKCHAR] NEQU .(.BKT_ADDR + .BDB[BDB$W_NUMB] - 1)<0,
;  280     0343  5              8>)
;  281     0344  4      THEN
;  282     0345  4          LEAVE BLK WITH RMSERR(CHK);
;  283     0346  4
```

```
;  284     0347  4     ! Check to make sure that only prologue version 1 bits are on and that
;  285     0348  4     ! the beginning of freespace is somewhere in the bucket.
;  286     0349  4     !
;  287     0350  4
;  288     0351  4     IF .IFAB [IFB$B_PLG_VER] LSSU PLG$C_VER_3
;  289     0352  4     THEN
;  290     0353  4
;  291     0354  5         BEGIN
;  292     0355  5         IF (.BKT_ADDR[BKT$B_BKTCB] AND  NOT PVN1_BITS) NEQ 0
;  293     0356  5             OR
;  294     0357  5             .BKT_ADDR[BKT$W_FREESPACE] GTRU .BDB[BDB$W_NUMB]
;  295     0358  5         THEN
;  296     0359  5             LEAVE BLK WITH RMSERR(IBF);
;  297     0360  5         END
;  298     0361  5
;  299     0362  5     !   Check the KEYREF matches index number for this bucket
;  300     0363  5     !   (If this is a prologue 3 file)
;  301     0364  5     !
;  302     0365  4     ELSE
;  303     0366  4         IF .IDX_DFN [IDX$B_KEYREF] NEQ .BKT_ADDR [BKT$B_INDEXNO]
;  304     0367  4         THEN
;  305     0368  4             LEAVE BLK WITH RMSERR (IBF);
;  306     0369  4
;  307     0370  4     IF NOT .BBLOCK[IRAB[IRB$B_CACHEFLGS], CSH$V_LOCK]
;  308     0371  4     THEN
;  309     0372  4
;  310     0373  5         BEGIN
;  311     0374  5         STATUS = RMSSUC(SUC);
;  312     0375  5         IRAB[IRB$B_CACHEFLGS] = 0;
;  313     0376  5         RETURN .STATUS;
;  314     0377  4         END;
;  315     0378  4
;  316     0379  4     ! Make one scan through entire bucket confirming that records actually end
;  317     0380  4     ! where freespace says they do.
;  318     0381  4     !
;  319     0382  4     EOB = .BKT_ADDR + .BKT_ADDR[BKT$W_FREESPACE];
;  320     0383  4     REC_ADDR = .BKT_ADDR + BKT$C_OVERHDSZ;
;  321     0384  4
;  322     0385  4     IF (LEVEL = .BKT_ADDR[BKT$B_LEVEL]) EQL 0
;  323     0386  4     THEN
;  324     0387  4         IF .IDX_DFN[IDX$B_KEYREF] NEQ 0
;  325     0388  4         THEN
;  326     0389  4             LEVEL = .LEVEL - 1;
;  327     0390  4
;  328     0391  4     WHILE .REC_ADDR LSSA .EOB
;  329     0392  4     DO
;  330     0393  5         BEGIN
;  331     0394  5         REC_ADDR = RM$REC_OVHD(.LEVEL; REC_SIZE) + .REC_ADDR;
;  332     0395  5         REC_ADDR = .REC_ADDR + .REC_SIZE;
;  333     0396  4         END;
;  334     0397  4
;  335     0398  4     IF .REC_ADDR EQLA .EOB
;  336     0399  4     THEN
;  337     0400  5         BEGIN
;  338     0401  5         STATUS = RMSSUC(SUC);
;  339     0402  5         IRAB [IRB$B_CACHEFLGS] = 0;
;  340     0403  5         RETURN .STATUS;
```

