```
BBBBBBBBBBBB        AAAAAAAAA        CCCCCCCCCCCC  KKK         KKK  UUU         UUU  PPPPPPPPPPPP
BBBBBBBBBBBB        AAAAAAAAA        CCCCCCCCCCCC  KKK         KKK  UUU         UUU  PPPPPPPPPPPP
BBBBBBBBBBBB        AAAAAAAAA        CCCCCCCCCCCC  KKK         KKK  UUU         UUU  PPPPPPPPPPPP
BBB         BBB  AAA         AAA  CCC             KKK         KKK  UUU         UUU  PPP         PPP
BBB         BBB  AAA         AAA  CCC             KKK         KKK  UUU         UUU  PPP         PPP
BBB         BBB  AAA         AAA  CCC             KKK         KKK  UUU         UUU  PPP         PPP
BBB         BBB  AAA         AAA  CCC             KKK      KKK     UUU         UUU  PPP         PPP
BBB         BBB  AAA         AAA  CCC             KKK      KKK     UUU         UUU  PPP         PPP
BBB         BBB  AAA         AAA  CCC             KKK      KKK     UUU         UUU  PPP         PPP
BBBBBBBBBBBB     AAA         AAA  CCC             KKKKKKKKK        UUU         UUU  PPPPPPPPPPPP
BBBBBBBBBBBB     AAA         AAA  CCC             KKKKKKKKK        UUU         UUU  PPPPPPPPPPPP
BBBBBBBBBBBB     AAA         AAA  CCC             KKKKKKKKK        UUU         UUU  PPPPPPPPPPPP
BBB         BBB  AAAAAAAAAAAAAAA  CCC             KKK      KKK     UUU         UUU  PPP
BBB         BBB  AAAAAAAAAAAAAAA  CCC             KKK      KKK     UUU         UUU  PPP
BBB         BBB  AAAAAAAAAAAAAAA  CCC             KKK      KKK     UUU         UUU  PPP
BBB         BBB  AAA         AAA  CCC             KKK         KKK  UUU         UUU  PPP
BBB         BBB  AAA         AAA  CCC             KKK         KKK  UUU         UUU  PPP
BBB         BBB  AAA         AAA  CCC             KKK         KKK  UUU         UUU  PPP
BBBBBBBBBBBB     AAA         AAA     CCCCCCCCCCCC  KKK         KKK  UUUUUUUUUUUUUUUU  PPP
BBBBBBBBBBBB     AAA         AAA     CCCCCCCCCCCC  KKK         KKK  UUUUUUUUUUUUUUUU  PPP
BBBBBBBBBBBB     AAA         AAA     CCCCCCCCCCCC  KKK         KKK  UUUUUUUUUUUUUUUU  PPP
```

```
  SSSSSSSS  TTTTTTTTTT    AAAAAA      AAAAAA      CCCCCCCC  PPPPPPPP
  SSSSSSSS  TTTTTTTTTT    AAAAAA      AAAAAA      CCCCCCCC  PPPPPPPP
SS              TT      AA      AA  AA      AA  CC          PP      PP
SS              TT      AA      AA  AA      AA  CC          PP      PP
SS              TT      AA      AA  AA      AA  CC          PP      PP
SS              TT      AA      AA  AA      AA  CC          PP      PP
  SSSSSS        TT      AA      AA  AA      AA  CC          PPPPPPPP
  SSSSSS        TT      AA      AA  AA      AA  CC          PPPPPPPP
        SS      TT      AAAAAAAAAA  AAAAAAAAAA  CC          PP
        SS      TT      AAAAAAAAAA  AAAAAAAAAA  CC          PP
        SS      TT      AA      AA  AA      AA  CC          PP              ....
        SS      TT      AA      AA  AA      AA  CC          PP              ....
SSSSSSSS        TT      AA      AA  AA      AA    CCCCCCCC  PP              ....
SSSSSSSS        TT      AA      AA  AA      AA    CCCCCCCC  PP              ....

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 STAACP   (%TITLE 'Standalone ACP'
0                  IDENT = 'V04-000'
0                  ) =
1 BEGIN
1
1 !
1 !*****************************************************************************
1 !*                                                                           *
1 !*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                                  *
1 !*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.                   *
1 !*  ALL RIGHTS RESERVED.                                                     *
1 !*                                                                           *
1 !*  THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED    *
1 !*  ONLY IN  ACCORDANCE WITH  THE  TERMS  OF  SUCH  LICENSE  AND WITH THE    *
1 !*  INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR  ANY  OTHER    *
1 !*  COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY    *
1 !*  OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF  THE  SOFTWARE IS  HEREBY    *
1 !*  TRANSFERRED.                                                             *
1 !*                                                                           *
1 !*  THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE    *
1 !*  AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT    *
1 !*  CORPORATION.                                                             *
1 !*                                                                           *
1 !*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS    *
1 !*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                  *
1 !*                                                                           *
1 !*                                                                           *
1 !*****************************************************************************
1 !
1
1 !++
1 ! FACILITY:
1 !       Backup/Restore
1 !
1 ! ABSTRACT:
1 !       This module contains the standalone ACP routines.
1 !
1 ! ENVIRONMENT:
1 !       VAX/VMS user mode.
1 !--
1 !
1 ! AUTHOR: M. Jack, CREATION DATE: 01-Feb-1981
1 !
1 ! MODIFIED BY:
1 !
1 !       V03-019 LMP0301         L. Mark Pilant,         10-Aug-1984  8:34
1 !               Fix a bug from LMP0272 that caused BACKUP to ACCVIO during
1 !               an ACCESS.
1 !
1 !       V03-018 LY0516          Larry Yetto             25-JUL-1984 15:27
1 !               Zero fill the FIB in STA_ENTER so that sequential disk save sets
1 !               will work again.
1 !
1 !       V03-017 LMP0272         L. Mark Pilant,         3-Jul-1984  10:37
1 !               Add the FIB as an argument for the ACL processing.
1 !
1 !       V03-016 ACG0415         Andrew C. Goldstein,    24-Apr-1984  18:18
```

```
                                  Fix boundary bugs in ACL handling
                                  |
                                  |
                        V03-015 ACG0382         Andrew C. Goldstein,    16-Dec-1983  16:49
                                  Fix RVN usage in ACL processing; add validation for
                                  VCB_INIT_DONE in STA_CREATE and STA_DISMOUNT_OUTPUT.
                                  Add error cleanup in STA_ACCESS.
                                  |
                        V03-014 ACG0365         Andrew C. Goldstein,    11-Oct-1983  14:48
                                  Tie off ACL processing in BACKUP sequential disk
                                  |
                        V03-013 ACG53087        Andrew C. Goldstein,    30-Aug-1983  19:28
                                  Fix creation of save sets at end of MFD in seq disk
                                  |
                        V03-012 ACG0352         Andrew C. Goldstein,    22-Aug-1983  17:46
                                  Fix descriptor initialization bugs introduced in LMP0118;
                                  fix bug in mounting sequential disk volumes for input
                                  |
                        V03-011 LMP0118         L. Mark Pilant,         9-Jun-1983  11:01
                                  Correct problems with trying to create a file whose ACL
                                  spans headers.
                                  |
                        V03-010 ACG0332         Andrew C. Goldstein,    20-Apr-1983  17:58
                                  Add support for file highwater mark and RMS journal flags
                                  |
                        V03-009 ACG0334         Andrew C. Goldstein,    6-May-1983  14:39
                                  Fix inconsistencies in declaration of FILE_ERROR
                                  |
                        V03-008 ACG0325         Andrew C. Goldstein,    4-Apr-1983  15:52
                                  Fix file header area length validation, add extended
                                  file name support.
                                  |
                        V03-007 LMP0085         L. Mark Pilant,         2-Mar-1983  15:34
                                  Fix a problem that caused the file to remain open after
                                  giving an error about not being able to write the entire
                                  ACL.
                                  |
                        V03-006 ACG0313         Andrew C. Goldstein,    11-Feb-1983  1:16
                                  Fix accumulation of blocks returned in STA_EXTEND.
                                  Also remove zeroing of bitmap of mounted disks.
                                  |
                        V03-005 LMP0067         L. Mark Pilant,         15-Dec-1982  15:12
                                  Deallocate memory obtained for ACL segment storage when the
                                  file is deaccessed.
                                  |
                        V03-004 LMP0044         L. Mark Pilant,         3-Nov-1982  10:20
                                  Add support for saving and restoring ACL's.
                                  |
                        V03-003 MLJ0100         Martin L. Jack, 7-Oct-1982  15:04
                                  In write attributes, add range checking for length of ident
                                  area.
                                  |
                        V03-002 ACG0281         Andrew C. Goldstein,    5-Apr-1982  16:02
                                  Add ODS-1 multi-header index file support
                                  |
                        V03-001 ACG0279         Andrew C. Goldstein,    1-Apr-1982  14:20
                                  Rework header processing in STA_EXTEND
                                  |
```

```
1 !       V02-009 MLJ0081         Martin L. Jack, 26-Feb-1982  16:03
1 !               Implement RETAINMIN and RETAINMAX for new home block fields.
1 !
1 !       V02-008 MLJ0075         Martin L. Jack, 31-Jan-1982  7:26
1 !               Correct access violation introduced in V02-007.
1 !
1 !       V02-007 MLJ0062         Martin L. Jack, 10-Dec-1981  20:00
1 !               Rework STA_ACCESS to allow IO$_ACCESS without IO$M_ACCESS when
1 !               file is already accessed.  This is necessary to avoid spurious
1 !               FILALRACC errors when saving multi-header files.
1 !
1 !       V02-006 ACG0236         Andrew C. Goldstein,    8-Dec-1981  21:45
1 !               Check status from PACKACK function
1 !
1 !       V02-005 MLJ0054         Martin L. Jack, 20-Oct-1981  8:30
1 !               Implement /VOLUME.  Reconstruct quota file for /IMAGE output.
1 !               Release disk space on a failed IO$_CREATE.  Display pertinent
1 !               file name in error messages issued by STA_DISMOUNT_OUTPUT and
1 !               STA_INIT_HDRS.  Move globals to common.  Integrate GET_VM and
1 !               FREE_VM jacket routines.
1 !
1 !       V02-004 MLJ0040         Martin L. Jack, 3-Sep-1981  19:42
1 !               Clean up window on a failed IO$_CREATE to avoid
1 !               incorrect "file already accessed" errors.
1 !
1 !       V02-003 MLJ0039         Martin L. Jack, 3-Sep-1981  19:21
1 !               Include general-mode addressing where required.
1 !
1 !       V02-002 ACG0211         Andrew C. Goldstein,    22-Jul-1981  17:18
1 !               Add logic to create save set files
1 !
1 !       V02-001 MLJ0025         Martin L. Jack, 8-May-1981  14:24
1 !               Move setting of index file bitmap into WRITE_HEADER.  Improve
1 !               documentation.  Avoid creating window for IO$_ACCESS (and
1 !               disallow STATBLK attribute) unless file is actually accessed.
1 !               Do preliminary work for file placement.
1 !
1 !**
```

```
0153  1 REQUIRE 'SRC$:COMMON';
1259  1 LIBRARY 'SYS$LIBRARY:LIB';
1260  1 REQUIRE 'LIB$:BACKDEF';
1710  1
1711  1
1712  1 LINKAGE
1713  1         L_DQF_WRITE_ENTRY = CALL:
1714  1             GLOBAL(
1715  1                 DQF_BUFFER=11,
1716  1                 DQF_RECORD=10,
1717  1                 DQF_VBN=9,
1718  1                 DQF_DEFAULT_PERM=8,
1719  1                 DQF_DEFAULT_OVER=7);
1720  1
1721  1
1722  1 FORWARD ROUTINE
1723  1         DQF_FIND_UIC,                       ! Search quota table for UIC
1724  1         DQF_MODIFY_USAGE:
1725  1                         NOVALUE,            ! Update usage data for UIC
1726  1         DQF_WRITE_ENTRY:L_DQF_WRITE_ENTRY NOVALUE,
1727  1                                             ! Rewrite quota file entry
1728  1         ASSIGN_INPUT_CHANNEL,               ! Assign a channel to input disk
1729  1         ASSIGN_OUTPUT_CHANNEL,              ! Assign a channel to output disk
1730  1         SWITCH_VOLUME,                      ! Switch to relative volume
1731  1         VERIFY_HEADER,                      ! Check one file header
1732  1         READ_HEADER,                        ! Read one file header
1733  1         WRITE_HEADER,                       ! Write one file header
1734  1         CREATE_DELHDR:  NOVALUE,            ! Create deleted file header
1735  1         TAKE_BLOCKS:    NOVALUE,            ! Take blocks from free list
1736  1         STA_ALLOC_LBN,                      ! Allocate specific LBN
1737  1         STA_ALLOC_BEST,                     ! Allocate best fit
1738  1         FREE_BLOCKS:    NOVALUE,            ! Return blocks to free list
1739  1         MAKE_POINTER1,                      ! Make map pointer (ODS-1)
1740  1         MAKE_POINTER,                       ! Make map pointer (ODS-2)
1741  1         CREATE_WINDOW,                      ! Create window block
1742  1         DELETE_WINDOW:  NOVALUE,            ! Delete window block
1743  1         ADD_BLACKHOLE_MAP:
1744  1                         NOVALUE,            ! Add blackhole pointer to window
1745  1         ADD_WINDOW_MAP: NOVALUE,            ! Add map entry to window
1746  1         QIO_AST:        NOVALUE,            ! Completion AST for R_W_VIRTUAL
1747  1         R_W_VIRTUAL,                        ! Read/write virtual
1748  1         STA_INIVOL:     NOVALUE,            ! Initialize a volume
1749  1         STA_INIT_HDRS:  NOVALUE,            ! Initialize file headers
1750  1         STA_WRITEBOOT:  NOVALUE,            ! Rewrite boot block with boot LBN
1751  1         STA_MOUNT:      NOVALUE,            ! Mount a volume set
1752  1         READY_DISK,                         ! Ready disk for save set
1753  1         STA_ENTER:      NOVALUE,            ! Execute RMS ENTER function
1754  1         STA_EXTEND,                         ! Incrementally extend file
1755  1         STA_RDWRVBLK,                       ! Execute IO$_READVBLK, IO$_WRITEVBLK
1756  1         STA_ACCESS,                         ! Execute IO$_ACCESS
1757  1         CREATE_CLEANUP,                     ! Process allocation list after create
1758  1         CREATE_EXTHDR,                      ! Create extension header
1759  1         STA_CREATE,                         ! Execute IO$_CREATE
1760  1         STA_DEACCESS,                       ! Execute IO$_DEACCESS
1761  1         STA_MODIFY,                         ! Execute IO$_MODIFY
1762  1         STA_QIO,                            ! Dispatch ACP QIOs
1763  1         STA_QIOW,                           ! Execute $QIOW
```

```
1          READ_ATTRIBUTES,                    ! Read attributes
1          TO_ODS1_DATE:    NOVALUE,           ! Convert 64-bit time to ODS-1 format
1          WRITE_ATTRIBUTES;                   ! Write attributes
1
1
1  EXTERNAL ROUTINE
1          CHECKSUM,                           ! Compute file header checksum
1          CHECKSUM2,                          ! Compute home block checksum
1          FILE_ERROR:      NOVALUE,           ! Signal file-related error
1          FROM_ODS1_DATE: NOVALUE,            ! Convert ODS-1 format to 64-bit time
1          INITIALIZE_VOLUME:
1                           NOVALUE,           ! Execute volume initialization
1          MAKE_NAMEBLOCK: NOVALUE,            ! Convert filename to ODS-1 format
1          FREE_VM:         NOVALUE,           ! Deallocate virtual memory
1          GET_VM,                             ! Allocate virtual memory
1          GET_ZERO_VM,                        ! Allocate and clear virtual memory
1          SYS$ASSIGN:      ADDRESSING_MODE(GENERAL),
1                                              ! Assign channel system service
1          ACL_DELETEACL,                      ! Delete and deallocate ACL segments
1          ACL_BUILDACL,                       ! Build the ACL
1          ACL_DISPATCH;                       ! ACL function dispatcher
1
1
1  EXTERNAL LITERAL
1          BACKUP$_BADSETCNT,
1          BACKUP$_DISKFRAG,
1          BACKUP$_GETCHN,
1          BACKUP$_INCRVN,
1          BACKUP$_INCSETCNT,
1          BACKUP$_INVATTVAL,
1          BACKUP$_INVFID,
1          BACKUP$_INVHOMBLK,
1          BACKUP$_LARGECNT,
1          BACKUP$_NOBITMAP,
1          BACKUP$_NOHOMEBLK,
1          BACKUP$_NOINDEXF,
1          BACKUP$_NOVOLDATA,
1          BACKUP$_ODS2SAVE,
1          BACKUP$_OPENIN,
1          BACKUP$_OPENOUT,
1          BACKUP$_CLOSEOUT,
1          BACKUP$_READBMAP,
1          BACKUP$_READERR,
1          BACKUP$_READIMAP,
1          BACKUP$_READYREAD,
1          BACKUP$_READYWRITE,
1          BACKUP$_STRUCLEV,
1          BACKUP$_VOLINSET,
1          BACKUP$_WRITENABLE,
1          BACKUP$_WRITEERR,
1          BACKUP$_QUOTAFILE;
1
1
1  G$DEFINE();                  ! Define global common area
1
1
1  OWN
```

```
1          RSA_DESC:        VECTOR[2],          ! Descriptor for RSA in STA_DISMOUNT_OUTPUT
1          DQF_QUOTA_FID:   BBLOCK[FID$C_LENGTH], ! File ID of quota file
1          DQF_ROOT,                            ! Root of quota table
1          DQF_COUNT,                           ! Count of entries in quota table
1          QUEUE_HEADERS:   VECTOR [6];         ! Queue headers for:
1                                               !     Allocated disk extents
1                                               !     Required extents
1                                               !     Used extension file IDs
1
1
1  MACRO
1
1          ! Field definitions for extent list.
1          !
1          EXT_FLINK=       0,0,32,0 %,         ! Forward link
1          EXT_BLINK=       4,0,32,0 %,         ! Backward link
1          EXT_VCB=         8,0,32,0 %,         ! Pointer to VCB for volume
1          EXT_COUNT=       12,0,32,0 %,        ! Count of blocks
1          EXT_LBN=         16,0,32,0 %;        ! LBN of blocks
1
1  LITERAL
1          EXT_S_ENTRY=     20;                 ! Size of extent list entry in bytes
1
1
1  MACRO
1
1          ! Field definitions for create list.
1          !
1          CRT_FLINK=       0,0,32,0 %,         ! Forward link
1          CRT_BLINK=       4,0,32,0 %,         ! Backward link
1
1          CRT_FID_FQHDR=   8,0,32,0 %,         ! Queue header for FID queue
1          CRT_FID_BQHDR=   12,0,32,0 %,        !
1          CRT_BLOCKS=      16,0,32,0 %,        ! Blocks
1
1          CRT_FID=         8,0,0,0 %,          ! File ID
1          CRT_FID_NUM=     8,0,16,0 %,         !
1          CRT_FID_SEQ=     10,0,16,0 %,        !
1          CRT_FID_RVNW=    12,0,16,0 %,        !
1          CRT_FID_RVN=     12,0,8,0 %,         !
1          CRT_FID_NMX=     13,0,8,0 %;         !
1
1
1  LITERAL
1          CRT_S_BLOCKS=    20,                 ! Size of "blocks" entry
1          CRT_S_FID=       14;                 ! Size of "FID" entry
1
1
1  BUILTIN
1          CALLG,
1          INSQUE,
1          REMQUE,
1          TESTBITSC,
1          ROT;
```

```
1875  1 %SBTTL 'DQF_FIND_UIC - find UIC in quota table'
1876  1 ROUTINE DQF_FIND_UIC (UIC)=
1877  1
1878  1 !++
1879  1 !
1880  1 ! FUNCTIONAL DESCRIPTION:
1881  1 !       This routine finds the quota table entry for a specified UIC,
1882  1 !       creating it if necessary.
1883  1 !
1884  1 ! INPUT PARAMETERS:
1885  1 !       UIC             - The UIC.