```
;  341          0404  4          END;
;  342          0405  4
;  343          0406  4      ! REC_ADDR did not match where FREESPACE said it should
;  344          0407  4      !
;  345          0408  5      RMSERR(IRC)
;  346          0409  3      END;                                        ! of block BLK
;  347          0410  3
;  348          0411  3      ! If we got this far there was an error checking something, so release
;  349          0412  3      ! this bucket and return the error save VBN in the STV. Mark the bucket
;  350          0413  3      ! invalid.
;  351          0414  3      RAB[RAB$L_STV] = .BDB[BDB$L_VBN];
;  352          0415  3      BDB[BDB$V_VAL] = 0;
;  353          0416  3
;  354          0417  4      BEGIN
;  355          0418  4
;  356          0419  4      GLOBAL REGISTER
;  357          0420  4          R_REC_ADDR;
;  358          0421  4
;  359          0422  4      RM$RLSBKT(0);
;  360          0423  3      END;
;  361          0424  3
;  362          0425  3      IRAB[IRB$B_CACHEFLGS] = 0;
;  363          0426  3      RETURN .STATUS;
;  364          0427  3
;  365          0428  3      END                                     ! of second block defining STATUS
;  366          0429  1      END;


                                                .TITLE  RM3BKTIO
                                                .IDENT  \V04-000\

                                                .EXTRN  RM$CACHE, RM$REC_OVHD
                                                .EXTRN  RM$RELEASE

                                                .PSECT  RM$RMS3,NOWRT,  GBL,  PIC,2

                        004C    8F   BB 00000 RM$GETBKT::
                                             PUSHR   #^M<R2,R3,R6>                   ; 0233
              5E                08   C2 00004         SUBL2   #8, SP
                        40      A9   9F 00007         PUSHAB  64(IRAB)                ; 0299
              53        00      BE   9A 0000A         MOVZBL  @0(SP), R3
              51        1C      AE   7D 0000E         MOVQ    VBN, R1
                            0000G 30   00012         BSBW    RM$CACHE
                    06            50   E9 00015         BLBC    STATUS, 1$
                    0C      00    BE   93 00018         BITB    @0(SP), #12             ; 0305
                                  06   13 0001C         BEQL    2$
                            00    BE   94 0001E 1$:     CLRB    @0(SP)                  ; 0316
                                  009B 31 00021         BRW     14$                     ; 0317
          1C  A4            02    A5   B1 00024 2$:     CMPW    2(BKT_ADDR), 28(BDB)    ; 0340
                                  0B   12 00029         BNEQ    3$
                    50      14    A4   3C 0002B         MOVZWL  20(BDB), R0             ; 0342
          FF  A045                65   91 0002F         CMPB    (BKT_ADDR), -1(R0)[BKT_ADDR]
                                  07   13 00034         BEQL    4$
              53        84A4  8F   3C 00036 3$:     MOVZWL  #33956, STATUS          ; 0345
                                  6B   11 0003B         BRB     12$
              03        00B7  CA   91 0003D 4$:     CMPB    183(IFAB), #3           ; 0351
                                  10   1E 00042         BGEQU   5$
```

```
                                FC   8F      0D    A5  93 00044          BITB    13(BKT_ADDR), #252                              ; 0355
                                                   10  12 00049          BNEQ    6$
                                14   A4      04    A5  B1 0004B          CMPW    4(BKT_ADDR), 20(BDB)                            ; 0357
                                                   10  1B 00050          BLEQU   7$
                                                   07  11 00052          BRB     6$                                              ; 0359
                                01   A5      21    A7  91 00054 5$:      CMPB    33(IDX_DFN), 1(BKT_ADDR)                        ; 0366
                                                   07  13 00059          BEQL    7$
                                     53      8754  8F  3C 0005B 6$:      MOVZWL  #34644, STATUS                                  ; 0368
                                                   46  11 00060          BRB     12$
                                     35      00    BE  E9 00062 7$:      BLBC    @0(SP), 10$                                     ; 0370
                                     50      04    A5  3C 00066          MOVZWL  4(BKT_ADDR), R0                                 ; 0382
                          04   AE           55          50  C1 0006A     ADDL3   R0, BRT_ADDR, EOB
                                     56      0E    A5  9E 0006F          MOVAB   14(R5), REC_ADDR                                ; 0383
                                     52      0C    A5  9A 00073          MOVZBL  12(BKT_ADDR), LEVEL                             ; 0385
                                                   07  12 00077          BNEQ    8$
                                             21    A7  95 00079          TSTB    33(IDX_DFN)                                     ; 0387
                                                   02  13 0007C          BEQL    8$
                                                   52  D7 0007E          DECL    LEVEL                                           ; 0389
                                04   AE              56  D1 00080 8$:      CMPL    REC_ADDR, EOB                                   ; 0391
                                                   13  1E 00084          BGEQU   9$
                                     51              52  D0 00086          MOVL    LEVEL, R1                                       ; 0394
                                                0000G  30 00089          BSBW    RM$REC_OVHD
                                08   AE              51  D0 0008C          MOVL    R1, 8(SP)
                                     56              50  C0 00090          ADDL2   R0, REC_ADDR
                                     56      08    AE  C0 00093          ADDL2   REC_SIZE, REC_ADDR                              ; 0395
                                                   E7  11 00097          BRB     8$                                              ; 0391
                                                   08  12 00099 9$:      BNEQ    11$                                             ; 0398
                                     53              01  D0 0009B 10$:     MOVL    #1, STATUS                                      ; 0401
                                             00    BE  94 0009E          CLRB    @0(SP)                                          ; 0402
                                                   19  11 000A1          BRB     13$                                             ; 0403
                                     53      857C  8F  3C 000A3 11$:     MOVZWL  #34172, STATUS                                  ; 0408
                                0C   A8        1C  A4  D0 000A8 12$:     MOVL    28(BDB), 12(RAB)                                ; 0414
                                0A   A4            01  8A 000AD          BICB2   #1, 10(BDB)                                     ; 0415
                                                   7E  D4 000B1          CLRL    -(SP)                                           ; 0422
                                                0000V  30 000B3          BSBW    RM$RLSBKT
                                     5E              04  C0 000B6          ADDL2   #4, SP
                                           40    A9  94 000B9          CLRB    64(IRAB)                                        ; 0425
                                     50              53  D0 000BC 13$:     MOVL    STATUS, R0                                      ; 0426
                                     5E              0C  C0 000BF 14$:     ADDL2   #12, SP                                         ; 0429
                                           004C  8F  BA 000C2          POPR    #^M<R2,R3,R6>
                                                   05  000C6          RSB

; Routine Size:  199 bytes,    Routine Base:  RM$RMS3 + 0000

;  367          0430  1
```

```
;  369     0431  1 GLOBAL ROUTINE RM$RLSBKT (FLAGS) : RL$PRESERVE1 =
;  370     0432  1
;  371     0433  1 !++
;  372     0434  1 !
;  373     0435  1 ! FUNCTIONAL DESCRIPTION:
;  374     0436  1 !
;  375     0437  1 ! This routine releases access to the bucket described by
;  376     0438  1 ! the BDB and if a write may be performed (i.e; there is a
;  377     0439  1 ! buffer and it's dirty) then the bucket check characters
;  378     0440  1 ! are incremented.  Bug check is called if the address sample
;  379     0441  1 ! in the buffer does not match the VBN being released.
;  380     0442  1 !
;  381     0443  1 ! CALLING SEQUENCE:
;  382     0444  1 !       RM$RLSBKT(FLAGS,BDB)
;  383     0445  1 !
;  384     0446  1 ! INPUT PARAMETERS:
;  385     0447  1 !       BDB - The address of the BDB for the bucket
;  386     0448  1 !       flags - The release control flags (see RMORELEAS)
;  387     0449  1 !
;  388     0450  1 ! IMPLICIT INPUTS:
;  389     0451  1 !       None
;  390     0452  1 !
;  391     0453  1 ! OUTPUT PARAMETERS:
;  392     0454  1 !       None
;  393     0455  1 !
;  394     0456  1 ! IMPLICIT OUTPUTS:
;  395     0457  1 !       None
;  396     0458  1 !
;  397     0459  1 ! ROUTINE VALUE:
;  398     0460  1 !       Internal RMS status code
;  399     0461  1 !
;  400     0462  1 ! SIDE EFFECTS:
;  401     0463  1 !       R1,R2,AP Destroyed
;  402     0464  1 !       Bug check called on address sample and VBN mismatch
;  403     0465  1 !
;  404     0466  1 !--
;  405     0467  1
;  406     0468  2     BEGIN
;  407     0469  2
;  408     0470  2     EXTERNAL REGISTER
;  409     0471  2         COMMON_RABREG,
;  410     0472  2         R_BDB_STR;
;  411     0473  2
;  412     0474  2     LOCAL
;  413     0475  2         BUCKET  : REF BBLOCK;
;  414     0476  2
;  415     0477  2     BUILTIN
;  416     0478  2         TESTBITSC;
;  417     0479  2
;  418     0480  2     ! Note that BDB's and GBPB's share identical fields in general,
;  419     0481  2     ! therefore the references to BDB fields may be GBPB's also.
;  420     0482  2     !
;  421     0483  2
;  422     0484  3     IF .BDB EQL 0 OR (.BDB[BDB$B_BID] EQL BLB$C_BID)
;  423     0485  2     THEN RETURN RM$RELEASE(.FLAGS);
;  424     0486  2
;  425     0487  2     ! If the bucket may be written then update the check characters.
```