1886  1 !
1887  1 ! IMPLICIT INPUTS:
1888  1 !       DQF_ROOT        - The root of the quota table structure.
1889  1 !
1890  1 ! OUTPUT PARAMETERS:
1891  1 !       NONE
1892  1 !
1893  1 ! IMPLICIT OUTPUTS:
1894  1 !       NONE
1895  1 !
1896  1 ! ROUTINE VALUE:
1897  1 !       A pointer to the entry for the specified UIC.
1898  1 !
1899  1 ! SIDE EFFECTS:
1900  1 !       The entry may be created if required.
1901  1 !
1902  1 !--
1903  1
1904  2 BEGIN
1905  2 LOCAL
1906  2         P:              REF BBLOCK,     ! Pointer to DQF entry
1907  2         Q:              REF BBLOCK;     ! Pointer to link to DQF entry
1908  2
1909  2
1910  2 ! Search DQF table for a matching entry or to find where the new entry
1911  2 ! must be inserted.
1912  2 !
1913  2 Q = DQF_ROOT;                           ! Point to root of table
1914  2 P = ..Q;                                ! Point to highest entry in table
1915  2 WHILE .P NEQ 0 DO                       ! Until bottom of table reached
1916  3     BEGIN
1917  3     IF .UIC EQL .P[DQF_UIC]             ! If correct entry
1918  3         THEN RETURN .P;                 !     return it
1919  3     IF .UIC GTRU .P[DQF_UIC]            ! If desired entry is on right branch
1920  3         THEN Q = P[DQF_RLINK]           !     point to right link word
1921  3         ELSE Q = P[DQF_LLINK];          !     otherwise to left link word
1922  3     P = ..Q;                            ! Point to right or left branch
1923  2     END;
1924  2
1925  2
1926  2 ! Allocate and initialize the new entry.
1927  2 !
1928  2 DQF_COUNT = .DQF_COUNT + 1;
1929  2 .Q = GET_VM(DQF_S_ENTRY);
1930  2 P = ..Q;
1931  2 P[DQF_LLINK] = 0;
```

```
;  380          1932  2 P[DQF_RLINK] = 0;
;  381          1933  2 P[DQF_UIC] = .UIC;
;  382          1934  2 P[DQF_USAGE] = 0;
;  383          1935  2 P[DQF_PERMQUOTA] = -1;                    ! Flag that no quotas exist
;  384          1936  2 P[DQF_OVERDRAFT] = -1;
;  385          1937  2 .P
;  386          1938  1 END;


                                        .TITLE  STAACP Standalone ACP
                                        .IDENT  \V04-000\

                                        .PSECT  COMMON,NOEXE,  OVR,2

                                00000 GLOBAL_BASE:
                                                .BLKB   0
                                00000 FREE_LIST:
                                                .BLKB   8
                                00008 INPUT_WAIT:
                                                .BLKB   8
                                00010 REREAD_WAIT:
                                                .BLKB   8
                                00018 OUTPUT_WAIT:
                                                .BLKB   8
                                00020 JPI_UIC:.BLKB     4
                                00024 JPI_USERNAME:
                                                .BLKB   12
                                00030 JPI_DATE:
                                                .BLKB   8
                                00038 JPI_NODE_DESC:
                                                .BLKB   8
                                00040 JPI_CURPRIV:
                                                .BLKB   8
                                00048 SYI_VERSION:
                                                .BLKB   4
                                0004C SYI_SID:.BLKB     4
                                00050 RWSV_HOLD_LIST:
                                                .BLKB   8
                                00058 RWSV_CRC16:
                                                .BLKB   64
                                00098 RWSV_AUTODIN:
                                                .BLKB   64
                                000D8 RWSV_FILESET_ID:
                                                .BLKB   8
                                000E0 RWSV_VOLUME_ID:
                                                .BLKB   12
                                000EC RWSV_VOL_NUMBER:
                                                .BLKB   2
                                000EE RWSV_SEG_NUMBER:
                                                .BLKB   2
                                000F0 RWSV_FILE_NUMBER:
                                                .BLKB   4
                                000F4 RWSV_SAVE_QUAL:
                                                .BLKB   4
                                000F8 RWSV_SAVE_FAB:
                                                .BLKB   4
                                000FC RWSV_CHAN:
```

```
                        .BLKB   4
00100 RWSV_XOR_BCB:
                        .BLKB   4
00104 RWSV_IN_SEQ:
                        .BLKB   4
00108 RWSV_IN_SEQ_0:
                        .BLKB   4
0010C RWSV_IN_XOR_SEQ:
                        .BLKB   4
00110 RWSV_IN_XOR_RFA:
                        .BLKB   6
00116 RWSV_LOOKAHEAD:
                        .BLKB   1
00117 RWSV_XORSIZE:
                        .BLKB   1
00118 RWSV_IN_GROUP_SIZE:
                        .BLKB   4
0011C RWSV_IN_ERRORS:
                        .BLKB   2
0011E RWSV_IN_XORUSE:
                        .BLKB   2
00120 RWSV_IN_ORGERR:
                        .BLKB   8
00128 RWSV_IN_VBN:
                        .BLKB   4
0012C RWSV_IN_VBN_0:
                        .BLKB   4
00130 RWSV_ALLOC:
                        .BLKB   4
00134 RWSV_EOF:
                        .BLKB   4
00138 RWSV_OUT_SEQ:
                        .BLKB   4
0013C RWSV_OUT_VBN:
                        .BLKB   4
00140 RWSV_OUT_BLOCK_COUNT:
                        .BLKB   4
00144 RWSV_OUT_ERRORS:
                        .BLKB   2
00146 RWSV_SEQ_ERRORS:
                        .BLKB   2
00148 RWSV_OUT_GROUP_COUNT:
                        .BLKB   1
00149 RWSV_PADDING:
                        .BLKB   3
0014C QUAL:             .BLKB   112
001BC COM_SSNAME:
                        .BLKB   8
001C4 COM_VALID_TYPES:
                        .BLKB   2
001C6 COM_FLAGS:
                        .BLKB   2
001C8 COM_PADDING:
                        .BLKB   1
001C9 COM_BUFF_COUNT:
                        .BLKB   1
001CA COM_I_SETCOUNT:
```

```
                    .BLKB   1
001CB COM_O_SETCOUNT:
                    .BLKB   1
001CC COM_I_STRUCNAME:
                    .BLKB   12
001D8 COM_O_STRUCNAME:
                    .BLKB   12
001E4 COM_O_BSRDATE:
                    .BLKB   8
001EC ALT_SSNAME:
                    .BLKB   32
0020C INPUT_FUNC:
                    .BLKB   1
0020D INPUT_RTYPE:
                    .BLKB   1
0020E OUTPUT_FUNC:
                    .BLKB   1
0020F FAST_STRUCLEV:
                    .BLKB   1
00210 INPUT_BEG:
                    .BLKB   0
00210 INPUT_CHAN:
                    .BLKB   4
00214 INPUT_FLAGS:
                    .BLKB   2
00216 INPUT_PADDING:
                    .BLKB   2
00218 INPUT_FAB:
                    .BLKB   4
0021C INPUT_NAM:
                    .BLKB   4
00220 INPUT_BCB:
                    .BLKB   4
00224 INPUT_QUAL:
                    .BLKB   4
00228 INPUT_BAD:
                    .BLKB   4
0022C INPUT_BLOCK:
                    .BLKB   4
00230 INPUT_MAXBLOCK:
                    .BLKB   4
00234 INPUT_MEDIA_ID:
                    .BLKB   4
00238 INPUT_NAMEDESC:
                    .BLKB   8
00240 INPUT_STATBLK:
                    .BLKB   8
00248 INPUT_HDR_BEG:
                    .BLKB   0
00248 INPUT_CREDATE:
                    .BLKB   8
00250 INPUT_REVDATE:
                    .BLKB   8
00258 INPUT_EXPDATE:
                    .BLKB   8
00260 INPUT_BAKDATE:
                    .BLKB   8
```

```
00268 INPUT_FILEOWNER:
                .BLKB   4
0026C INPUT_FILECHAR:
                .BLKB   4
00270 INPUT_RECATTR:
                .BLKB   32
00290 INPUT_HDR_END:
                .BLKB   0
00290 INPUT_END:
                .BLKB   0
00290 INPUT_PROC_LIST:
                .BLKB   4
00294 INPUT_PLACEMENT:
                .BLKB   8
0029C INPUT_VBN_LIST:
                .BLKB   8
002A4 INPUT_PLACE_LEN:
                .BLKB   2
002A6 INPUT_PADDING_2:
                .BLKB   2
002A8 OUTPUT_BEG:
                .BLKB   0
002A8 OUTPUT_CHAN:
                .BLKB   4
002AC OUTPUT_FLAGS:
                .BLKB   2
002AE OUTPUT_PADDING:
                .BLKB   2
002B0 OUTPUT_FAB:
                .BLKB   4
002B4 OUTPUT_NAM:
                .BLKB   4
002B8 OUTPUT_BCB:
                .BLKB   4
002BC OUTPUT_QUAL:
                .BLKB   4
002C0 OUTPUT_BAD:
                .BLKB   4
002C4 OUTPUT_BLOCK:
                .BLKB   4
002C8 OUTPUT_MAXBLOCK:
                .BLKB   4
002CC OUTPUT_DEVGEOM:
                .BLKB   8
002D4 OUTPUT_ATTBUF:
                .BLKB   144
00364 OUTPUT_END:
                .BLKB   0
00364 LIST_TOTFILES:
                .BLKB   4
00368 LIST_TOTSIZE:
                .BLKB   4
0036C VERIFY_FAB:
                .BLKB   4
00370 VERIFY_USE_COUNT:
                .BLKB   4
00374 VERIFY_QUAL:
```

```
                        .BLKB   4
00378 COMPARE_BCB:
                        .BLKB   4
0037C FAST_BUFFER:
                        .BLKB   4
00380 FAST_BUFFER_SIZE:
                        .BLKB   4
00384 FAST_RVN:
                        .BLKB   1
00385 FAST_PADDING:
                        .BLKB   1
00386 DIR_VERLIMIT:
                        .BLKB   2
00388 FAST_VOL_BEG:
                        .BLKB   0
00388 FAST_IMAP_SIZE:
                        .BLKB   4
0038C FAST_IMAP:
                        .BLKB   4
00390 FAST_HDR_OFFSET:
                        .BLKB   4
00394 FAST_BOOT_LBN:
                        .BLKB   4
00398 FAST_VOL_END:
                        .BLKB   0
00398 JOUR_BUFFER:
                        .BLKB   4
0039C JOUR_DIR:
                        .BLKB   4
003A0 JOUR_HIBLK:
                        .BLKB   4
003A4 JOUR_EFBLK:
                        .BLKB   4
003A8 JOUR_INBLK:
                        .BLKB   4
003AC JOUR_FFBYTE:
                        .BLKB   2
003AE JOUR_INBYTE:
                        .BLKB   2
003B0 JOUR_STRUCT_LEV:
                        .BLKB   2
003B2 JOUR_COUNT:
                        .BLKB   1
003B3 JOUR_REVERSE:
                        .BLKB   1
003B4 JOUR_EXSZ:
                        .BLKB   2
003B6 JOUR_PADDING:
                        .BLKB   2
003B8 CHKPT_HIGH_SP:
                        .BLKB   4
003BC CHKPT_LOW_SP:
                        .BLKB   4
003C0 CHKPT_STACK:
                        .BLKB   4
003C4 CHKPT_VARS:
                        .BLKB   4
```

```
003C8 CHKPT_STATUS:
                .BLKB   4
003CC DIR_BEG:.BLKB     0
003CC DIR_CHAN:
                .BLKB   4
003D0 DIR_NAM:.BLKB     4
003D4 DIR_DEV_DESC:
                .BLKB   4
003D8 DIR_SEL_DIR:
                .BLKB   8
003E0 DIR_SEL_NTV:
                .BLKB   8
003E8 DIR_STRUCLEV:
                .BLKB   1
003E9 DIR_LEVELS:
                .BLKB   1
003EA DIR_FLAGS:
                .BLKB   1
003EB DIR_STATUS:
                .BLKB   1
003EC DIR_STRING:
                .BLKB   320
0052C DIR_STACK:
                .BLKB   612
00790 DIR_SP: .BLKB     4
00794 DIR_SEL_LATEST:
                .BLKB   4
00798 DIR_END:.BLKB     0
00798 DIR_SCANLIMIT:
                .BLKB   36
007BC INPUT_MTL:
                .BLKB   4
007C0 OUTPUT_MTL:
                .BLKB   4
007C4 CURRENT_MTL:
                .BLKB   4
007C8 CURRENT_VCB:
                .BLKB   4
007CC CURRENT_WCB:
                .BLKB   4
007D0 ACL_FIB_DESCR:
                .BLKB   8
007D8 ACL_FIB:.BLKB     64
00818 ACL_LENGTH:
                .BLKB   4
0081C ACL_BUFFER:
                .BLKB   4
00820 CRYP_IN_CONTEXT:
                .BLKB   4
00824 CRYP_OU_CONTEXT:
                .BLKB   4
00828 CRYP_DA_CONTEXT:
                .BLKB   4
0082C CRYP_DATA_ENCIV:
                .BLKB   8
00834 CRYP_DATA_CODE:
                .BLKB   4
```

```
                                00838 CRYP_DATA_KEY:
                                                .BLKB   8
                                00840 CRYP_DATA_IV:
                                                .BLKB   8
                                00848 CRYP_DATA_CKSM:
                                                .BLKB   4

                                                .PSECT  DATA,NOEXE,2

                                00000 RSA_DESC:
                                                .BLKB   8
                                00008 DQF_QUOTA_FID:
                                                .BLKB   6
                                0000E           .BLKB   2
                                00010 DQF_ROOT:
                                                .BLKB   4
                                00014 DQF_COUNT:
                                                .BLKB   4
                                00018 QUEUE_HEADERS:
                                                .BLKB   24

                                                .EXTRN  CHECKSUM, CHECKSUM2
                                                .EXTRN  FILE_ERROR, FROM_ODS1_DATE
                                                .EXTRN  INITIALIZE_VOLUME
                                                .EXTRN  MAKE_NAMEBLOCK, FREE_VM
                                                .EXTRN  GET_VM, GET_ZERO_VM
                                                .EXTRN  SYS$ASSIGN, ACL_DELETEACL
                                                .EXTRN  ACL_BUILDACL, ACL_DISPATCH
                                                .EXTRN  BACKUP$_BADSETCNT
                                                .EXTRN  BACKUP$_DISKFRAG
                                                .EXTRN  BACKUP$_GETCHN, BACKUP$_INCRVN
                                                .EXTRN  BACKUP$_INCSETCNT
                                                .EXTRN  BACKUP$_INVATTVAL
                                                .EXTRN  BACKUP$_INVFID, BACKUP$_INVHOMBLK
                                                .EXTRN  BACKUP$_LARGECNT
                                                .EXTRN  BACKUP$_NOBITMAP
                                                .EXTRN  BACKUP$_NOHOMEBLK
                                                .EXTRN  BACKUP$_NOINDEXF
                                                .EXTRN  BACKUP$_NOVOLDATA
                                                .EXTRN  BACKUP$_ODS2SAVE
                                                .EXTRN  BACKUP$_OPENIN, BACKUP$_OPENOUT
                                                .EXTRN  BACKUP$_CLOSEOUT
                                                .EXTRN  BACKUP$_READBMAP
                                                .EXTRN  BACKUP$_READERR
                                                .EXTRN  BACKUP$_READIMAP
                                                .EXTRN  BACKUP$_READYREAD
                                                .EXTRN  BACKUP$_READYWRITE
                                                .EXTRN  BACKUP$_STRUCLEV
                                                .EXTRN  BACKUP$_VOLINSET
                                                .EXTRN  BACKUP$_WRITENABLE
                                                .EXTRN  BACKUP$_WRITEERR
                                                .EXTRN  BACKUP$_QUOTAFILE

                                                .PSECT  CODE,NOWRT,2

                        000C 00000 DQF_FIND_UIC:
                                                .WORD   Save R2,R3                      ; 1876
```

```
                    53 00000000'  EF  9E 00002          MOVAB   DQF_ROOT, Q                  ; 1913
                    52            63  D0 00009 1$:      MOVL    (Q), P                       ; 1914
                                  14  13 0000C          BEQL    3$                           ; 1915
                08  A2       04   AC  D1 0000E          CMPL    UIC, 8(P)                    ; 1917
                                  34  13 00013          BEQL    4$                           ;
                                  06  1B 00015          BLEQU   2$                           ; 1919
                    53       04   A2  9E 00017          MOVAB   4(R2), Q                     ; 1920
                                  EC  11 0001B          BRB     1$                           ;
                    53            52  D0 0001D 2$:      MOVL    P, Q                         ; 1921
                                  E7  11 00020          BRB     1$                           ; 1922
                       00000000'  EF  D6 00022 3$:      INCL    DQF_COUNT                    ; 1928
                                  18  DD 00028          PUSHL   #24                          ; 1929
            00000000G   00        01  FB 0002A          CALLS   #1, GET_VM                   ;
                    63            50  D0 00031          MOVL    R0, (Q)                      ;
                    52            63  D0 00034          MOVL    (Q), P                       ; 1930
                                  62  7C 00037          CLRQ    (P)                          ; 1931
                08  A2       04   AC  D0 00039          MOVL    UIC, 8(P)                    ; 1933
                             0C   A2  D4 0003E          CLRL    12(P)                        ; 1934
                10  A2            01  CE 00041          MNEGL   #1, 16(P)                    ; 1935
                14  A2            01  CE 00045          MNEGL   #1, 20(P)                    ; 1936
                    50            52  D0 00049 4$:      MOVL    P, R0                        ; 1938
                                      04 0004C          RET                                  ;

; Routine Size:  77 bytes,    Routine Base:  CODE + 0000
```

```
1 %SBTTL 'DQF_MODIFY_USAGE - record disk space usage'
1 ROUTINE DQF_MODIFY_USAGE (UIC,USAGE): NOVALUE=
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !       This routine records used blocks.
1 !
1 ! INPUT PARAMETERS:
1 !       UIC             - The UIC.
1 !       USAGE           - Count of blocks allocated.
1 !
1 ! IMPLICIT INPUTS:
1 !       Disk quota table.
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       Disk quota table updated.
1 !
1 ! ROUTINE VALUE:
1 !       NONE
1 !
1 ! SIDE EFFECTS:
1 !       NONE
1 !
1 !--
1
2 BEGIN
2 LOCAL
2       P:              REF BBLOCK;     ! Pointer to DQF entry
2
2
2 P = DQF_FIND_UIC(.UIC);
2 P[DQF_USAGE] = .P[DQF_USAGE] + .USAGE;
1 END;
```

```
                                0000 00000 DQF_MODIFY_USAGE:
                                                .WORD   Save nothing                    ; 1940
                        04   AC  DD 00002       PUSHL   UIC                             ; 1973
          AA   AF            01  FB 00005       CALLS   #1, DQF_FIND_UIC                ;
          0C   A0      08   AC  C0 00009       ADDL2   USAGE, T2(P)                    ; 1974
                                04 0000E       RET                                     ; 1975

; Routine Size:  15 bytes,    Routine Base:  CODE + 004D
```

```
;  426          1976  1 %SBTTL 'DQF_WRITE_ENTRY - write out quota file entry'
;  427          1977  1 ROUTINE DQF_WRITE_ENTRY (P): L_DQF_WRITE_ENTRY NOVALUE=
;  428          1978  1
;  429          1979  1 !++
;  430          1980  1 !
;  431          1981  1 ! FUNCTIONAL DESCRIPTION:
;  432          1982  1 !       This routine writes a quota file entry.
;  433          1983  1 !
;  434          1984  1 ! INPUT PARAMETERS:
;  435          1985  1 !       P                   - Pointer to DQF entry.
;  436          1986  1 !
;  437          1987  1 ! IMPLICIT INPUTS:
;  438          1988  1 !       DQF_BUFFER          - Pointer to block buffer.
;  439          1989  1 !       DQF_RECORD          - Pointer to next available record.