```
;  426          0488  2      .
;  427          0489  2
;  428          0490  2      IF .BDB[BDB$V_VAL]
;  429          0491  2          AND
;  430          0492  3          (.BDB[BDB$W_SIZE] NEQ 0)
;  431          0493  2      THEN
;  432          0494  3          BEGIN
;  433          0495  3          BUCKET = .BDB[BDB$L_ADDR];
;  434          0496  3
;  435          0497  3          ! check the address sample for validity
;  436          0498  3          !
;  437          0499  3
;  438          0500  3          IF .BUCKET[BKT$W_ADRSAMPLE] NEQU .(BDB[BDB$L_VBN])<0, 16>
;  439          0501  3          THEN
;  440          0502  3              BUG_CHECK;
;  441          0503  3
;  442          0504  3          IF .BDB[BDB$V_DRT]
;  443          0505  3          THEN
;  444          0506  4              BEGIN
;  445          0507  4              LOCAL PTR : REF BBLOCK;
;  446          0508  4              PTR = .BDB[BDB$L_BLB_PTR];
;  447          0509  4              IF .PTR EQL 0
;  448          0510  4              THEN
;  449          0511  5                  BEGIN
;  450          0512  5                  BUCKET[BKT$B_CHECKCHAR] = .BUCKET[BKT$B_CHECKCHAR] + 1;
;  451          0513  5                  (.BUCKET + .BDB[BDB$W_NUMB] - 1)<0, 8> = .BUCKET[BKT$B_CHECKCHAR];
;  452          0514  5                  END
;  453          0515  4              ELSE IF .PTR[BLB$V_LOCK]
;  454          0516  4                  THEN
;  455          0517  5                  BEGIN
;  456          0518  5                  BUCKET[BKT$B_CHECKCHAR] = .BUCKET[BKT$B_CHECKCHAR] + 1;
;  457          0519  5                  (.BUCKET + .BDB[BDB$W_NUMB] - 1)<0, 8> = .BUCKET[BKT$B_CHECKCHAR];
;  458          0520  4                  END;
;  459          0521  3              END;
;  460          0522  3
;  461          0523  3          ! Use the level in the tree as the cache value of the bucket.
;  462          0524  3          ! If permanence was asked for, give it another boost.
;  463          0525  3          !
;  464          0526  3
;  465          0527  3          BDB[BDB$B_CACHE_VAL] = .BUCKET[BKT$B_LEVEL];
;  466          0528  3          IF TESTBITSC (BDB[BDB$V_PRM])
;  467          0529  3          THEN
;  468          0530  3              BDB[BDB$B_CACHE_VAL] = .BDB[BDB$B_CACHE_VAL] + 1;
;  469          0531  3
;  470          0532  2          END;
;  471          0533  2
;  472          0534  2      RETURN RM$RELEASE(.FLAGS);
;  473          0535  2
;  474          0536  1      END;