;  440          1990  1 !       DQF_VBN             - Next VBN.
;  441          1991  1 !       DQF_DEFAULT_PERM - Default PERMQUOTA.
;  442          1992  1 !       DQF_DEFAULT_OVER - Default OVERDRAFT.
;  443          1993  1 !
;  444          1994  1 ! OUTPUT PARAMETERS:
;  445          1995  1 !       NONE
;  446          1996  1 !
;  447          1997  1 ! IMPLICIT OUTPUTS:
;  448          1998  1 !       NONE
;  449          1999  1 !
;  450          2000  1 ! ROUTINE VALUE:
;  451          2001  1 !       NONE
;  452          2002  1 !
;  453          2003  1 ! SIDE EFFECTS:
;  454          2004  1 !       NONE
;  455          2005  1 !
;  456          2006  1 !--
;  457          2007  1
;  458          2008  2 BEGIN
;  459          2009  2 MAP
;  460          2010  2         P:                  REF BBLOCK;     ! Pointer to DQF entry
;  461          2011  2 LOCAL
;  462          2012  2         STATUS,                             ! General status variable
;  463          2013  2         IOSB:               VECTOR[4,WORD]; ! I/O status block
;  464          2014  2 EXTERNAL REGISTER
;  465          2015  2         DQF_BUFFER,
;  466          2016  2         DQF_RECORD:         REF BBLOCK,
;  467          2017  2         DQF_VBN,
;  468          2018  2         DQF_DEFAULT_PERM,
;  469          2019  2         DQF_DEFAULT_OVER;
;  470          2020  2
;  471          2021  2
;  472          2022  2 ! Recursively write all entries on the left branch.
;  473          2023  2 !
;  474          2024  2 IF .P[DQF_LLINK] NEQ 0 THEN DQF_WRITE_ENTRY(.P[DQF_LLINK]);
;  475          2025  2
;  476          2026  2
;  477          2027  2 IF .DQF_RECORD GEQA .DQF_BUFFER + 512
;  478          2028  2 THEN
;  479          2029  3     BEGIN
;  480        P 2030  3     STATUS = $QIOW(
;  481        P 2031  3         FUNC=IO$_WRITEVBLK,
;  482        P 2032  3         CHAN=STA_OUT_CHAN,
```

```
P 2033  3          IOSB=IOSB,
P 2034  3          P1=.DQF_BUFFER,
P 2035  3          P2=512,
  2036  3          P3=.DQF_VBN);
  2037  3      IF .STATUS THEN STATUS = .IOSB[0];
  2038  3      IF NOT .STATUS
  2039  3      THEN
  2040  3          SIGNAL(BACKUP$_WRITEERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
  2041  3      CH$FILL(0, 512, .DQF_BUFFER);
  2042  3      DQF_RECORD = .DQF_BUFFER;
  2043  3      DQF_VBN = .DQF_VBN + 1;
  2044  2      END;
  2045  2
  2046  2
  2047  2 DQF_RECORD[DQF$L_FLAGS] = DQF$M_ACTIVE;
  2048  2 DQF_RECORD[DQF$L_UIC] = .P[DQF_UIC];
  2049  2 DQF_RECORD[DQF$L_USAGE] = .P[DQF_USAGE];
  2050  2 IF .P[DQF_PERMQUOTA] EQL -1 AND .P[DQF_OVERDRAFT] EQL -1
  2051  2 THEN
  2052  3      BEGIN
  2053  3      DQF_RECORD[DQF$L_PERMQUOTA] = .DQF_DEFAULT_PERM;
  2054  3      DQF_RECORD[DQF$L_OVERDRAFT] = .DQF_DEFAULT_OVER;
  2055  3      END
  2056  2 ELSE
  2057  3      BEGIN
  2058  3      DQF_RECORD[DQF$L_PERMQUOTA] = .P[DQF_PERMQUOTA];
  2059  3      DQF_RECORD[DQF$L_OVERDRAFT] = .P[DQF_OVERDRAFT];
  2060  2      END;
  2061  2 DQF_RECORD = .DQF_RECORD + DQF$C_LENGTH;
  2062  2
  2063  2
  2064  2 ! Recursively write all entries on the right branch.
  2065  2 !
  2066  2 IF .P[DQF_RLINK] NEQ 0 THEN DQF_WRITE_ENTRY(.P[DQF_RLINK]);
  2067  1 END;


                                                        .EXTRN  STA_QIOW

                                  007C 00000 DQF_WRITE_ENTRY:
                                                        .WORD   Save R2,R3,R4,R5,R6                  ; 1977
          5E          08  C2 00002                      SUBL2   #8, SP                               ;
          56     04   AC  D0 00005                      MOVL    P, R6                                ; 2024
                      66  D5 00009                      TSTL    (R6)                                 ;
                      06  13 0000B                      BEQL    1$                                   ;
                      66  DD 0000D                      PUSHL   (R6)                                 ;
     ED   AF          01  FB 0000F                      CALLS   #1, DQF_WRITE_ENTRY                  ;
          50   0200   CB  9E 00013 1$:                  MOVAB   512(R11), R0                         ; 2027
          50          5A  D1 00018                      CMPL    DQF_RECORD, R0                       ;
                      50  1F 0001B                      BLSSU   4$                                   ;
                      7E  7C 0001D                      CLRQ    -(SP)                                ; 2036
                      7E  D4 0001F                      CLRL    -(SP)                                ;
                      59  DD 00021                      PUSHL   DQF_VBN                              ;
          7E   0200   8F  3C 00023                      MOVZWL  #512, -(SP)                          ;
                      5B  DD 00028                      PUSHL   DQF_BUFFER                           ;
                      7E  7C 0002A                      CLRQ    -(SP)                                ;
```

```
                                    20   AE  9F 0002C          PUSHAB  IOSB                                  ;
                                         30  DD 0002F          PUSHL   #48                                   ;
                              0002FFFF   8F  DD 00031          PUSHL   #196607                               ;
                                         7E  D4 00037          CLRL    -(SP)                                 ;
                 00000000G  00           0C  FB 00039          CALLS   #12, STA_QIOW                         ;
                            06           50  E9 00040          BLBC    STATUS, 2$                            ; 2037
                            50           6E  3C 00043          MOVZWL  IOSB, STATUS                          ;
                            17           50  E8 00046          BLBS    STATUS, 3$                            ; 2038
                                         50  DD 00049 2$:      PUSHL   STATUS                                ; 2040
                              00000000'  EF  9F 0004B          PUSHAB  RSA_DESC                              ;
                                         01  DD 00051          PUSHL   #1                                    ;
                              00000000G  8F  DD 00053          PUSHL   #BACKUP$_WRITEERR+2                   ;
                 00000000G  00           04  FB 00059          CALLS   #4, LIB$SIGNAL                        ;
  0200   8F          00     6E           00  2C 00060 3$:      MOVC5   #0, (SP), #0, #512, (DQF_BUFFER)      ; 2041
                                         6B     00067                                                        ;
                            5A           5B  D0 00068          MOVL    DQF_BUFFER, DQF_RECORD                ; 2042
                                         59  D6 0006B          INCL    DQF_VBN                               ; 2043
                            6A           01  D0 0006D 4$:      MOVL    #1, (DQF_RECORD)                      ; 2047
                      04    AA      08   A6  7D 00070          MOVQ    8(R6), 4(DQF_RECORD)                  ; 2048
                 FFFFFFFF   8F      10   A6  D1 00075          CMPL    16(R6), #-1                           ; 2050
                                         14  12 0007D          BNEQ    5$                                    ;
                 FFFFFFFF   8F      14   A6  D1 0007F          CMPL    20(R6), #-1                           ;
                                         0A  12 00087          BNEQ    5$                                    ;
                      0C    AA           58  D0 00089          MOVL    DQF_DEFAULT_PERM, 12(DQF_RECORD)      ; 2053
                      10    AA           57  D0 0008D          MOVL    DQF_DEFAULT_OVER, 16(DQF_RECORD)      ; 2054
                                         05  11 00091          BRB     6$                                    ; 2050
                      0C    AA      10   A6  7D 00093 5$:      MOVQ    16(R6), 12(DQF_RECORD)                ; 2058
                            5A           20  C0 00098 6$:      ADDL2   #32, DQF_RECORD                       ; 2061
                                    04   A6  D5 0009B          TSTL    4(R6)                                 ; 2066
                                         08  13 0009E          BEQL    7$                                    ;
                                    04   A6  DD 000A0          PUSHL   4(R6)                                 ;
                    FF58    CF           01  FB 000A3          CALLS   #1, DQF_WRITE_ENTRY                   ;
                                             04 000A8 7$:      RET                                           ; 2067

; Routine Size:  169 bytes,    Routine Base:  CODE + 005C
```

```
1 %SBTTL 'ASSIGN_INPUT_CHANNEL - assign disk input channel'
1 GLOBAL ROUTINE ASSIGN_INPUT_CHANNEL (DEVNAM,CHAN,ACMODE,MBXNAM)=
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !       This routine is called to assign a channel to the input disk.
1 !
1 ! INPUT PARAMETERS:
1 !       As for the $ASSIGN system service.  (However, the channel number is
1 !       written as a longword because the pseudo-channel numbers are larger
1 !       than 16 bits).
1 !
1 ! IMPLICIT INPUTS:
1 !       NONE
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       Completion status.
1 !
1 ! SIDE EFFECTS:
1 !       NONE
1 !
1 !--
1
2 BEGIN
2 BUILTIN
2         AP;
2
2
2 ! If the standalone ACP is going to handle operations on the input disk, then
2 ! return the special channel number.  Otherwise, let the request through to
2 ! the real $ASSIGN service.
2 !
2 IF .INPUT_MTL NEQ 0
2 THEN
3     BEGIN
3     .CHAN = STA_IN_CHAN;
3     SS$_NORMAL
3     END
2 ELSE
2     CALLG(.AP, SYS$ASSIGN)
1 END;
```

```
                                0000 00000        .ENTRY  ASSIGN_INPUT_CHANNEL, Save nothing        ; 2069
                  00000000'  EF   D5 00002        TSTL    INPUT_MTL                                 ; 2107
                             0C   13 00008        BEQL    1$                                        ;
          08   BC 0001FFFF   8F   D0 0000A        MOVL    #131071, @CHAN                            ; 2110
```

```
                        50          01  D0 00012        MOVL    #1, R0                          ; 2109
                                        04 00015        RET                                     ;
                00000000G  00       6C  FA 00016 1$:    CALLG   (AP), SYS$ASSIGN                ; 2114
                                        04 0001D        RET                                     ; 2115

; Routine Size:  30 bytes,    Routine Base:  CODE + 0105
```

```
;  568          2116  1 %SBTTL 'ASSIGN_OUTPUT_CHANNEL - assign disk output channel'
;  569          2117  1 GLOBAL ROUTINE ASSIGN_OUTPUT_CHANNEL (DEVNAM,CHAN,ACMODE,MBXNAM)=
;  570          2118  1
;  571          2119  1 !++
;  572          2120  1 !
;  573          2121  1 ! FUNCTIONAL DESCRIPTION:
;  574          2122  1 !       This routine is called to assign a channel to the output disk.
;  575          2123  1 !
;  576          2124  1 ! INPUT PARAMETERS:
;  577          2125  1 !       As for the $ASSIGN system service.  (However, the channel number is
;  578          2126  1 !       written as a longword because the pseudo-channel numbers are larger
;  579          2127  1 !       than 16 bits).
;  580          2128  1 !
;  581          2129  1 ! IMPLICIT INPUTS:
;  582          2130  1 !       NONE
;  583          2131  1 !
;  584          2132  1 ! OUTPUT PARAMETERS:
;  585          2133  1 !       NONE
;  586          2134  1 !
;  587          2135  1 ! IMPLICIT OUTPUTS:
;  588          2136  1 !       NONE
;  589          2137  1 !
;  590          2138  1 ! ROUTINE VALUE:
;  591          2139  1 !       Completion status.
;  592          2140  1 !
;  593          2141  1 ! SIDE EFFECTS:
;  594          2142  1 !       NONE
;  595          2143  1 !
;  596          2144  1 !--
;  597          2145  1
;  598          2146  2 BEGIN
;  599          2147  2 BUILTIN
;  600          2148  2         AP;
;  601          2149  2
;  602          2150  2
;  603          2151  2 ! If the standalone ACP is going to handle operations on the output disk, then
;  604          2152  2 ! return the special channel number.  Otherwise, let the request through to
;  605          2153  2 ! the real $ASSIGN service.
;  606          2154  2 !
;  607          2155  2 IF .OUTPUT_MTL NEQ 0
;  608          2156  2 THEN
;  609          2157  3     BEGIN
;  610          2158  3     .CHAN = STA_OUT_CHAN;
;  611          2159  3     SS$_NORMAL
;  612          2160  3     END
;  613          2161  2 ELSE
;  614          2162  2     CALLG(.AP, SYS$ASSIGN)
;  615          2163  1 END;


                                    0000 00000          .ENTRY  ASSIGN_OUTPUT_CHANNEL, Save nothing        ; 2117
                         00000000'  EF  D5 00002        TSTL    OUTPUT_MTL                                  ; 2155
                                    0C  13 00008        BEQL    1$                                          ;
                     08  BC 0002FFFF 8F  D0 0000A       MOVL    #196607, @CHAN                              ; 2158
```

```
                    50          01  D0 00012        MOVL    #1, R0                          ; 2157
                                    04 00015        RET                                     ;
          00000000G  00          6C  FA 00016 1$:    CALLG   (AP), SYS$ASSIGN                ; 2162
                                    04 0001D        RET                                     ; 2163

; Routine Size:  30 bytes,    Routine Base:  CODE + 0123
```

```
;  617          %SBTTL 'SWITCH_VOLUME - switch to selected volume'
;  618          GLOBAL ROUTINE SWITCH_VOLUME (RVN)=
;  619
;  620          !++
;  621          !
;  622          ! FUNCTIONAL DESCRIPTION:
;  623          !       This routine switches to a specified relative volume.
;  624          !
;  625          ! INPUT PARAMETERS:
;  626          !       RVN             - Relative volume number.
;  627          !
;  628          ! IMPLICIT INPUTS:
;  629          !       CURRENT_MTL     - Pointer to MTL for selected volume set.
;  630          !
;  631          ! OUTPUT PARAMETERS:
;  632          !       NONE
;  633          !
;  634          ! IMPLICIT OUTPUTS:
;  635          !       NONE
;  636          !
;  637          ! ROUTINE VALUE:
;  638          !       Channel number assigned to specified RVN.
;  639          !
;  640          ! SIDE EFFECTS:
;  641          !       NONE
;  642          !
;  643          !--
;  644
;  645          BEGIN
;  646          LOCAL
;  647                  STATUS,                         ! general status value
;  648                  XVCB:           REF BBLOCK,     ! VCB that will have channel deassigned
;  649                  VCB:            REF BBLOCK;     ! VCB being switched to
;  650
;  651
;  652          ! Locate VCB being switched to.
;  653          !
;  654          CURRENT_VCB = VCB = .CURRENT_MTL[MTL_VCB(.RVN-.CURRENT_MTL[MTL_RVN_BASE])];
;  655
;  656
;  657          IF .VCB[VCB_CHAN] NEQ 0
;  658          THEN
;  659              BEGIN
;  660
;  661              ! Volume already has channel assigned.  Make sure it is first (implemented
;  662              ! as, not second) in the LRU list.
;  663              !
;  664              IF .CURRENT_MTL[MTL_CHAN_2] EQL .VCB
;  665              THEN
;  666                  BEGIN
;  667                  CURRENT_MTL[MTL_CHAN_2] = .CURRENT_MTL[MTL_CHAN_1];
;  668                  CURRENT_MTL[MTL_CHAN_1] = .VCB;
;  669                  END;
;  670              END
;  671          ELSE
;  672              BEGIN
;  673
```

```
3       ! No channel is assigned.  Take the channel away from the second entry
3       ! in the LRU list. If it exists, wait for the I/O count to drop to zero
3       ! and then deassign the channel.
3       !
3       XVCB = .CURRENT_MTL[MTL_CHAN_2];
3       IF .XVCB NEQ 0
3       THEN
4           BEGIN
4           WHILE TRUE DO
5               BEGIN
5               $CLREF(EFN=31);
5               IF .XVCB[VCB_IOCOUNT] LEQ 0 THEN EXITLOOP;
5               $WAITFR(EFN=31);
4               END;
4           $DASSGN(CHAN=.XVCB[VCB_CHAN]);
4           XVCB[VCB_CHAN] = 0;
3           END;
3
3       STATUS = $ASSIGN(DEVNAM=VCB[VCB_DEVICE], CHAN=VCB[VCB_CHAN]);
3       IF NOT .STATUS
3       THEN
3           SIGNAL(
4               (IF .VCB[VCB_OUTPUT]
4                   THEN BACKUP$_OPENOUT + STS$K_SEVERE
3                   ELSE BACKUP$_OPENIN + STS$K_SEVERE),
3               1,
3               VCB[VCB_DEVICE],
3               .STATUS);
3       CURRENT_MTL[MTL_CHAN_2] = .CURRENT_MTL[MTL_CHAN_1];
3       CURRENT_MTL[MTL_CHAN_1] = .VCB;
2       END;
2
2
2 ! Return the channel number.
2 !
2 .VCB[VCB_CHAN]
1 END;


                                                        .EXTRN  SYS$CLREF, SYS$WAITFR
                                                        .EXTRN  SYS$DASSGN

                                  001C 00000            .ENTRY  SWITCH_VOLUME, Save R2,R3,R4                ; 2165
                 54 00000000'  EF   9E 00002            MOVAB   CURRENT_MTL, R4                             ;
                 50            64   D0 00009            MOVL    CURRENT_MTL, R0                             ; 2201
                 51       30   A0   9A 0000C            MOVZBL  48(R0), R1                                  ;
     51      04  AC            51   C3 00010            SUBL3   R1, RVN, R1                                 ;
                 53       34 A041   D0 00015            MOVL    52(R0)[R1], VCB                             ;
             04  A4            53   D0 0001A            MOVL    VCB, CURRENT_VCB                            ;
                          08   A3   B5 0001E            TSTW    8(VCB)                                      ; 2204
                               08   13 00021            BEQL    1$                                          ;
                 53       04   A0   D1 00023            CMPL    4(R0), VCB                                  ; 2211
                               6B   12 00027            BNEQ    9$                                          ;
                               62   11 00029            BRB     8$                                          ; 2214
                 52       04   A0   D0 0002B 1$:        MOVL    4(R0), XVCB                                 ; 2225
                               27   13 0002F            BEQL    4$                                          ; 2226
```

```
                                  1F  DD 00031 2$:    PUSHL   #31                                  ; 2231
        00000000G  00             01  FB 00033        CALLS   #1, SYS$CLREF                        ;
                          0A      A2  B5 0003A        TSTW    10(XVCB)                             ; 2232
                                  0B  15 0003D        BLEQ    3$                                   ;
                                  1F  DD 0003F        PUSHL   #31                                  ; 2233
        00000000G  00             01  FB 00041        CALLS   #1, SYS$WAITFR                       ;
                                  E7  11 00048        BRB     2$                                   ; 2229
                   7E      08     A2  3C 0004A 3$:    MOVZWL  8(XVCB), -(SP)                       ; 2235
        00000000G  00             01  FB 0004E        CALLS   #1, SYS$DASSGN                       ;
                          08      A2  B4 00055        CLRW    8(XVCB)                              ; 2236
                                  7E  7C 00058 4$:    CLRQ    -(SP)                                ; 2239
                          08      A3  9F 0005A        PUSHAB  8(VCB)                               ;
                          20      A3  9F 0005D        PUSHAB  32(VCB)                              ;
        00000000G  00             04  FB 00060        CALLS   #4, SYS$ASSIGN                       ;
                   20             50  E8 00067        BLBS    STATUS, 7$                           ; 2240
                                  50  DD 0006A        PUSHL   STATUS                               ; 2248
                          20      A3  9F 0006C        PUSHAB  32(VCB)                              ; 2247
                                  01  DD 0006F        PUSHL   #1                                   ;
                   08      07     A3  E9 00071        BLBC    7(VCB), 5$                           ; 2243
                      00000000G   8F  DD 00075        PUSHL   #BACKUP$_OPENOUT+4                   ; 2244
                                  06  11 0007B        BRB     6$                                   ;
                      00000000G   8F  DD 0007D 5$:    PUSHL   #BACKUP$_OPENIN+4                    ; 2245
        00000000G  00             04  FB 00083 6$:    CALLS   #4, LIB$SIGNAL                       ; 2247
                   50             64  D0 0008A 7$:    MOVL    CURRENT_MTL, R0                      ; 2249
              04   A0             60  D0 0008D 8$:    MOVL    (R0), 4(R0)                          ;
                   60             53  D0 00091        MOVL    VCB, (R0)                            ; 2250
                   50      08     A3  3C 00094 9$:    MOVZWL  8(VCB), R0                           ; 2257
                                      04 00098        RET                                          ;

; Routine Size:  153 bytes,    Routine Base:  CODE + 0141
```

```
%SBTTL 'VERIFY_HEADER - validate file header'
ROUTINE VERIFY_HEADER (HEADER,FILE_ID)=

!++
!
! FUNCTIONAL DESCRIPTION:
!       This routine determines if the block given it is a valid file header.
!
! INPUT PARAMETERS:
!       HEADER          - Pointer to header.
!       FILE_ID         - Purported file ID.
!
! IMPLICIT INPUTS:
!       CURRENT_MTL     - Pointer to MTL for selected volume set.
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       0 if invalid file header
!       1 if valid file header
!       2 if deleted file header
!
! SIDE EFFECTS:
!       NONE
!
!--

BEGIN
MAP
        HEADER:         REF BBLOCK,     ! file header arg
        FILE_ID:        REF BBLOCK;     ! file ID arg


! First check the structure level.
!
IF .HEADER[FH2$B_STRUCLEV] NEQ .CURRENT_MTL[MTL_STRUCLEV]
THEN
    RETURN 0;


IF .CURRENT_MTL[MTL_STRUCLEV] EQL 2
THEN
    BEGIN

    ! Check the area offsets and the retrieval pointer use counts for
    ! consistency.
    !
    IF
        .HEADER[FH2$B_IDOFFSET] LSSU $BYTEOFFSET (FH2$L_HIGHWATER)/2 OR
        .HEADER[FH2$B_MPOFFSET] LSSU .HEADER[FH2$B_IDOFFSET] OR
        .HEADER[FH2$B_ACOFFSET] LSSU .HEADER[FH2$B_MPOFFSET] OR
        .HEADER[FH2$B_RSOFFSET] LSSU .HEADER[FH2$B_ACOFFSET] OR
        .HEADER[FH2$B_MAP_INUSE] GTRU .HEADER[FH2$B_ACOFFSET] - .HEADER[FH2$B_MPOFFSET]
```

```
;  769          2315  3      THEN
;  770          2316  3          RETURN 0;
;  771          2317  3
;  772          2318  3
;  773          2319  3      ! At this point, we have verified that the block at least once was a
;  774          2320  3      ! valid file header.
;  775          2321  3      !
;  776          2322  3      ! Look at the file number in the header. If zero, this is a
;  777          2323  3      ! deleted header.
;  778          2324  3      !
;  779          2325  3      IF
;  780          2326  3          .HEADER[FH2$W_FID_NUM] EQL 0 AND
;  781          2327  3          .HEADER[FH2$B_FID_NMX] EQL 0
;  782          2328  3      THEN
;  783          2329  3          RETURN 2;
;  784          2330  3
;  785          2331  3
;  786          2332  3      ! Now compute the header checksum.
;  787          2333  3      !
;  788          2334  3      IF NOT CHECKSUM(.HEADER)
;  789          2335  3      THEN
;  790          2336  3          RETURN 2;
;  791          2337  3
;  792          2338  3
;  793          2339  3      ! Check file number and file sequence number.
;  794          2340  3      !
;  795          2341  3      IF
;  796          2342  3          .HEADER[FH2$W_FID_NUM] NEQ .FILE_ID[FID$W_NUM] OR
;  797          2343  3          .HEADER[FH2$B_FID_NMX] NEQ .FILE_ID[FID$B_NMX] OR
;  798          2344  3          .HEADER[FH2$W_FID_SEQ] NEQ .FILE_ID[FID$W_SEQ]
;  799          2345  3      THEN
;  800          2346  3          RETURN 2;
;  801          2347  3      END
;  802          2348  2 ELSE
;  803          2349  3      BEGIN
;  804          2350  3      LOCAL
;  805          2351  3          MAP_AREA:       REF BBLOCK;
;  806          2352  3
;  807          2353  3
;  808          2354  3      ! Now point to the map area and make sure that the extension
;  809          2355  3      ! RVN is zero.  Also check the retrieval pointer format data.
;  810          2356  3      !
;  811          2357  3      MAP_AREA = .HEADER + .HEADER[FH1$B_MPOFFSET]*2;
;  812          2358  3      IF
;  813          2359  3          .MAP_AREA[FM1$B_EX_RVN] NEQ 0 OR
;  814          2360  3          .MAP_AREA[FM1$B_COUNTSIZE] NEQ 1 OR
;  815          2361  3          .MAP_AREA[FM1$B_LBNSIZE] NEQ 3
;  816          2362  3      THEN
;  817          2363  3          RETURN 0;
;  818          2364  3
;  819          2365  3
;  820          2366  3      ! Check the retrieval pointer counts for consistency with the
;  821          2367  3      ! available space.
;  822          2368  3      !
;  823          2369  3      IF
;  824          2370  3          .MAP_AREA[FM1$B_INUSE] GTRU .MAP_AREA[FM1$B_AVAIL] OR
;  825          2371  3          .MAP_AREA[FM1$B_AVAIL] GTRU 255 - (.MAP_AREA + FM1$C_POINTERS - .HEADER) / 2
```

```
3       THEN
3           RETURN 0;
3
3
3       ! At this point, we have verified that the block at least once was a
3       ! valid file header.
3       !
3       ! Look at the file number in the header. If zero, this is a
3       ! deleted header.
3       !
3       IF .HEADER[FH1$W_FID_NUM] EQL 0
3       THEN
3           RETURN 2;
3
3
3       ! Now compute the header checksum.
3       !
3       IF NOT CHECKSUM(.HEADER)
3       THEN
3           RETURN 2;
3
3
3       ! Check file number and file sequence number.
3       !
3       IF
3           .HEADER[FH1$W_FID_NUM] NEQ .FILE_ID[FID$W_NUM] OR
3           .HEADER[FH1$W_FID_SEQ] NEQ .FILE_ID[FID$W_SEQ]
3       THEN
3           RETURN 2;
2       END;
2
2
2   ! Header is OK.
2   !
2   RETURN 1;
1   END;
```

```
                                  001C 00000 VERIFY_HEADER:
                                                        .WORD   Save R2,R3,R4                    ; 2259
            54 00000000G  00  9E 00002                  MOVAB   CHECKSUM, R4                     ;
            52        04  AC  D0 00009                  MOVL    HEADER, R2                       ; 2297
            50 00000000'  EF  D0 0000D                  MOVL    CURRENT_MTL, R0                  ;
      1E    A0        07  A2  91 00014                  CMPB    7(R2), 30(R0)                    ;
                          76  12 00019                  BNEQ    5$                               ;
            53        08  AC  D0 0001B                  MOVL    FILE_ID, R3                      ; 2342
            02        1E  A0  91 0001F                  CMPB    30(R0), #2                       ; 2302
                          55  12 00023                  BNEQ    4$                               ;
            26            62  91 00025                  CMPB    (R2), #38                        ; 2310
                          12  1F 00028                  BLSSU   1$                               ;
            62        01  A2  91 0002A                  CMPB    1(R2), (R2)                      ; 2311
                          0C  1F 0002E                  BLSSU   1$                               ;
      01    A2        02  A2  91 00030                  CMPB    2(R2), 1(R2)                     ; 2312
                          05  1F 00035                  BLSSU   1$                               ;
```

```
                    02   A2      03   A2  91 00037          CMPB    3(R2), 2(R2)                          ; 2313
                                      03  1E 0003C 1$:      BGEQU   2$                                    ;
                                    0092  31 0003E          BRW     9$                                    ;
                         51      02   A2  9A 00041 2$:      MOVZBL  2(R2), R1                             ; 2314
                         50      01   A2  9A 00045          MOVZBL  1(R2), R0                             ;
                         51           50  C2 00049          SUBL2   R0, R1                                ;
     51      3A   A2     08           00  ED 0004C          CMPZV   #0, #8, 58(R2), R1                    ;
                                      7F  1A 00052          BGTRU   9$                                    ;
                                 08   A2  B5 00054          TSTW    8(R2)                                 ; 2326
                                      05  12 00057          BNEQ    3$                                    ;
                                 0D   A2  95 00059          TSTB    13(R2)                                ; 2327
                                      6D  13 0005C          BEQL    7$                                    ;
                                      52  DD 0005E 3$:      PUSHL   R2                                    ; 2334
                         64           01  FB 00060          CALLS   #1, CHECKSUM                          ;
                         65           50  E9 00063          BLBC    R0, 7$                                ;
                         63      08   A2  B1 00066          CMPW    8(R2), (R3)                           ; 2342
                                      5F  12 0006A          BNEQ    7$                                    ;
                    05   A3      0D   A2  91 0006C          CMPB    13(R2), 5(R3)                         ; 2343
                                      58  12 00071          BNEQ    7$                                    ;
                    02   A3      0A   A2  B1 00073          CMPW    10(R2), 2(R3)                         ; 2344
                                      4F  11 00078          BRB     6$                                    ;
                         50      01   A2  9A 0007A 4$:      MOVZBL  1(R2), R0                             ; 2357
                         50         6240  3E 0007E          MOVAW   (R2)[R0], MAP_AREA                    ;
                                 01   A0  95 00082          TSTB    1(MAP_AREA)                           ; 2359
                                      4C  12 00085          BNEQ    9$                                    ;
                         01      06   A0  91 00087          CMPB    6(MAP_AREA), #1                       ; 2360
                                      46  12 0008B          BNEQ    9$                                    ;
                         03      07   A0  91 0008D          CMPB    7(MAP_AREA), #3                       ; 2361
                                      40  12 00091 5$:      BNEQ    9$                                    ;
                    09   A0      08   A0  91 00093          CMPB    8(MAP_AREA), 9(MAP_AREA)              ; 2370
                                      39  1A 00098          BGTRU   9$                                    ;
                 51      52           50  C3 0009A          SUBL3   MAP_AREA, R2, R1                      ; 2371
                         51           0A  C2 0009E          SUBL2   #10, R1                               ;
                         51           02  C6 000A1          DIVL2   #2, R1                                ;
                         51      00FF  C1  9E 000A4          MOVAB   255(R1), R1                           ;
     51      09   A0     08           00  ED 000A9          CMPZV   #0, #8, 9(MAP_AREA), R1               ;
                                      22  1A 000AF          BGTRU   9$                                    ;
                                 02   A2  B5 000B1          TSTW    2(R2)                                 ; 2382
                                      15  13 000B4          BEQL    7$                                    ;
                                      52  DD 000B6          PUSHL   R2                                    ; 2389
                         64           01  FB 000B8          CALLS   #1, CHECKSUM                          ;
                         0D           50  E9 000BB          BLBC    R0, 7$                                ;
                         63      02   A2  B1 000BE          CMPW    2(R2), (R3)                           ; 2397
                                      07  12 000C2          BNEQ    7$                                    ;
                    02   A3      04   A2  B1 000C4          CMPW    4(R2), 2(R3)                          ; 2398
                                      04  13 000C9 6$:      BEQL    8$                                    ;
                         50           02  D0 000CB 7$:      MOVL    #2, R0                                ; 2400
                                          04 000CE          RET                                           ;
                         50           01  D0 000CF 8$:      MOVL    #1, R0                                ; 2406
                                          04 000D2          RET                                           ;
                                      50  D4 000D3 9$:      CLRL    R0                                    ; 2407
                                          04 000D5          RET                                           ;

; Routine Size:  214 bytes,    Routine Base:  CODE + 01DA
```

```
1 %SBTTL 'READ_HEADER - read file header'
1 GLOBAL ROUTINE READ_HEADER (FILE_ID,BUFFER)=
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !       This routine reads one file header into the specified buffer.
1 !
1 ! INPUT PARAMETERS:
1 !       FILE_ID         - File ID of header to be read.
1 !       BUFFER          - Pointer to buffer.
1 !
1 ! IMPLICIT INPUTS:
1 !       CURRENT_MTL     - Pointer to MTL for selected volume set.
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       True if header successfully read, false otherwise.
1 !
1 ! SIDE EFFECTS:
1 !       Header read into buffer.
1 !
1 !--
1
2 BEGIN
2 MAP
2         FILE_ID:        REF BBLOCK,     ! Pointer to file ID
2         BUFFER:         REF BBLOCK;     ! Pointer to header
2 LOCAL
2         STATUS,                         ! Status variable
2         IOSB:           VECTOR[4,WORD], ! I/O status block
2         FILE_NUMBER,                    ! Clean file number
2         RVN,                            ! Clean RVN
2         VCB:            REF BBLOCK;     ! VCB for specified RVN
2
2
2 ! Get a clean file number and RVN and validity check.  If failure,
2 ! return failure.
2 !
2 FILE_NUMBER = .FILE_ID[FID$W_NUM];
2 FILE_NUMBER<16,8> = .FILE_ID[FID$B_NMX];
2 RVN = .FILE_ID[FID$B_RVN];
2 IF .RVN - .CURRENT_MTL[MTL_RVN_BASE] GEQU .CURRENT_MTL[MTL_SETCOUNT]
2 THEN RETURN SS$_DEVNOTMOUNT;
2 VCB = .CURRENT_MTL[MTL_VCB(.RVN-.CURRENT_MTL[MTL_RVN_BASE])];
2 IF .FILE_NUMBER GTRU .VCB[VCB_MAXFILIDX] THEN RETURN SS$_NOSUCHFILE;
2
2
2 ! Read the header.
2 !
2 CURRENT_WCB = .VCB[VCB_INDEXF];
2 STATUS = R_W_VIRTUAL(
```

```
2     0,
2     0,
2     IO$_READVBLK,
2     IOSB,
2     0,
2     0,
2     .BUFFER,
2     512,
2     .FILE_NUMBER + .VCB[VCB_HDR_OFFSET]);
2 $WAITFR(EFN=0);
2 IF .STATUS THEN STATUS = .IOSB[0];
2
2
2 ! If failure, return failure.
2 !
2 IF NOT .STATUS
2 THEN
2     RETURN .STATUS;
2
2
2 ! Verify the header that was read.
2 !
2 IF NOT VERIFY_HEADER(.BUFFER, .FILE_ID)
2 THEN
2     RETURN SS$_NOSUCHFILE;
2
2
2 ! Successful completion.
2 !
2 SS$_NORMAL
1 END;
```

```
                                  001C 00000        .ENTRY  READ_HEADER, Save R2,R3,R4                  ; 2409
                  5E            08  C2 00002        SUBL2   #8, SP                                      ;
                  53        04  AC  D0 00005        MOVL    FILE_ID, R3                                 ; 2452
                  52            63  3C 00009        MOVZWL  (R3), FILE_NUMBER                           ;
52        08      10        05  A3  F0 0000C        INSV    5(R3), #16, #8, FILE_NUMBER                 ; 2453
                  50        04  A3  9A 00012        MOVZBL  4(R3), RVN                                  ; 2454
                  51 00000000'  EF  D0 00016        MOVL    CURRENT_MTL, R1                             ; 2455
                  54        30  A1  9A 0001D        MOVZBL  48(R1), R4                                  ;
                  50            54  C2 00021        SUBL2   R4, R0                                      ;
50    1F  A1      08            00  ED 00024        CMPZV   #0, #8, 31(R1), R0                          ;
                                05  1A 0002A        BGTRU   1$                                          ;
                  50        7C  8F  9A 0002C        MOVZBL  #124, R0                                    ; 2456
                                    04 00030        RET                                                 ;
                  50        34 A140 D0 00031 1$:    MOVL    52(R1)[R0], VCB                             ; 2457
            1C    A0            52  D1 00036        CMPL    FILE_NUMBER, 28(VCB)                        ; 2458
                                4A  1A 0003A        BGTRU   4$                                          ;
      00000000'   EF            60  D0 0003C        MOVL    (VCB), CURRENT_WCB                          ; 2463
                  50        1A  A0  3C 00043        MOVZWL  26(VCB), R0                                 ; 2473
                            6042  9F 00047        PUSHAB  (R0)[FILE_NUMBER]                           ;
                  7E      0200  8F  3C 0004A        MOVZWL  #512, -(SP)                                 ; 2464
                            08  AC  DD 0004F        PUSHL   BUFFER                                      ; 2471
```

```
                                 7E  7C 00052          CLRQ    -(SP)                          ; 2464
                          14     AE  9F 00054          PUSHAB  IOSB                           ;
                                 31  DD 00057          PUSHL   #49                            ;
                                 7E  7C 00059          CLRQ    -(SP)                          ;
            0000V  CF            09  FB 0005B          CALLS   #9, R_W_VIRTUAL                ;
                   52            50  D0 00060          MOVL    R0, STATUS                     ;
                                 7E  D4 00063          CLRL    -(SP)                          ; 2474
        00000000G  00            01  FB 00065          CALLS   #1, SYS$WAITFR                 ;
                   06            52  E9 0006C          BLBC    STATUS, 2$                     ; 2475
                   52            6E  3C 0006F          MOVZWL  IOSB, STATUS                   ;
                   04            52  E8 00072          BLBS    STATUS, 3$                     ; 2480
                   50            52  D0 00075 2$:      MOVL    STATUS, R0                     ; 2482
                                     04 00078          RET                                    ;
                                 53  DD 00079 3$:      PUSHL   R3                             ; 2487
                          08     AC  DD 0007B          PUSHL   BUFFER                         ;
            FEA7   CF            02  FB 0007E          CALLS   #2, VERIFY_HEADER              ;
                   06            50  E8 00083          BLBS    R0, 5$                         ;
                   50     0910   8F  3C 00086 4$:      MOVZWL  #2320, R0                      ; 2489
                                     04 0008B          RET                                    ;
                   50            01  D0 0008C 5$:      MOVL    #1, R0                         ; 2495
                                     04 0008F          RET                                    ;

; Routine Size:  144 bytes,    Routine Base:  CODE + 02B0
```

```
%SBTTL 'WRITE_HEADER - write file header'
ROUTINE WRITE_HEADER (FILE_ID,BUFFER)=

!++
!
! FUNCTIONAL DESCRIPTION:
!       This routine writes one file header from the specified buffer.
!
! INPUT PARAMETERS:
!       FILE_ID         - File ID of header to be written.
!       BUFFER          - Pointer to buffer.
!
! IMPLICIT INPUTS:
!       CURRENT_MTL     - Pointer to MTL for selected volume set.
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       Completion status.
!
! SIDE EFFECTS:
!       Header written from buffer.
!
!--

BEGIN
MAP
        FILE_ID:        REF BBLOCK,     ! Pointer to file ID
        BUFFER:         REF BBLOCK;     ! Pointer to header
LOCAL
        STATUS,                         ! Status variable
        IOSB:           VECTOR[4,WORD], ! I/O status block
        FILE_NUMBER,                    ! Clean file number
        RVN,                            ! Clean RVN
        VCB:            REF BBLOCK;     ! VCB for specified RVN


! Get a clean file number and RVN and validity check.  If failure,
! do nothing.
!
FILE_NUMBER = .FILE_ID[FID$W_NUM];
FILE_NUMBER<16,8> = .FILE_ID[FID$B_NMX];
RVN = .FILE_ID[FID$B_RVN];
IF .RVN - .CURRENT_MTL[MTL_RVN_BASE] GEQU .CURRENT_MTL[MTL_SETCOUNT]
THEN RETURN SS$_DEVNOTMOUNT;
VCB = .CURRENT_MTL[MTL_VCB(.RVN-.CURRENT_MTL[MTL_RVN_BASE])];
IF .FILE_NUMBER GTRU .VCB[VCB_MAXFILIDX] THEN RETURN SS$_NOSUCHFILE;


! Recompute the checksum.