                                                .EXTRN  RM$BUG3

                                0E  BB 00000 RM$RLSBKT::
                                                PUSHR   #^M<R1,R2,R3>                   ; 0431
                                54  D5 00002             TSTL    BDB                    ; 0484
```

```
                                    44  13 00004          BEQL    4$                                                      ;
                          10    08  A4  91 00006          CMPB    8(BDB), #16                                             ;
                                    3E  13 0000A          BEQL    4$                                                      ;
                          3A    0A  A4  E9 0000C          BLBC    10(BDB), 4$                                             ; 0490
                                16  A4  B5 00010          TSTW    22(BDB)                                                 ; 0492
                                    35  13 00013          BEQL    4$                                                      ;
                          52    18  A4  D0 00015          MOVL    24(BDB), BUCKET                                         ; 0495
                    1C    A4    02  A2  B1 00019          CMPW    2(BUCKET), 28(BDB)                                      ; 0500
                                    03  13 0001E          BEQL    1$                                                      ;
                                00000G  30 00020          BSBW    RM$BUG3                                                 ; 0501
                15  0A    A4          01  E1 00023 1$:     BBC     #1, 10(BDB), 3$                                         ; 0504
                          50    10  A4  D0 00026          MOVL    16(BDB), PTR                                            ; 0508
                                    04  13 0002C          BEQL    2$                                                      ; 0509
                          0B    0A  A0  E9 0002E          BLBC    10(PTR), 3$                                             ; 0515
                                    62  96 00032 2$:      INCB    (BUCKET)                                                ; 0518
                          50    14  A4  3C 00034          MOVZWL  20(BDB), R0                                             ; 0519
                    FF  A042        62  90 00038          MOVB    (BUCKET), -1(R0)[BUCKET]                                ;
                    0B    A4    0C  A2  90 0003D 3$:      MOVB    12(BUCKET), 11(BDB)                                     ; 0527
                03  0A    A4          03  F  00042          BBCC    #3, 10(BDB), 4$                                         ; 0528
                                0B  A4  96 00047          INCB    11(BDB)                                                 ; 0530
                          53    10  AE  D0 0004A 4$:      MOVL    FLAGS, R3                                               ; 0534
                                00000G  30 0004E          BSBW    RM$RELEASE                                              ;
                                    0E  BA 00051          POPR    #^M<R1,R2,R3>                                           ; 0536
                                        05 00053          RSB                                                             ;

; Routine Size:  84 bytes,    Routine Base:  RM$RMS3 + 00C7

;  475          0537  1
;  476          0538  1 END
;  477          0539  1
;  478          0540  0 ELUDOM



;                                   PSECT SUMMARY

;      Name                     Bytes                          Attributes

; RM$RMS3                        283  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  GBL,  REL,  CON,  PIC,ALIGN(2)



;                               Library Statistics

;                                        -------- Symbols --------      Pages       Processing
;      File                              Total    Loaded   Percent      Mapped      Time

; _$255$DUA28:[RMS.OBJ]RMS.L32;1          3109        63         2       154         00:00.4
```

```
;                                       COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:RM3BKTIO/OBJ=OBJ$:RM3BKTIO MSRC$:RM3BKTIO/UPDATE=(ENH$:RM3BKTIO)

; Size:         283 code + 0 data bytes
; Run Time:       00:09.6
; Elapsed Time:   00:22.1
; Lines/CPU Min:   3382
; Lexemes/CPU-Min: 18068
; Memory Used:  102 pages
; Compilation Complete
```

RM2UPDDEL
LIS

RM3CLOSE
LIS

RM3ALLBKT
LIS

RM2CREATE
LIS

RM2GET
LIS

RM2PUT
LIS

RM3BKTIO
LIS

RM3BKTSPL
LIS

RM3CMPKEY
LIS

RM3CMPRSS
LIS

RM2EXTEND
LIS

RM2FMTBKT
LIS

RM3BUG
LIS

RM2OPEN
LIS