!
CHECKSUM(.BUFFER);
```

```
; 1009          2553  2
; 1010          2554  2 ! Write the block.
; 1011          2555  2 !
; 1012          2556  2 CURRENT_WCB = .VCB[VCB_INDEXF];
; 1013          2557  2 STATUS = R_W_VIRTUAL(
; 1014          2558  2     0,
; 1015          2559  2     0,
; 1016          2560  2     IO$_WRITEVBLK,
; 1017          2561  2     IOSB,
; 1018          2562  2     0,
; 1019          2563  2     0,
; 1020          2564  2     .BUFFER,
; 1021          2565  2     512,
; 1022          2566  2     .FILE_NUMBER + .VCB[VCB_HDR_OFFSET]);
; 1023          2567  2 $WAITFR(EFN=0);
; 1024          2568  2 IF .STATUS THEN STATUS = .IOSB[0];
; 1025          2569  2
; 1026          2570  2
; 1027          2571  2 ! If failure, return failure.
; 1028          2572  2 !
; 1029          2573  2 IF NOT .STATUS
; 1030          2574  2 THEN
; 1031          2575  2     RETURN .STATUS;
; 1032          2576  2
; 1033          2577  2
; 1034          2578  2 ! Set the index file bitmap bit.
; 1035          2579  2 !
; 1036          2580  2 IF .VCB[VCB_IMAP] NEQ 0
; 1037          2581  2 THEN
; 1038          2582  2     IF
; 1039          2583  3         (IF .BUFFER[FH2$B_STRUCLEV] EQL 2
; 1040          2584  3             THEN .BUFFER[FH2$W_FID_NUM] EQL 0
; 1041          2585  3             ELSE .BUFFER[FH1$W_FID_NUM] EQL 0)
; 1042          2586  2     THEN
; 1043          2587  2         BITVECTOR[.VCB[VCB_IMAP], .FILE_NUMBER-1] = FALSE
; 1044          2588  2     ELSE
; 1045          2589  2         BITVECTOR[.VCB[VCB_IMAP], .FILE_NUMBER-1] = TRUE;
; 1046          2590  2
; 1047          2591  2
; 1048          2592  2 ! If this is the index file header, also rewrite
; 1049          2593  2 ! the alternate header.
; 1050          2594  2 !
; 1051          2595  2 IF .FILE_NUMBER EQL FID$C_INDEXF AND .VCB[VCB_ODS_2]
; 1052          2596  2 THEN
; 1053          2597  3     BEGIN
; 1054          2598  3     STATUS = R_W_VIRTUAL(
; 1055          2599  3         0,
; 1056          2600  3         0,
; 1057          2601  3         IO$_WRITEVBLK,
; 1058          2602  3         IOSB,
; 1059          2603  3         0,
; 1060          2604  3         0,
; 1061          2605  3         .BUFFER,
; 1062          2606  3         512,
; 1063          2607  3         .VCB[VCB_CLUSTER] * 3 + 1);
; 1064          2608  3     $WAITFR(EFN=0);
; 1065          2609  3     IF .STATUS THEN STATUS = .IOSB[0];
```

```
; 1066        2610  3
; 1067        2611  3
; 1068        2612  3      ! If failure, return failure.
; 1069        2613  3      !
; 1070        2614  3      IF NOT .STATUS
; 1071        2615  3      THEN
; 1072        2616  3          RETURN .STATUS;
; 1073        2617  2      END;
; 1074        2618  2
; 1075        2619  2
; 1076        2620  2 ! Normal completion.
; 1077        2621  2 !
; 1078        2622  2 SS$_NORMAL
; 1079        2623  1 END;


                                                  007C 00000 WRITE_HEADER:
                                                                  .WORD   Save R2,R3,R4,R5,R6                          ; 2497
                                 56 00000000G  00  9E 00002       MOVAB   SYS$WAITFR, R6                               ;
                                 5E            08  C2 00009       SUBL2   #8, SP                                       ;
                                 50       04   AC  D0 0000C       MOVL    FILE_ID, R0                                  ; 2540
                                 53            60  3C 00010       MOVZWL  (R0), FILE_NUMBER                            ;
        53          08           10       05   A0  F0 00013       INSV    5(R0), #16, #8, FILE_NUMBER                  ; 2541
                                 50       04   A0  9A 00019       MOVZBL  4(R0), RVN                                   ; 2542
                                 51 00000000'  EF  D0 0001D       MOVL    CURRENT_MTL, R1                              ; 2543
                                 52       30   A1  9A 00024       MOVZBL  48(R1), R2                                   ;
                                 50            52  C2 00028       SUBL2   R2, R0                                       ;
        50      1F  A1           08            00  ED 0002B       CMPZV   #0, #8, 31(R1), R0                           ;
                                                05  1A 00031       BGTRU   1$                                           ;
                                 50       7C   8F  9A 00033       MOVZBL  #124, R0                                     ; 2544
                                                    04 00037       RET                                                  ;
                                 52       34 A140  D0 00038 1$:   MOVL    52(R1)[R0], VCB                              ; 2545
                          1C     A2            53  D1 0003D       CMPL    FILE_NUMBER, 28(VCB)                         ; 2546
                                                06  1B 00041       BLEQU   2$                                           ;
                                 50     0910   8F  3C 00043       MOVZWL  #2320, R0                                    ;
                                                    04 00048       RET                                                  ;
                                 54       08   AC  D0 00049 2$:   MOVL    BUFFER, R4                                   ; 2551
                                                54  DD 0004D       PUSHL   R4                                           ;
                     00000000G   00            01  FB 0004F       CALLS   #1, CHECKSUM                                 ;
                     00000000'   EF            62  D0 00056       MOVL    (VCB), CURRENT_WCB                           ; 2556
                                 50       1A   A2  3C 0005D       MOVZWL  26(VCB), R0                                  ; 2566
                                             6043  9F 00061       PUSHAB  (R0)[FILE_NUMBER]                            ;
                                 7E     0200   8F  3C 00064       MOVZWL  #512, -(SP)                                  ; 2557
                                                54  DD 00069       PUSHL   R4                                           ; 2564
                                                7E  7C 0006B       CLRQ    -(SP)                                        ; 2557
                                          14   AE  9F 0006D       PUSHAB  IOSB                                         ;
                                                30  DD 00070       PUSHL   #48                                          ;
                                                7E  7C 00072       CLRQ    -(SP)                                        ;
                          0000V  CF            09  FB 00074       CALLS   #9, R_W_VIRTUAL                              ;
                                 55            50  D0 00079       MOVL    R0, STATUS                                   ;
                                                7E  D4 0007C       CLRL    -(SP)                                        ; 2567
                                 66            01  FB 0007E       CALLS   #1, SYS$WAITFR                               ;
                                 64            55  E9 00081       BLBC    STATUS, 7$                                   ; 2568
                                 55            6E  3C 00084       MOVZWL  IOSB, STATUS                                 ;
```

```
                    5E          55  E9 00087        BLBC    STATUS, 7$                      ; 2573
                    50     10   A2  D0 0008A        MOVL    16(VCB), R0                     ; 2580
                                1E  13 0008E        BEQL    6$                              ;
                    51     FF   A3  9E 00090        MOVAB   -1(R3), R1                      ; 2587
                    02     07   A4  91 00094        CMPB    7(R4), #2                       ; 2583
                                05  12 00098        BNEQ    3$                              ;
                           08   A4  B5 0009A        TSTW    8(R4)                           ; 2584
                                03  11 0009D        BRB     4$                              ;
                           02   A4  B5 0009F 3$:    TSTW    2(R4)                           ; 2585
                                06  12 000A2 4$:    BNEQ    5$                              ;
          06        60          51  E5 000A4        BBCC    R1, (R0), 6$                    ; 2587
                                04  11 000A8        BRB     6$                              ;
          00        60          51  E2 000AA 5$:    BBSS    R1, (R0), 6$                    ; 2589
                    01          53  D1 000AE 6$:    CMPL    FILE_NUMBER, #1                 ; 2595
                                39  12 000B1        BNEQ    8$                              ;
          34     07 A2          01  E1 000B3        BBC     #1, 7(VCB), 8$                  ;
                    52     04   A2  3C 000B8        MOVZWL  4(VCB), R2                      ; 2607
                    52          03  C4 000BC        MULL2   #3, R2                          ;
                           01   A2  9F 000BF        PUSHAB  1(R2)                           ;
                    7E   0200   8F  3C 000C2        MOVZWL  #512, -(SP)                     ; 2598
                                54  DD 000C7        PUSHL   R4                              ; 2605
                                7E  7C 000C9        CLRQ    -(SP)                           ; 2598
                           14   AE  9F 000CB        PUSHAB  IOSB                            ;
                                30  DD 000CE        PUSHL   #48                             ;
                                7E  7C 000D0        CLRQ    -(SP)                           ;
                0000V CF        09  FB 000D2        CALLS   #9, R_W_VIRTUAL                 ;
                    55          50  D0 000D7        MOVL    R0, STATUS                      ;
                                7E  D4 000DA        CLRL    -(SP)                           ; 2608
                    66          01  FB 000DC        CALLS   #1, SYS$WAITFR                  ;
                    06          55  E9 000DF        BLBC    STATUS, 7$                      ; 2609
                    55          6E  3C 000E2        MOVZWL  IOSB, STATUS                    ;
                    04          55  E8 000E5        BLBS    STATUS, 8$                      ; 2614
                    50          55  D0 000E8 7$:    MOVL    STATUS, R0                      ; 2616
                                    04 000EB        RET                                     ;
                    50          01  D0 000EC 8$:    MOVL    #1, R0                          ; 2623
                                    04 000EF        RET                                     ;

; Routine Size:  240 bytes,    Routine Base:  CODE + 0340
```

```
; 1081          2624  1 %SBTTL 'CREATE_DELHDR - format deleted header'
; 1082          2625  1 ROUTINE CREATE_DELHDR (FILE_ID,HEADER): NOVALUE=
; 1083          2626  1
; 1084          2627  1 !++
; 1085          2628  1 !
; 1086          2629  1 ! FUNCTIONAL DESCRIPTION:
; 1087          2630  1 !       This routine generates a deleted file header.
; 1088          2631  1 !
; 1089          2632  1 ! INPUT PARAMETERS:
; 1090          2633  1 !       FILE_ID         - File ID of the header.
; 1091          2634  1 !       HEADER          - Pointer to header buffer.
; 1092          2635  1 !
; 1093          2636  1 ! IMPLICIT INPUTS:
; 1094          2637  1 !       NONE
; 1095          2638  1 !
; 1096          2639  1 ! OUTPUT PARAMETERS:
; 1097          2640  1 !       NONE
; 1098          2641  1 !
; 1099          2642  1 ! IMPLICIT OUTPUTS:
; 1100          2643  1 !       Header buffer contains deleted header.
; 1101          2644  1 !
; 1102          2645  1 ! ROUTINE VALUE:
; 1103          2646  1 !       NONE
; 1104          2647  1 !
; 1105          2648  1 ! SIDE EFFECTS:
; 1106          2649  1 !       NONE
; 1107          2650  1 !
; 1108          2651  1 !--
; 1109          2652  1
; 1110          2653  2 BEGIN
; 1111          2654  2 MAP
; 1112          2655  2         FILE_ID:        REF BBLOCK,     ! Pointer to file ID
; 1113          2656  2         HEADER:         REF BBLOCK;     ! Pointer to header buffer
; 1114          2657  2
; 1115          2658  2
; 1116          2659  2 CH$FILL(0, 512, .HEADER);
; 1117          2660  2 IF .CURRENT_MTL[MTL_STRUCLEV] EQL 2
; 1118          2661  2 THEN
; 1119          2662  3     BEGIN
; 1120          2663  3     HEADER[FH2$B_IDOFFSET] = FH2$C_LENGTH / 2;
; 1121          2664  3     HEADER[FH2$B_MPOFFSET] = (FH2$C_LENGTH + FI2$C_LENGTH) / 2;
; 1122          2665  3     HEADER[FH2$B_ACOFFSET] = $BYTEOFFSET(FH2$W_CHECKSUM) / 2;
; 1123          2666  3     HEADER[FH2$B_RSOFFSET] = $BYTEOFFSET(FH2$W_CHECKSUM) / 2;
; 1124          2667  3     HEADER[FH2$B_STRUCVER] = 1;
; 1125          2668  3     HEADER[FH2$B_STRUCLEV] = 2;
; 1126          2669  3     HEADER[FH2$W_FID_SEQ] = .FILE_ID[FID$W_SEQ];
; 1127          2670  3     CH$COPY(
; 1128          2671  3         2, UPLIT BYTE ('.;'),
; 1129          2672  3         %C' ',
; 1130          2673  3         FI2$S_FILENAME, BBLOCK[.HEADER + FH2$C_LENGTH, FI2$T_FILENAME]);
; 1131          2674  3     CH$FILL (' ', FI2$S_FILENAMEXT,
; 1132          2675  3             BBLOCK[.HEADER + FH2$C_LENGTH, FI2$T_FILENAMEXT]);
; 1133          2676  3     END
; 1134          2677  2 ELSE
; 1135          2678  3     BEGIN
; 1136          2679  3     HEADER[FH1$B_IDOFFSET] = FH1$C_LENGTH / 2;
; 1137          2680  3     HEADER[FH1$B_MPOFFSET] = (FH1$C_LENGTH + FI1$C_LENGTH) / 2;
```

```
; 1138        2681  3     HEADER[FH1$W_FID_SEQ] = .FILE_ID[FID$W_SEQ];
; 1139        2682  3     HEADER[FH1$W_STRUCLEV] = FH1$C_LEVEL1;
; 1140        2683  3     BBLOCK[.HEADER + FH1$C_LENGTH + FI1$C_LENGTH, FM1$B_COUNTSIZE] = 1;
; 1141        2684  3     BBLOCK[.HEADER + FH1$C_LENGTH + FI1$C_LENGTH, FM1$B_LBNSIZE] = 3;
; 1142        2685  3     BBLOCK[.HEADER + FH1$C_LENGTH + FI1$C_LENGTH, FM1$B_AVAIL] =
; 1143        2686  3         (512-2-FH1$C_LENGTH-FI1$C_LENGTH-FM1$C_LENGTH)/2;
; 1144        2687  2     END;
; 1145        2688  2 CHECKSUM(.HEADER);
; 1146        2689  1 END;


                                                  3B  2E  00430 P.AAA:  .ASCII  \.;\                                  ;


                                                     007C 00000 CREATE_DELHDR:
                                                                        .WORD   Save R2,R3,R4,R5,R6                      ; 2625
                                  56        08   AC  D0 00002          MOVL    HEADER, R6                               ; 2659
   0200   8F          00          6E             00  2C 00006          MOVC5   #0, (SP), #0, #512, (R6)                 ;
                                                  66     0000D                                                           ;
                                  51        04   AC  D0 0000E          MOVL    FILE_ID, R1                              ; 2669
                                  50 00000000'   EF  D0 00012          MOVL    CURRENT_MTL, R0                          ; 2660
                                  02        1E   A0  91 00019          CMPB    30(R0), #2                               ;
                                                  26  12 0001D          BNEQ    1$                                       ;
                                  66 FFFF6428    8F  D0 0001F          MOVL    #-39896, (R6)                            ; 2663
                            06    A6      0201   8F  B0 00026          MOVW    #513, 6(R6)                              ; 2667
                            0A    A6        02   A1  B0 0002C          MOVW    2(R1), 10(R6)                            ; 2669
         14          20     C9    AF             02  2C 00031          MOVC5   #2, P.AAA, #32, #20, 80(R6)              ; 2673
                                            50   A6     00037                                                           ;
   0042   8F          20          6E             00  2C 00039          MOVC5   #0, (SP), #32, #66, 134(R6)              ; 2675
                                          0086   C6     00040                                                           ;
                                                  1A  11 00043          BRB     2$                                       ; 2660
                                  66      2E17   8F  B0 00045 1$:      MOVW    #11799, (R6)                             ; 2679
                            04    A6        02   A1  B0 0004A          MOVW    2(R1), 4(R6)                             ; 2681
                            06    A6      0101   8F  B0 0004F          MOVW    #257, 6(R6)                              ; 2682
                            62    A6      0301   8F  B0 00055          MOVW    #769, 98(R6)                             ; 2683
                            65    A6             34  8E 0005B          MNEGB   #52, 101(R6)                             ; 2686
                                                  56  DD 0005F 2$:      PUSHL   R6                                       ; 2688
                      00000000G   00             01  FB 00061          CALLS   #1, CHECKSUM                             ;
                                                     04 00068          RET                                              ; 2689

; Routine Size:  105 bytes,    Routine Base:  CODE + 0432
```

```
1 %SBTTL 'TAKE_BLOCKS - remove blocks from free list'
1 ROUTINE TAKE_BLOCKS (ACB,COUNT,LBN): NOVALUE=
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !       This routine modifies the free blocks list.
1 !
1 ! INPUT PARAMETERS:
1 !       ACB             - Pointer to allocation control block.
1 !       COUNT           - Count of blocks to allocate.
1 !       LBN             - Logical block number of blocks to allocate.
1 !
1 ! IMPLICIT INPUTS:
1 !       NONE
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       NONE
1 !
1 ! SIDE EFFECTS:
1 !       Allocation list modified.
1 !
1 !--
1
2 BEGIN
2 MAP
2         ACB:            REF BBLOCK;             ! Pointer to allocation block
2
2
2 IF .LBN EQL .ACB[ACB_LBN]
2 THEN
3     BEGIN
3     !
3     ! Allocation from beginning of free extent.
3     ! If the entire extent is allocated, free the block.
3     !
3     ACB[ACB_LBN] = .ACB[ACB_LBN] + .COUNT;
3     ACB[ACB_COUNT] = .ACB[ACB_COUNT] - .COUNT;
3     IF .ACB[ACB_COUNT] EQL 0
3     THEN
4         BEGIN
4         LOCAL
4             DUMMY;                          ! Output for REMQUE
4
4         REMQUE(.ACB, DUMMY);
4         FREE_VM(ACB_S_ENTRY, .ACB);
3         END;
3     END
2 ELSE IF .ACB[ACB_LBN] + .ACB[ACB_COUNT] - .COUNT EQL .LBN
2 THEN
3     BEGIN
```

```
; 1205   2747  3      !
; 1206   2748  3      ! Allocation from end of free extent.
; 1207   2749  3      !
; 1208   2750  3      ACB[ACB_COUNT] = .ACB[ACB_COUNT] - .COUNT;
; 1209   2751  3      END
; 1210   2752  2 ELSE
; 1211   2753  3      BEGIN
; 1212   2754  3      !
; 1213   2755  3      ! Allocation from middle of free extent.
; 1214   2756  3      ! Generate a new block.
; 1215   2757  3      !
; 1216   2758  3      LOCAL
; 1217   2759  3          NEW:    REF BBLOCK;     ! Pointer to new ACB
; 1218   2760  3
; 1219   2761  3      NEW = GET_VM(ACB_S_ENTRY);
; 1220   2762  3      INSQUE(.NEW, .ACB);
; 1221   2763  3      NEW[ACB_LBN] = .LBN + .COUNT;
; 1222   2764  3      NEW[ACB_COUNT] = .ACB[ACB_LBN] + .ACB[ACB_COUNT] - .NEW[ACB_LBN];
; 1223   2765  3      ACB[ACB_COUNT] = .LBN - .ACB[ACB_LBN];
; 1224   2766  2      END;
; 1225   2767  1 END;


                                    0004 00000 TAKE_BLOCKS:
                                                       .WORD   Save R2                          ; 2691
                     50     04  AC  D0 00002           MOVL    ACB, R0                          ; 2733
                     51     08  A0  9E 00006           MOVAB   8(R0), R1                        ;
                     50     04  AC  D0 0000A           MOVL    ACB, R0                          ; 2725
                 0C  A0     0C  AC  D1 0000E           CMPL    LBN, 12(R0)                      ;
                                    1C  12 00013        BNEQ    1$                               ;
                 0C  A0     08  AC  C0 00015           ADDL2   COUNT, 12(R0)                    ; 2732
                     61     08  AC  C2 0001A           SUBL2   COUNT, (R1)                      ; 2733
                                    50  12 0001E        BNEQ    3$                               ; 2734
                     50     04  BC  0F 00020           REMQUE  @ACB, DUMMY                      ; 2740
                            04  AC  DD 00024           PUSHL   ACB                              ; 2741
                                    10  DD 00027        PUSHL   #16                              ;
         00000000G   00         02  FB 00029           CALLS   #2, FREE_VM                      ;
                                    04  00030           RET                                      ; 2725
     50          0C  A0         61  C1 00031 1$:       ADDL3   (R1), 12(R0), R0                 ; 2744
                     50     08  AC  C2 00036           SUBL2   COUNT, R0                        ;
                 0C  AC         50  D1 0003A           CMPL    R0, LBN                          ;
                                    05  12 0003E        BNEQ    2$                               ;
                     61     08  AC  C2 00040           SUBL2   COUNT, (R1)                      ; 2750
                                    04  00044           RET                                      ; 2744
                                    10  DD 00045 2$:    PUSHL   #16                              ; 2761
         00000000G   00         01  FB 00047           CALLS   #1, GET_VM                       ;
                 04  BC         60  0E 0004E           INSQUE  (NEW), @ACB                      ; 2762
 0C  A0          0C  AC     08  AC  C1 00052           ADDL3   COUNT, LBN, 12(NEW)              ; 2763
                     51     04  AC  D0 00059           MOVL    ACB, R1                          ; 2764
     52          0C  A1     08  A1  C1 0005D           ADDL3   8(R1), 12(R1), R2                ;
 08  A0              52     0C  A0  C3 00063           SUBL3   12(NEW), R2, 8(NEW)              ;
 08  A1          0C  AC     0C  A1  C3 00069           SUBL3   12(R1), LBN, 8(R1)               ; 2765
                                    04  00070 3$:       RET                                      ; 2767
```

; Routine Size: 113 bytes, Routine Base: CODE + 049B

```
; 1227          1 %SBTTL 'STA_ALLOC_LBN - allocate specified LBN'
; 1228          1 GLOBAL ROUTINE STA_ALLOC_LBN (COUNT,LBN)=
; 1229          1
; 1230          1 !++
; 1231          1 !
; 1232          1 ! FUNCTIONAL DESCRIPTION:
; 1233          1 !       This routine attempts to allocate an extent at a specific LBN.
; 1234          1 !       No partial allocation is permitted.
; 1235          1 !
; 1236          1 ! INPUT PARAMETERS:
; 1237          1 !       COUNT           - Block count
; 1238          1 !       LBN             - Logical block number
; 1239          1 !
; 1240          1 ! IMPLICIT INPUTS:
; 1241          1 !       CURRENT_VCB
; 1242          1 !
; 1243          1 ! OUTPUT PARAMETERS:
; 1244          1 !       NONE
; 1245          1 !
; 1246          1 ! IMPLICIT OUTPUTS:
; 1247          1 !       NONE
; 1248          1 !
; 1249          1 ! ROUTINE VALUE:
; 1250          1 !       True if the allocation was made, false otherwise.
; 1251          1 !
; 1252          1 ! SIDE EFFECTS:
; 1253          1 !       Allocation list may be modified.
; 1254          1 !
; 1255          1 !--
; 1256          1
; 1257          2 BEGIN
; 1258          2 LOCAL
; 1259          2         ACB:            REF BBLOCK;             ! Pointer to ACB
; 1260          2
; 1261          2
; 1262          2 ACB = .CURRENT_VCB[VCB_ACB_FLINK];
; 1263          2 WHILE .ACB NEQ CURRENT_VCB[VCB_ACB_FLINK] DO
; 1264          3     BEGIN
; 1265          3
; 1266          3     ! If this entry covers the requested extent, allocate it.
; 1267          3     !
; 1268          3     IF
; 1269          3         .LBN GEQU .ACB[ACB_LBN] AND
; 1270          3         .LBN + .COUNT LEQU .ACB[ACB_LBN] + .ACB[ACB_COUNT]
; 1271          3     THEN
; 1272          4         BEGIN
; 1273          4         TAKE_BLOCKS(.ACB, .COUNT, .LBN);
; 1274          4         RETURN TRUE;
; 1275          3         END;
; 1276          3
; 1277          3
; 1278          3     ! If this entry follows the requested extent, exit with failure.
; 1279          3     !
; 1280          3     IF .LBN LSSU .ACB[ACB_LBN]
; 1281          3     THEN
; 1282          3         EXITLOOP;
; 1283          3
```

```
; 1284        2825  3
; 1285        2826  3      ACB = .ACB[ACB_FLINK];
; 1286        2827  2      END;
; 1287        2828  2
; 1288        2829  2
; 1289        2830  2 FALSE
; 1290        2831  1 END;


                                        000C 00000          .ENTRY  STA_ALLOC_LBN, Save R2,R3                  ; 2769
                        53 00000000'  EF   9E 00002          MOVAB   CURRENT_VCB, R3                            ;
                        50            63   D0 00009          MOVL    CURRENT_VCB, R0                            ; 2803
                        52        28  A0   D0 0000C          MOVL    40(R0), ACB                                ;
          50            63            28   C1 00010 1$:      ADDL3   #40, CURRENT_VCB, R0                       ; 2804
                        50            52   D1 00014          CMPL    ACB, R0                                    ;
                                      33   13 00017          BEQL    3$                                         ;
                  0C    A2        08  AC   D1 00019          CMPL    LBN, 12(ACB)                               ; 2810
                                      20   1F 0001E          BLSSU   2$                                         ;
          51      08    AC        04  AC   C1 00020          ADDL3   COUNT, LBN, R1                             ; 2811
          50      0C    A2        08  A2   C1 00026          ADDL3   8(ACB), 12(ACB), R0                        ;
                        50            51   D1 0002C          CMPL    R1, R0                                     ;
                                      0F   1A 0002F          BGTRU   2$                                         ;
                        7E        04  AC   7D 00031          MOVQ    COUNT, -(SP)                               ; 2814
                                      52   DD 00035          PUSHL   ACB                                        ;
                FF53    CF            03   FB 00037          CALLS   #3, TAKE_BLOCKS                            ;
                        50            01   D0 0003C          MOVL    #1, R0                                     ; 2815
                                          04 0003F          RET                                                ;
                  0C    A2        08  AC   D1 00040 2$:      CMPL    LBN, 12(ACB)                               ; 2821
                                      05   1F 00045          BLSSU   3$                                         ;
                        52            62   D0 00047          MOVL    (ACB), ACB                                 ; 2826
                                      C4   11 0004A          BRB     1$                                         ; 2804
                                      50   D4 0004C 3$:      CLRL    R0                                         ; 2831
                                          04 0004E          RET                                                ;

; Routine Size:  79 bytes,    Routine Base:  CODE + 050C
```

```
; 1292   2832  1 %SBTTL 'STA_ALLOC_BEST - allocate blocks best fit'
; 1293   2833  1 ROUTINE STA_ALLOC_BEST (RCOUNT,ACOUNT,LBN)=
; 1294   2834  1
; 1295   2835  1 !++
; 1296   2836  1 !
; 1297   2837  1 ! FUNCTIONAL DESCRIPTION:
; 1298   2838  1 !       This routine attempts a best fit allocation of an extent.
; 1299   2839  1 !       Partial allocations are allowed.
; 1300   2840  1 !
; 1301   2841  1 ! INPUT PARAMETERS:
; 1302   2842  1 !       RCOUNT          - Requested block count.
; 1303   2843  1 !       ACOUNT          - Pointer to where actual block count is stored.
; 1304   2844  1 !       LBN             - Pointer to where logical block number is stored.
; 1305   2845  1 !
; 1306   2846  1 ! IMPLICIT INPUTS:
; 1307   2847  1 !       CURRENT_VCB
; 1308   2848  1 !
; 1309   2849  1 ! OUTPUT PARAMETERS:
; 1310   2850  1 !       NONE
; 1311   2851  1 !
; 1312   2852  1 ! IMPLICIT OUTPUTS:
; 1313   2853  1 !       NONE
; 1314   2854  1 !
; 1315   2855  1 ! ROUTINE VALUE:
; 1316   2856  1 !       True if the allocation was made, false otherwise.
; 1317   2857  1 !
; 1318   2858  1 ! SIDE EFFECTS:
; 1319   2859  1 !       Allocation list may be modified.
; 1320   2860  1 !
; 1321   2861  1 !--
; 1322   2862  1
; 1323   2863  2 BEGIN
; 1324   2864  2 LOCAL
; 1325   2865  2         RRCOUNT,                                ! Rounded RCOUNT
; 1326   2866  2         MINACB:         REF BBLOCK,             ! Smallest count larger than RCOUNT
; 1327   2867  2         MAXACB:         REF BBLOCK,             ! Largest count
; 1328   2868  2         ACB:            REF BBLOCK;             ! Pointer to ACB
; 1329   2869  2
; 1330   2870  2
; 1331   2871  2 RRCOUNT = (.RCOUNT + .CURRENT_VCB[VCB_CLUSTER] - 1) / .CURRENT_VCB[VCB_CLUSTER] * .CURRENT_VCB[VCB_CLUSTER];
; 1332   2872  2 ACB = .CURRENT_VCB[VCB_ACB_FLINK];
; 1333   2873  2 MINACB = MAXACB = 0;
; 1334   2874  2 WHILE .ACB NEQ CURRENT_VCB[VCB_ACB_FLINK] DO
; 1335   2875  3     BEGIN
; 1336   2876  3
; 1337   2877  3     ! Establish the smallest extent at least as large as the request,
; 1338   2878  3     ! if one exists.
; 1339   2879  3     !
; 1340   2880  3     IF .ACB[ACB_COUNT] GEQU .RRCOUNT
; 1341   2881  3     THEN
; 1342   2882  3         IF .MINACB EQL 0
; 1343   2883  3         THEN
; 1344   2884  3             MINACB = .ACB
; 1345   2885  3         ELSE
; 1346   2886  3             IF .ACB[ACB_COUNT] LSSU .MINACB[ACB_COUNT]
; 1347   2887  3             THEN
; 1348   2888  3                 MINACB = .ACB;
```

```
3
3
3       ! Establish the largest extent.
3       !
3       IF .MAXACB EQL 0
3       THEN
3           MAXACB = .ACB
3       ELSE
3           IF .ACB[ACB_COUNT] GTRU .MAXACB[ACB_COUNT]
3           THEN
3               MAXACB = .ACB;
3
3
3       ACB = .ACB[ACB_FLINK];
2       END;
2
2
2   IF .MINACB NEQ 0
2   THEN
3       BEGIN
3       !
3       ! Allocation completely satisfied from the smallest free extent larger
3       ! than the request.  Blocks allocated from the beginning of the extent.
3       !
3       .ACOUNT = .RRCOUNT;
3       .LBN = .MINACB[ACB_LBN];
3       TAKE_BLOCKS(.MINACB, .RRCOUNT, .MINACB[ACB_LBN]);
3       TRUE
3       END
2   ELSE IF .MAXACB NEQ 0
2   THEN
3       BEGIN
3       !
3       ! Allocation partially satisfied from the entire largest free extent.
3       !
3       .ACOUNT = .MAXACB[ACB_COUNT];
3       .LBN = .MAXACB[ACB_LBN];
3       TAKE_BLOCKS(.MAXACB, .MAXACB[ACB_COUNT], .MAXACB[ACB_LBN]);
3       TRUE
3       END
2   ELSE
3       BEGIN
3       .ACOUNT = 0;
3       FALSE
3       END
1   END;
```

```
                                 003C 00000 STA_ALLOC_BEST:
                                                  .WORD   Save R2,R3,R4,R5                    ; 2833
        51 00000000'  EF  D0 00002               MOVL    CURRENT_VCB, R1                     ; 2871
        50        04  A1  3C 00009               MOVZWL  4(R1), R0                           ;
        50        04  AC  C0 0000D               ADDL2   RCOUNT, R0                          ;
                      50  D7 00011               DECL    R0                                  ;
```

```
                52      04   A1  3C 00013          MOVZWL  4(R1), R2                          ;
                50           52  C6 00017          DIVL2   R2, R0                             ;
                55      04   A1  3C 0001A          MOVZWL  4(R1), RRCOUNT                     ;
                55           50  C4 0001E          MULL2   R0, RRCOUNT                        ;
                50      28   A1  D0 00021          MOVL    40(R1), ACB                        ; 2872
                             52  7C 00025          CLRQ    MAXACB                             ; 2873
                54      28   A1  9E 00027 1$:      MCVAB   40(R1), R4                         ; 2874
                54           50  D1 0002B          CMPL    ACB, R4                            ;
                             27  13 0002E          BEQL    6$                                 ;
                55      08   A0  D1 00030          CMPL    8(ACB), RRCOUNT                    ; 2880
                             0E  1F 00034          BLSSU   3$                                 ;
                             53  D5 00036          TSTL    MINACB                             ; 2882
                             07  13 00038          BEQL    2$                                 ;
          08    A3      08   A0  D1 0003A          CMPL    8(ACB), 8(MINACB)                  ; 2886
                             03  1E 0003F          BGEQU   3$                                 ;
                53           50  D0 00041 2$:      MOVL    ACB, MINACB                        ; 2888
                             52  D5 00044 3$:      TSTL    MAXACB                             ; 2893
                             07  13 00046          BEQL    4$                                 ;
          08    A2      08   A0  D1 00048          CMPL    8(ACB), 8(MAXACB)                  ; 2897
                             03  1B 0004D          BLEQU   5$                                 ;
                52           50  D0 0004F 4$:      MOVL    ACB, MAXACB                        ; 2899
                50           60  D0 00052 5$:      MOVL    (ACB), ACB                         ; 2902
                             D0  11 00055          BRB     1$                                 ; 2874
                             53  D5 00057 6$:      TSTL    MINACB                             ; 2906
                             10  13 00059          BEQL    7$                                 ;
          08    BC           55  D0 0005B          MOVL    RRCOUNT, @ACOUNT                   ; 2913
          0C    BC      0C   A3  D0 0005F          MOVL    12(MINACB), @LBN                   ; 2914
                        0C   A3  DD 00064          PUSHL   12(MINACB)                         ; 2915
                             28  BB 00067          PUSHR   #^M<R3,R5>                         ;
                             14  11 00069          BRB     8$                                 ;
                             52  D5 0006B 7$:      TSTL    MAXACB                             ; 2918
                             19  13 0006D          BEQL    9$                                 ;
          08    BC      08   A2  D0 0006F          MOVL    8(MAXACB), @ACOUNT                 ; 2924
          0C    BC      0C   A2  D0 00074          MOVL    12(MAXACB), @LBN                   ; 2925
                7E      08   A2  7D 00079          MOVQ    8(MAXACB), -(SP)                   ; 2926
                             52  DD 0007D          PUSHL   MAXACB                             ;
        FEBC    CF           03  FB 0007F 8$:      CALLS   #3, TAKE_BLOCKS                    ;
                50           01  D0 00084          MOVL    #1, R0                             ; 2920
                                 04 00087          RET                                        ;
                        08   BC  D4 00088 9$:      CLRL    @ACOUNT                            ; 2931
                             50  D4 0008B          CLRL    R0                                 ; 2930
                                 04 0008D          RET                                        ; 2934

; Routine Size:  142 bytes,    Routine Base:  CODE + 055B
```

```
; 1396   2935  1 %SBTTL 'FREE_BLOCKS - return blocks to free list'
; 1397   2936  1 GLOBAL ROUTINE FREE_BLOCKS (COUNT,LBN): NOVALUE=
; 1398   2937  1
; 1399   2938  1 !++
; 1400   2939  1 !
; 1401   2940  1 ! FUNCTIONAL DESCRIPTION:
; 1402   2941  1 !       This routine puts the specified blocks back onto the free list
; 1403   2942  1 !       for the currently active volume.
; 1404   2943  1 !
; 1405   2944  1 ! INPUT PARAMETERS:
; 1406   2945  1 !       COUNT           - Count of blocks to be freed.
; 1407   2946  1 !       LBN             - Starting LBN.
; 1408   2947  1 !
; 1409   2948  1 ! IMPLICIT INPUTS:
; 1410   2949  1 !       CURRENT_VCB     - Pointer to VCB for volume.
; 1411   2950  1 !
; 1412   2951  1 ! OUTPUT PARAMETERS:
; 1413   2952  1 !       NONE
; 1414   2953  1 !
; 1415   2954  1 ! IMPLICIT OUTPUTS:
; 1416   2955  1 !       NONE
; 1417   2956  1 !
; 1418   2957  1 ! ROUTINE VALUE:
; 1419   2958  1 !       NONE
; 1420   2959  1 !
; 1421   2960  1 ! SIDE EFFECTS:
; 1422   2961  1 !       ACB list altered.
; 1423   2962  1 !
; 1424   2963  1 !--
; 1425   2964  1
; 1426   2965  2 BEGIN
; 1427   2966  2 LOCAL
; 1428   2967  2         ACB:            REF BBLOCK,     ! ACB following released extent
; 1429   2968  2         PREV_ACB:       REF BBLOCK,     ! ACB preceding released extent
; 1430   2969  2         ALLOC_ACB:      REF BBLOCK;     ! ACB allocated or deallocated
; 1431   2970  2
; 1432   2971  2
; 1433   2972  2 ! Protect against bogus parameters.
; 1434   2973  2 !
; 1435   2974  2 IF .COUNT EQL 0 THEN RETURN;
; 1436   2975  2
; 1437   2976  2
; 1438   2977  2 ! Search the ACB list on the appropriate VCB for the ACB describing an extent
; 1439   2978  2 ! following the extent to be released.  The ACB list is in LBN order.
; 1440   2979  2 !
; 1441   2980  2 ACB = CURRENT_VCB[VCB_ACB_FLINK];
; 1442   2981  2 DO ACB = .ACB[ACB_FLINK]
; 1443   2982  2 UNTIL .ACB EQL CURRENT_VCB[VCB_ACB_FLINK] OR .ACB[ACB_LBN] GTRU .LBN;
; 1444   2983  2 PREV_ACB = .ACB[ACB_BLINK];
; 1445   2984  2
; 1446   2985  2
; 1447   2986  2 ! Check for contiguity with ACB or PREV_ACB or both and proceed accordingly.
; 1448   2987  2 !
; 1449   2988  2 IF
; 1450   2989  2     .PREV_ACB NEQ CURRENT_VCB[VCB_ACB_FLINK] AND
; 1451   2990  2     .PREV_ACB[ACB_LBN] + .PREV_ACB[ACB_COUNT] EQL .LBN
; 1452   2991  2 THEN
```

```
2     IF
2         .ACB NEQ CURRENT_VCB[VCB_ACB_FLINK] AND
2         .LBN + .COUNT EQL .ACB[ACB_LBN]
2     THEN
3         BEGIN
3         !
3         ! Contiguous with both.  Modify PREV_ACB to describe all 3 extents and
3         ! release ACB.
3         !
3         PREV_ACB[ACB_COUNT] = .PREV_ACB[ACB_COUNT] + .COUNT + .ACB[ACB_COUNT];
3         REMQUE(.PREV_ACB, ALLOC_ACB);
3         FREE_VM(ACB_S_ENTRY, .ALLOC_ACB);
3         END
2     ELSE
3         BEGIN
3         !
3         ! Contiguous with PREV_ACB but not ACB.  Modify PREV_ACB to describe
3         ! both extents.
3         !
3         PREV_ACB[ACB_COUNT] = .PREV_ACB[ACB_COUNT] + .COUNT;
3         END
2 ELSE
2     IF
2         .ACB NEQ CURRENT_VCB[VCB_ACB_FLINK] AND
2         .LBN + .COUNT EQL .ACB[ACB_LBN]
2     THEN
3         BEGIN
3         !
3         ! Contiguous with ACB but not PREV_ACB.  Modify ACB to describe
3         ! both extents.
3         !
3         ACB[ACB_LBN] = .LBN;
3         ACB[ACB_COUNT] = .ACB[ACB_COUNT] + .COUNT;
3         END
2     ELSE
3         BEGIN
3         !
3         ! Contiguous with neither.  Generate a new ACB.
3         !
3         ALLOC_ACB = GET_VM(ACB_S_ENTRY);
3         INSQUE(.ALLOC_ACB, .PREV_ACB);
3         ALLOC_ACB[ACB_COUNT] = .COUNT;
3         ALLOC_ACB[ACB_LBN] = .LBN;
2         END;
1 END;
```

```
                                  001C 00000          .ENTRY  FREE_BLOCKS, Save R2,R3,R4                  ; 2936
                 54        04   AC  D0 00002          MOVL    COUNT, R4                                   ; 2974
                                01  12 00006          BNEQ    1$                                          ;
                                    04 00008          RET                                                 ;
     53 00000000'  EF           28  C1 00009 1$:      ADDL3   #40, CURRENT_VCB, R3                        ; 2980
                   50           53  D0 00011          MOVL    R3, ACB                                     ;
                   50           60  D0 00014 2$:      MOVL    (ACB), ACB                                  ; 2981
```

```
                    53          50  D1 00017          CMPL    ACB, R3                                  ; 2982
                                07  13 0001A          BEQL    3$                                       ;
            08      AC      0C  A0  D1 0001C          CMPL    12(ACB), LBN                             ;
                                F1  1B 00021          BLEQU   2$                                       ;
                    52      04  A0  D0 00023 3$:      MOVL    4(ACB), PREV_ACB                         ; 2983
                    53          52  D1 00027          CMPL    PREV_ACB, R3                             ; 2989
                                3B  13 0002A          BEQL    5$                                       ;
    51      0C      A2      08  A2  C1 0002C          ADDL3   8(PREV_ACB), 12(PREV_ACB), R1            ; 2990
            08      AC          51  D1 00032          CMPL    R1, LBN                                  ;
                                2F  12 00036          BNEQ    5$                                       ;
                    53          50  D1 00038          CMPL    ACB, R3                                  ; 2993
                                25  13 0003B          BEQL    4$                                       ;
    51              54      08  AC  C1 0003D          ADDL3   LBN, R4, R1                              ; 2994
            0C      A0          51  D1 00042          CMPL    R1, 12(ACB)                              ;
                                1A  12 00046          BNEQ    4$                                       ;
    51              54      08  A2  C1 00048          ADDL3   8(PREV_ACB), R4, R1                      ; 3001
            08      A2      08 B041 9E 0004D          MOVAB   @8(ACB)[R1], 8(PREV_ACB)                 ;
                    53          62  0F 00053          REMQUE  (PREV_ACB), ALLOC_ACB                    ; 3002
                                53  DD 00056          PUSHL   ALLOC_ACB                                ; 3003
                                10  DD 00058          PUSHL   #16                                      ;
        00000000G   00          02  FB 0005A          CALLS   #2, FREE_VM                              ;
                                    04 00061          RET                                              ; 2992
            08      A2          54  C0 00062 4$:      ADDL2   R4, 8(PREV_ACB)                          ; 3011
                                    04 00066          RET                                              ; 2992
                    53          50  D1 00067 5$:      CMPL    ACB, R3                                  ; 3015
                                15  13 0006A          BEQL    6$                                       ;
    51              54      08  AC  C1 0006C          ADDL3   LBN, R4, R1                              ; 3016
            0C      A0          51  D1 00071          CMPL    R1, 12(ACB)                              ;
                                0A  12 00075          BNEQ    6$                                       ;
            0C      A0      08  AC  D0 00077          MOVL    LBN, 12(ACB)                             ; 3023
            08      A0          54  C0 0007C          ADDL2   R4, 8(ACB)                               ; 3024
                                    04 00080          RET                                              ; 3014
                                10  DD 00081 6$:      PUSHL   #16                                      ; 3031
        00000000G   00          01  FB 00083          CALLS   #1, GET_VM                               ;
                    53          50  D0 0008A          MOVL    R0, ALLOC_ACB                            ;
                    62          63  0E 0008D          INSQUE  (ALLOC_ACB), (PREV_ACB)                  ; 3032
            08      A3      04  AC  7D 00090          MOVQ    COUNT, 8(ALLOC_ACB)                      ; 3033
                                    04 00095          RET                                              ; 3036

; Routine Size:  150 bytes,    Routine Base:  CODE + 05E9
```

```
; 1499    3037  1 %SBTTL 'MAKE_POINTER1 - make ODS-1 map pointer'
; 1500    3038  1 GLOBAL ROUTINE MAKE_POINTER1 (BUFFER,COUNT,LBN,UNMAPPED)=
; 1501    3039  1
; 1502    3040  1 !++
; 1503    3041  1 !
; 1504    3042  1 ! FUNCTIONAL DESCRIPTION:
; 1505    3043  1 !       This routine appends retrieval pointers to the map area of an
; 1506    3044  1 !       ODS-1 file header describing the given count and LBN.
; 1507    3045  1 !
; 1508    3046  1 ! INPUT PARAMETERS:
; 1509    3047  1 !       BUFFER          - Pointer to file header buffer
; 1510    3048  1 !       COUNT           - Block count
; 1511    3049  1 !       LBN             - Starting logical block number
; 1512    3050  1 !       UNMAPPED        - (optional) Number of blocks not mapped
; 1513    3051  1 !
; 1514    3052  1 ! IMPLICIT INPUTS:
; 1515    3053  1 !       NONE
; 1516    3054  1 !
; 1517    3055  1 ! OUTPUT PARAMETERS:
; 1518    3056  1 !       NONE
; 1519    3057  1 !
; 1520    3058  1 ! IMPLICIT OUTPUTS:
; 1521    3059  1 !       NONE
; 1522    3060  1 !
; 1523    3061  1 ! ROUTINE VALUE:
; 1524    3062  1 !       SS$_NORMAL or SS$_HEADERFULL.
; 1525    3063  1 !
; 1526    3064  1 ! SIDE EFFECTS:
; 1527    3065  1 !       NONE
; 1528    3066  1 !
; 1529    3067  1 !--
; 1530    3068  1
; 1531    3069  2 BEGIN
; 1532    3070  2
; 1533    3071  2 BUILTIN
; 1534    3072  2         ACTUALCOUNT;
; 1535    3073  2
; 1536    3074  2 MAP
; 1537    3075  2         BUFFER:         REF BBLOCK;     ! Pointer to file header buffer
; 1538    3076  2 LOCAL
; 1539    3077  2         CURRENT_COUNT,                  ! running block count
; 1540    3078  2         CURRENT_LBN,                    ! running LBN
; 1541    3079  2         MAP_AREA:       REF BBLOCK,     ! pointer to map area
; 1542    3080  2         MAP_POINTER:    REF BBLOCK;     ! pointer to map area
; 1543    3081  2
; 1544    3082  2
; 1545    3083  2 ! Compute the address in the file header where the pointer should go.
; 1546    3084  2 ! Then determine the format of the pointer and build it.
; 1547    3085  2 !
; 1548    3086  2 MAP_AREA = .BUFFER + 2 * .BUFFER[FH2$B_MPOFFSET];
; 1549    3087  2 MAP_POINTER = .MAP_AREA + FM1$C_POINTERS + .MAP_AREA[FM1$B_INUSE]*2;
; 1550    3088  2 CURRENT_COUNT = .COUNT;
; 1551    3089  2 CURRENT_LBN = .LBN;
; 1552    3090  2
; 1553    3091  2
; 1554    3092  2 DO
; 1555    3093  3     BEGIN
```

```
3
3       ! Check for map area overflow.
3       !
3       IF .MAP_POINTER + 4 GTRA .BUFFER + $BYTEOFFSET(FH1$W_CHECKSUM)
3       THEN
4           BEGIN
4           IF ACTUALCOUNT () GEQU 4
4           THEN .UNMAPPED = .CURRENT_COUNT;
4           RETURN SS$_HEADERFULL;
3           END;
3
3
3       ! Build the map pointer.
3       !
3       MAP_AREA[FM1$B_INUSE] = .MAP_AREA[FM1$B_INUSE] + 2;
3       MAP_POINTER[FM1$B_HIGHLBN] = .CURRENT_LBN<16,8>;
3       MAP_POINTER[FM1$B_COUNT] = MIN(.CURRENT_COUNT, 256) - 1;
3       MAP_POINTER[FM1$W_LOWLBN] = .CURRENT_LBN<0,16>;
3       MAP_POINTER = .MAP_POINTER + 4;
3
3
3       ! Decrease residual count.
3       !
3       CURRENT_LBN = .CURRENT_LBN + MIN(.CURRENT_COUNT, 256);
3       CURRENT_COUNT = .CURRENT_COUNT - MIN(.CURRENT_COUNT, 256);
3       END
2   UNTIL .CURRENT_COUNT EQL 0;
2
2
2   SS$_NORMAL
1   END;
```

```
                                  003C 00000          .ENTRY  MAKE_POINTER1, Save R2,R3,R4,R5          ; 3038
                53        04   AC  D0 00002          MOVL    BUFFER, R3                               ; 3086
                50        01   A3  9A 00006          MOVZBL  1(R3), R0                                ;
                52           8340  3E 0000A          MOVAW   (R3)+[R0], MAP_AREA                      ;
                50        08   A2  9A 0000E          MOVZBL  8(MAP_AREA), R0                          ; 3087
                50        0A A240  3E 00012          MOVAW   10(MAP_AREA)[R0], MAP_POINTER            ;
                51        08   AC  D0 00017          MOVL    COUNT, CURRENT_COUNT                     ; 3088
                54        0C   AC  D0 0001B          MOVL    LBN, CURRENT_LBN                         ; 3089
                53      01FC   C3  9E 0001F          MOVAB   508(R3), R3                              ; 3097
                55        04   A0  9E 00024 1$:      MOVAB   4(R0), R5                                ;
                53             55  D1 00028          CMPL    R5, R3                                   ;
                               0F  1B 0002B          BLEQU   3$                                       ;
                04             6C  91 0002D          CMPB    (AP), #4                                 ; 3100
                               04  1F 00030          BLSSU   2$                                       ;
            10  BC             51  D0 00032          MOVL    CURRENT_COUNT, @UNMAPPED                 ; 3101
                50      08C8   8F  3C 00036 2$:      MOVZWL  #2248, R0                                ; 3102
                                   04 0003B          RET                                              ;
            08  A2             02  80 0003C 3$:      ADDB2   #2, 8(MAP_AREA)                          ; 3108
55      54      08             10  EF 00040          EXTZV   #16, #8, CURRENT_LBN, R5                 ; 3109
                60             55  90 00045          MOVB    R5, (MAP_POINTER)                        ;
                55             51  D0 00048          MOVL    CURRENT_COUNT, R5                        ; 3110
```

```
                00000100   8F          55  D1 0004B        CMPL    R5, #256                                ;
                                       05  15 00052        BLEQ    4$                                      ;
                           55    0100  8F  3C 00054        MOVZWL  #256, R5                                ;
        01   A0            55          01  83 00059 4$:    SUBB3   #1, R5, 1(MAP_POINTER)                  ;
                     02    A0          54  B0 0005E        MOVW    CURRENT_LBN, 2(MAP_POINTER)             ; 3111
                           50          04  C0 00062        ADDL2   #4, MAP_POINTER                         ; 3112
                           54          55  C0 00065        ADDL2   R5, CURRENT_LBN                         ; 3117
                           51          55  C2 00068        SUBL2   R5, CURRENT_COUNT                       ; 3118
                                       B7  12 0006B        BNEQ    1$                                      ; 3120
                           50          01  D0 0006D        MOVL    #1, R0                                  ; 3124
                                           04 00070        RET                                             ;

; Routine Size:  113 bytes,    Routine Base:  CODE + 067F
```

```
; 1588   %SBTTL 'MAKE_POINTER - make ODS-2 map pointer'
; 1589   GLOBAL ROUTINE MAKE_POINTER (BUFFER,COUNT,LBN)=
; 1590
; 1591   !++
; 1592   !
; 1593   ! FUNCTIONAL DESCRIPTION:
; 1594   !       This routine appends a retrieval pointer to the map area of an
; 1595   !       ODS-2 file header describing the given count and LBN.
; 1596   !
; 1597   ! INPUT PARAMETERS:
; 1598   !       BUFFER          - Pointer to file header buffer
; 1599   !       COUNT           - Block count
; 1600   !       LBN             - Starting logical block number
; 1601   !
; 1602   ! IMPLICIT INPUTS:
; 1603   !       NONE
; 1604   !
; 1605   ! OUTPUT PARAMETERS:
; 1606   !       CURRENT_VCB     - Pointer to VCB for selected volume.
; 1607   !
; 1608   ! IMPLICIT OUTPUTS:
; 1609   !       NONE
; 1610   !
; 1611   ! ROUTINE VALUE:
; 1612   !       SS$_NORMAL or SS$_HEADERFULL.
; 1613   !
; 1614   ! SIDE EFFECTS:
; 1615   !       NONE
; 1616   !
; 1617   !--
; 1618
; 1619   BEGIN
; 1620   MAP
; 1621           BUFFER:         REF BBLOCK;     ! Pointer to file header buffer
; 1622   LOCAL
; 1623           MAP_POINTER:    REF BBLOCK;     ! pointer to map area
; 1624
; 1625
; 1626   ! Compute the address in the file header where the pointer should go.
; 1627   ! Then determine the format of the pointer and build it.
; 1628   !
; 1629   MAP_POINTER = .BUFFER + 2 * (.BUFFER[FH2$B_MPOFFSET] + .BUFFER[FH2$B_MAP_INUSE]);
; 1630
; 1631
; 1632   IF .COUNT LEQU 256 AND .LBN LSSU 1^22
; 1633   THEN
; 1634       BEGIN
; 1635
; 1636       ! Check for map area overflow.
; 1637       !
; 1638       IF .MAP_POINTER + 4 GTRA .BUFFER + 2 * .BUFFER[FH2$B_ACOFFSET]
; 1639       THEN
; 1640           RETURN SS$_HEADERFULL;
; 1641
; 1642
; 1643       ! Build the map pointer.
; 1644       !
```

```
3       MAP_POINTER[FM2$V_FORMAT] = FM2$C_FORMAT1;
3       MAP_POINTER[FM2$B_COUNT1] = .COUNT - 1;
3       MAP_POINTER[FM2$V_HIGHLBN] = .LBN<16,6>;
3       MAP_POINTER[FM2$W_LOWLBN] = .LBN<0,16>;
3       BUFFER[FH2$B_MAP_INUSE] = .BUFFER[FH2$B_MAP_INUSE] + 2;
3       END
2 ELSE IF .COUNT LEQU 16384
2 THEN
3       BEGIN
3
3       ! Check for map area overflow.
3       !
3       IF .MAP_POINTER + 6 GTRA .BUFFER + 2 * .BUFFER[FH2$B_ACOFFSET]
3       THEN
3           RETURN SS$_HEADERFULL;
3
3
3       ! Build the map pointer.
3       !
3       MAP_POINTER[FM2$V_FORMAT] = FM2$C_FORMAT2;
3       MAP_POINTER[FM2$V_COUNT2] = .COUNT - 1;
3       MAP_POINTER[FM2$L_LBN2] = .LBN;
3       BUFFER[FH2$B_MAP_INUSE] = .BUFFER[FH2$B_MAP_INUSE] + 3;
3       END
2 ELSE IF .COUNT LEQU 1^30
2 THEN
3       BEGIN
3
3       ! Check for map area overflow.
3       !
3       IF .MAP_POINTER + 8 GTRA .BUFFER + 2 * .BUFFER[FH2$B_ACOFFSET]
3       THEN
3           RETURN SS$_HEADERFULL;
3
3
3       ! Build the map pointer.
3       !
3       .MAP_POINTER = ROT(.COUNT-1, 16);
3       MAP_POINTER[FM2$V_FORMAT] = FM2$C_FORMAT3;
3       MAP_POINTER[FM2$L_LBN3] = .LBN;
3       BUFFER[FH2$B_MAP_INUSE] = .BUFFER[FH2$B_MAP_INUSE] + 4;
3       END
2 ELSE
2       SIGNAL(BACKUP$_LARGECNT, 1, CURRENT_VCB[VCB_DEVICE]);
2
2
2 SS$_NORMAL
1 END;
```

```
                        001C 00000        .ENTRY  MAKE_POINTER, Save R2,R3,R4                ; 3126
        51      04   AC   D0 00002        MOVL    BUFFER, R1                                 ; 3166
        50      01   A1   9A 00006        MOVZBL  1(R1), R0                                  ;
        52      3A   A1   9A 0000A        MOVZBL  58(R1), R2                                 ;
```

```
                                50          52  C0 0000E        ADDL2   R2, R0                                  ;
                                50        6140  3E 00011        MOVAW   (R1)[R0], MAP_POINTER                   ;
                                53      08  AC  D0 00015        MOVL    COUNT, R3                               ; 3169
                      00000100  8F          53  D1 00019        CMPL    R3, #256                                ;
                                            36  1A 00020        BGTRU   1$                                      ;
                      00400000  8F      0C  AC  D1 00022        CMPL    LBN, #4194304                           ;
                                            2C  1E 0002A        BGEQU   1$                                      ;
                                54      04  A0  9E 0002C        MOVAB   4(R0), R4                               ; 3175
                                52      02  A1  9A 00030        MOVZBL  2(R1), R2                               ;
                                52        6142  3E 00034        MOVAW   (R1)[R2], R2                            ;
                                52          54  D1 00038        CMPL    R4, R2                                  ;
                                            68  1A 0003B        BGTRU   3$                                      ;
        60          02          0E          01  F0 0003D        INSV    #1, #14, #2, (MAP_POINTER)              ; 3182
                    60          53          01  83 00042        SUBB3   #1, R3, (MAP_POINTER)                   ; 3183
    01  A0          06          00      0E  AC  F0 00046        INSV    LBN+2, #0, #6, 1(MAP_POINTER)           ; 3184
                          02    A0      0C  AC  B0 0004D        MOVW    LBN, 2(MAP_POINTER)                     ; 3185
                          3A    A1          02  80 00052        ADDB2   #2, 58(R1)                              ; 3186
                                            69  11 00056        BRB     5$                                      ; 3169
                      00004000  8F          53  D1 00058 1$:    CMPL    R3, #16384                              ; 3188
                                            2A  1A 0005F        BGTRU   2$                                      ;
                                54      06  A0  9E 00061        MOVAB   6(R0), R4                               ; 3194
                                52      02  A1  9A 00065        MOVZBL  2(R1), R2                               ;
                                52        6142  3E 00069        MOVAW   (R1)[R2], R2                            ;
                                52          54  D1 0006D        CMPL    R4, R2                                  ;
                                            33  1A 00070        BGTRU   3$                                      ;
        60          02          0E          02  F0 00072        INSV    #2, #14, #2, (MAP_POINTER)              ; 3201
                                52      FF  A3  9E 00077        MOVAB   -1(R3), R2                              ; 3202
        60          0E          00          52  F0 0007B        INSV    R2, #0, #14, (MAP_POINTER)              ;
                          02    A0      0C  AC  D0 00080        MOVL    LBN, 2(MAP_POINTER)                     ; 3203
                          3A    A1          03  80 00085        ADDB2   #3, 58(R1)                              ; 3204
                                            4F  11 00089        BRB     7$                                      ; 3188
                      40000000  8F          53  D1 0008B 2$:    CMPL    R3, #1073741824                         ; 3206
                                            2F  1A 00092        BGTRU   6$                                      ;
                                54      08  A0  9E 00094        MOVAB   8(R0), R4                               ; 3212
                                52      02  A1  9A 00098        MOVZBL  2(R1), R2                               ;
                                52        6142  3E 0009C        MOVAW   (R1)[R2], R2                            ;
                                52          54  D1 000A0        CMPL    R4, R2                                  ;
                                            06  1B 000A3        BLEQU   4$                                      ;
                                50    08C8  8F  3C 000A5 3$:    MOVZWL  #2248, R0                               ; 3214
                                                04 000AA        RET                                             ;
                                52      FF  A3  9E 000AB 4$:    MOVAB   -1(R3), R2                              ; 3219
                    60          52          10  9C 000AF        ROTL    #16, R2, (MAP_POINTER)                  ;
                          01    A0      C0  8F  88 000B3        BISB2   #192, 1(MAP_POINTER)                    ; 3220
                          04    A0      0C  AC  D0 000B8        MOVL    LBN, 4(MAP_POINTER)                     ; 3221
                          3A    A1          04  80 000BD        ADDB2   #4, 58(R1)                              ; 3222
                                            17  11 000C1 5$:    BRB     7$                                      ; 3206
                  7E 00000000'  EF          20  C1 000C3 6$:    ADDL3   #32, CURRENT_VCB, -(SP)                 ; 3225
                                            01  DD 000CB        PUSHL   #1                                      ;
                                00000000G   8F  DD 000CD        PUSHL   #BACKUP$_LARGECNT                       ;
                      00000000G 00          03  FB 000D3        CALLS   #3, LIB$SIGNAL                          ;
                                50          01  D0 000DA 7$:    MOVL    #1, R0                                  ; 3229
                                                04 000DD        RET                                             ;

; Routine Size:  222 bytes,    Routine Base:  CODE + 06F0
```

```
; 1694    %SBTTL 'CREATE_WINDOW - create a window block'
; 1695    GLOBAL ROUTINE CREATE_WINDOW (P_HEADER,P_RVN,P_WINDOW,START_VBN,WINDOW_SIZE)=
; 1696
; 1697    !++
; 1698    !
; 1699    ! FUNCTIONAL DESCRIPTION:
; 1700    !       This routine generates a window block (or blocks) from a file
; 1701    !       header, reading the extension headers as necessary.
; 1702    !
; 1703    ! INPUT PARAMETERS:
; 1704    !       P_HEADER        - Pointer to file header to be processed.
; 1705    !       P_RVN           - Relative volume number of file header.
; 1706    !       P_WINDOW        - Pointer to where window is returned.
; 1707    !       START_VBN       - Starting VBN of file header.
; 1708    !       WINDOW_SIZE     - Minimum size to allocate for window in pointers.
; 1709    !
; 1710    ! IMPLICIT INPUTS:
; 1711    !       CURRENT_MTL     - Pointer to MTL for selected volume set.
; 1712    !
; 1713    ! OUTPUT PARAMETERS:
; 1714    !       NONE
; 1715    !
; 1716    ! IMPLICIT OUTPUTS:
; 1717    !       CURRENT_MTL[MTL_FILESIZE] - Contains total space allocated to file.
; 1718    !
; 1719    ! ROUTINE VALUE:
; 1720    !       Completion status.
; 1721    !
; 1722    ! SIDE EFFECTS:
; 1723    !       NONE
; 1724    !
; 1725    !--
; 1726
; 1727    BEGIN
; 1728    LINKAGE
; 1729            L_MAP_POINTER=  JSB:
; 1730                            GLOBAL(COUNT=6, LBN=7, MAP_POINTER=8);
; 1731    EXTERNAL ROUTINE
; 1732            GET_MAP_POINTER: L_MAP_POINTER; ! Get value of ODS-2 file map pointer
; 1733    LOCAL
; 1734            STATUS,                         ! Status return
; 1735            W_SIZE,                         ! size to allocate window
; 1736            DYNWCB:         REF BBLOCK,     ! Pointer to dynamic WCB
; 1737            HEADER:         REF BBLOCK,     ! Pointer to current file header
; 1738            RVN,                            ! RVN of current file header
; 1739            EXT_FILE_ID:    BBLOCK[FID$C_LENGTH],   ! Extension file ID
; 1740            LOCAL_HEADER:   BBLOCK[512],    ! Local area for file header
; 1741            LAST_WINDOW:    REF BBLOCK,     ! Last block in window list
; 1742            WINDOW:         BBLOCK[WCB_S_HEADER + 255 * WCB_S_ENTRY],
; 1743            P:              REF BBLOCK;     ! Pointer to current window entry
; 1744
; 1745
; 1746    ! Initialize.
; 1747    !
; 1748    .P_WINDOW = 0;
; 1749    CURRENT_MTL[MTL_FILESIZE] = 0;
; 1750    HEADER = .P_HEADER;
```

```
; 1751   3287  2 RVN = .P_RVN;
; 1752   3288  2 LAST_WINDOW = 0;
; 1753   3289  2 WINDOW[WCB_LINK] = 0;
; 1754   3290  2 WINDOW[WCB_VBN] = .START_VBN;
; 1755   3291  2 WINDOW[WCB_SIZE] = 0;
; 1756   3292  2 WINDOW[WCB_RVN] = .RVN;
; 1757   3293  2 WINDOW[WCB_FLAGS] = 0;
; 1758   3294  2 P = WINDOW + WCB_S_HEADER - WCB_S_ENTRY;
; 1759   3295  2 IF .HEADER[FH2$B_STRUCLEV] EQL 2
; 1760   3296  2 AND .HEADER[FH2$W_SEG_NUM] EQL 0
; 1761   3297  2 AND .HEADER[FH2$B_IDOFFSET] GEQU ($BYTEOFFSET (FH2$L_HIGHWATER) + 4) / 2
; 1762   3298  2 AND .HEADER[FH2$L_HIGHWATER] NEQ 0
; 1763   3299  2 THEN
; 1764   3300  3     BEGIN
; 1765   3301  3     WINDOW[WCB_CUR_HWM] = .HEADER[FH2$L_HIGHWATER];
; 1766   3302  3     WINDOW[WCB_SET_HWM] = .HEADER[FH2$L_HIGHWATER];
; 1767   3303  3     END
; 1768   3304  2 ELSE
; 1769   3305  3     BEGIN
; 1770   3306  3     WINDOW[WCB_CUR_HWM] = -1;
; 1771   3307  3     WINDOW[WCB_SET_HWM] = -1;
; 1772   3308  2     END;
; 1773   3309  2
; 1774   3310  2
; 1775   3311  2 ! Loop over this header and all of its extension headers.
; 1776   3312  2 !
; 1777   3313  2 WHILE TRUE DO
; 1778   3314  3     BEGIN
; 1779   3315  3     GLOBAL REGISTER
; 1780   3316  3         COUNT=          6,                  ! Retrieval pointer count
; 1781   3317  3         LBN=            7,                  ! Retrieval pointer LBN
; 1782   3318  3         MAP_POINTER=    8: REF BBLOCK;      ! Pointer to scan map area
; 1783   3319  3     LOCAL
; 1784   3320  3         END_MAP;                            ! Pointer to end of used map area
; 1785   3321  3
; 1786   3322  3
; 1787   3323  3     ! Get pointers to the map area and the end of the used portion
; 1788   3324  3     ! of the map area.
; 1789   3325  3     !
; 1790   3326  3     IF .HEADER[FH2$B_STRUCLEV] EQL 2
; 1791   3327  3     THEN
; 1792   3328  4         BEGIN
; 1793   3329  4         MAP_POINTER = .HEADER + .HEADER[FH2$B_MPOFFSET]*2;
; 1794   3330  4         END_MAP = .MAP_POINTER + .HEADER[FH2$B_MAP_INUSE]*2;
; 1795   3331  4         END
; 1796   3332  3     ELSE
; 1797   3333  4         BEGIN
; 1798   3334  4         MAP_POINTER = .HEADER + .HEADER[FH1$B_MPOFFSET]*2;
; 1799   3335  4         END_MAP = .MAP_POINTER + FM1$C_POINTERS + .MAP_POINTER[FM1$B_INUSE]*2;
; 1800   3336  4         MAP_POINTER = .MAP_POINTER + FM1$C_POINTERS;
; 1801   3337  3         END;
; 1802   3338  3
; 1803   3339  3
; 1804   3340  3     ! Loop until entire map processed.
; 1805   3341  3     !
; 1806   3342  3     UNTIL .MAP_POINTER GEQA .END_MAP DO
; 1807   3343  4         BEGIN
```

```
; 1808    3344  4
; 1809    3345  4          ! Get count and LBN.
; 1810    3346  4          !
; 1811    3347  4          IF .HEADER[FH2$B_STRUCLEV] EQL 2
; 1812    3348  4          THEN
; 1813    3349  4              GET_MAP_POINTER()
; 1814    3350  4          ELSE
; 1815    3351  5              BEGIN
; 1816    3352  5              LBN = .MAP_POINTER[FM1$W_LOWLBN];
; 1817    3353  5              LBN<16,8> = .MAP_POINTER[FM1$B_HIGHLBN];
; 1818    3354  5              COUNT = .MAP_POINTER[FM1$B_COUNT] + 1;
; 1819    3355  5              MAP_POINTER = .MAP_POINTER + 4;
; 1820    3356  4              END;
; 1821    3357  4
; 1822    3358  4
; 1823    3359  4          ! Count into total space.
; 1824    3360  4          !
; 1825    3361  4          CURRENT_MTL[MTL_FILESIZE] = .CURRENT_MTL[MTL_FILESIZE] + .COUNT;
; 1826    3362  4
; 1827    3363  4
; 1828    3364  4          ! Collapse with previous map pointer if contiguous with it and it is on
; 1829    3365  4          ! same RVN -- otherwise, generate new map pointer.
; 1830    3366  4          !
; 1831    3367  4          IF
; 1832    3368  5              BEGIN
; 1833    3369  5              IF .WINDOW[WCB_RVN] NEQ .RVN
; 1834    3370  5              THEN
; 1835    3371  5                  FALSE
; 1836    3372  5              ELSE IF .WINDOW[WCB_SIZE] NEQ 0
; 1837    3373  5              THEN
; 1838    3374  5                  .P[WCB_COUNT] + .P[WCB_LBN] EQL .LBN
; 1839    3375  5              ELSE
; 1840    3376  5                  FALSE
; 1841    3377  5              END
; 1842    3378  4          THEN
; 1843    3379  4              P[WCB_COUNT] = .P[WCB_COUNT] + .COUNT
; 1844    3380  4          ELSE
; 1845    3381  5              BEGIN
; 1846    3382  5              IF .WINDOW[WCB_SIZE] GEQU 255 OR .WINDOW[WCB_RVN] NEQ .RVN
; 1847    3383  5              THEN
; 1848    3384  6                  BEGIN
; 1849    3385  6
; 1850    3386  6                  ! Window block has overflowed.  Move local window block to
; 1851    3387  6                  ! dynamic space and initialize for new block.
; 1852    3388  6                  !
; 1853    3389  6                  WINDOW[WCB_FREE] = 0;
; 1854    3390  6                  DYNWCB = GET_VM(WCB_S_HEADER + .WINDOW[WCB_SIZE]*WCB_S_ENTRY);
; 1855    3391  6                  CH$MOVE(WCB_S_HEADER + .WINDOW[WCB_SIZE] * WCB_S_ENTRY, WINDOW, .DYNWCB);
; 1856    3392  6                  IF .LAST_WINDOW NEQ 0
; 1857    3393  6                      THEN LAST_WINDOW[WCB_LINK] = .DYNWCB;
; 1858    3394  6                  IF ..P_WINDOW EQL 0 THEN .P_WINDOW = .DYNWCB;
; 1859    3395  6                  LAST_WINDOW = .DYNWCB;
; 1860    3396  6                  WINDOW[WCB_LINK] = 0;
; 1861    3397  6                  WINDOW[WCB_VBN] = 0;
; 1862    3398  6                  WINDOW[WCB_SIZE] = 0;
; 1863    3399  6                  WINDOW[WCB_RVN] = .RVN;
; 1864    3400  6                  WINDOW[WCB_FLAGS] = 0;
```

```
; 1865   3401  6                P = WINDOW + WCB_S_HEADER - WCB_S_ENTRY;
; 1866   3402  5                END;
; 1867   3403  5
; 1868   3404  5
; 1869   3405  5            ! Generate new pointer.
; 1870   3406  5            !
; 1871   3407  5            WINDOW[WCB_SIZE] = .WINDOW[WCB_SIZE] + 1;
; 1872   3408  5            P = .P + WCB_S_ENTRY;
; 1873   3409  5            P[WCB_COUNT] = .COUNT;
; 1874   3410  5            P[WCB_LBN] = .LBN;
; 1875   3411  4            END;
; 1876   3412  3        END;
; 1877   3413  3
; 1878   3414  3
; 1879   3415  3      ! Allocate a new window at each header boundary. This is necessary
; 1880   3416  3      ! in creating the window for a multi-header ODS-1 index file, since
; 1881   3417  3      ! the call below to read the extension header needs the first part
; 1882   3418  3      ! of the window in place. The de-optimization otherwise caused
; 1883   3419  3      ! is minimal.
; 1884   3420  3      !
; 1885   3421  3      W_SIZE = MAXU(.WINDOW[WCB_SIZE], .WINDOW_SIZE);
; 1886   3422  3      DYNWCB = GET_VM(WCB_S_HEADER + .W_SIZE * WCB_S_ENTRY);
; 1887   3423  3      WINDOW[WCB_FREE] = .W_SIZE - .WINDOW[WCB_SIZE];
; 1888   3424  3      CH$MOVE(WCB_S_HEADER + .WINDOW[WCB_SIZE] * WCB_S_ENTRY, WINDOW, .DYNWCB);
; 1889   3425  3      IF .LAST_WINDOW NEQ 0
; 1890   3426  3          THEN LAST_WINDOW[WCB_LINK] = .DYNWCB;
; 1891   3427  3      IF ..P_WINDOW EQL 0 THEN .P_WINDOW = .DYNWCB;
; 1892   3428  3      LAST_WINDOW = .DYNWCB;
; 1893   3429  3      WINDOW[WCB_VBN] = 0;
; 1894   3430  3      WINDOW[WCB_SIZE] = 0;
; 1895   3431  3      WINDOW[WCB_FLAGS] = 0;
; 1896   3432  3      P = WINDOW + WCB_S_HEADER - WCB_S_ENTRY;
; 1897   3433  3
; 1898   3434  3
; 1899   3435  3      ! If no extension header exists, finish up.
; 1900   3436  3      !
; 1901   3437  3      IF .CURRENT_MTL[MTL_SEQ_DISK]
; 1902   3438  3      OR
; 1903   3439  4          BEGIN
; 1904   3440  4          IF .HEADER[FH2$B_STRUCLEV] EQL 2
; 1905   3441  4          THEN
; 1906   3442  4              .HEADER[FH2$W_EX_FIDNUM] EQL 0
; 1907   3443  4              AND .HEADER[FH2$W_EX_FIDRVN] EQL 0
; 1908   3444  4          ELSE
; 1909   3445  5              BEGIN
; 1910   3446  5              MAP_POINTER = .HEADER + .HEADER[FH2$B_MPOFFSET]*2;
; 1911   3447  5              .MAP_POINTER[FM1$W_EX_FILNUM] EQL 0
; 1912   3448  5              END
; 1913   3449  4          END
; 1914   3450  3      THEN
; 1915   3451  3          EXITLOOP;
; 1916   3452  3
; 1917   3453  3
; 1918   3454  3      ! Get clean file number and RVN.
; 1919   3455  3      !
; 1920   3456  3      IF .HEADER[FH2$B_STRUCLEV] EQL 2
; 1921   3457  3      THEN
```

```
4          BEGIN
4          EXT_FILE_ID[FID$W_NUM] = .HEADER[FH2$W_EX_FIDNUM];
4          EXT_FILE_ID[FID$W_SEQ] = .HEADER[FH2$W_EX_FIDSEQ];
4          EXT_FILE_ID[FID$W_RVN] = .HEADER[FH2$W_EX_FIDRVN];
4          END
3      ELSE
4          BEGIN
4          EXT_FILE_ID[FID$W_NUM] = .MAP_POINTER[FM1$W_EX_FILNUM];
4          EXT_FILE_ID[FID$W_SEQ] = .MAP_POINTER[FM1$W_EX_FILSEQ];
4          EXT_FILE_ID[FID$W_RVN] = 1;
3          END;
3      IF .EXT_FILE_ID[FID$B_RVN] EQL 0 THEN EXT_FILE_ID[FID$B_RVN] = .RVN;
3
3
3      ! Set up header and RVN for next trip through loop.
3      !
3      HEADER = LOCAL_HEADER;
3      RVN = .EXT_FILE_ID[FID$B_RVN];
3
3
3      ! Read extension file header.  If this fails,
3      ! exit the loop.
3      !
3      STATUS = READ_HEADER(EXT_FILE_ID, .HEADER);
3      IF NOT .STATUS
3      THEN
4          BEGIN
4          DELETE_WINDOW(..P_WINDOW);
4          RETURN .STATUS;
3          END;
3      WINDOW[WCB_RVN] = .RVN;
2      END;
2
2
2  ! Return success.
2  !
2  SS$_NORMAL
1  END;


                                                  .EXTRN  GET_MAP_POINTER

                                 0FFC 00000       .ENTRY  CREATE_WINDOW, Save R2,R3,R4,R5,R6,R7,R8,-  ; 3231
                                                          R9,R10,R11                                  ;
                5E      F5D8   CE  9E 00002       MOVAB   -2600(SP), SP                               ;
                          0C   BC  D4 00007       CLRL    @P_WINDOW                                   ; 3284
                50 00000000'   EF  D0 0000A       MOVL    CURRENT_MTL, R0                             ; 3285
                          20   A0  D4 00011       CLRL    32(R0)                                      ;
                5B        04   AC  D0 00014       MOVL    P_HEADER, HEADER                            ; 3286
                          08   AC  DD 00018       PUSHL   P_RVN                                       ; 3287
                               7E  D4 0001B       CLRL    LAST_WINDOW                                 ; 3288
                          1C   AE  D4 0001D       CLRL    WINDOW                                      ; 3289
          20    AE        10   AC  D0 00020       MOVL    START_VBN, WINDOW+4                         ; 3290
                          24   AE  94 00025       CLRB    WINDOW+8                                    ; 3291
          26    AE        04   AE  9B 00028       MOVZBW  RVN, WINDOW+10                              ; 3292
                59        28   AE  9E 0002D       MOVAB   WINDOW+12, P                                ; 3294
```

```
                        02        07   AB  91 00031          CMPB    7(HEADER), #2                          ; 3295
                                       1B  12 00035          BNEQ    1$                                     ;
                                  04   AB  B5 00037          TSTW    4(HEADER)                              ; 3296
                                       16  12 0003A          BNEQ    1$                                     ;
                        28             6B  91 0003C          CMPB    (HEADER), #40                          ; 3297
                                       11  1F 0003F          BLSSU   1$                                     ;
                                  4C   AB  D5 00041          TSTL    76(HEADER)                             ; 3298
                                       0C  13 00044          BEQL    1$                                     ;
                    28   AE       4C   AB  D0 00046          MOVL    76(HEADER), WINDOW+12                  ; 3301
                    2C   AE       4C   AB  D0 0004B          MOVL    76(HEADER), WINDOW+16                  ; 3302
                                       08  11 00050          BRB     2$                                     ; 3295
                    28   AE            01  CE 00052 1$:      MNEGL   #1, WINDOW+12                          ; 3306
                    2C   AE            01  CE 00056          MNEGL   #1, WINDOW+16                          ; 3307
                        50        01   AB  9E 0005A 2$:      MOVAB   1(HEADER), R0                          ; 3329
                                  14   AE  D4 0005E          CLRL    20(SP)                                 ; 3326
                        02        07   AB  91 00061          CMPB    7(HEADER), #2                          ;
                                       1A  12 00065          BNEQ    3$                                     ;
                                  14   AE  D6 00067          INCL    20(SP)                                 ;
                        50             60  9A 0006A          MOVZBL  (R0), R0                               ; 3329
                    0C   AE          6B40  3E 0006D          MOVAW   (HEADER)[R0], 12(SP)                   ;
                        58        0C   AE  D0 00072          MOVL    12(SP), MAP_POINTER                    ;
                        50        3A   AB  9A 00076          MOVZBL  58(HEADER), R0                         ; 3330
                    10   AE          6840  3E 0007A          MOVAW   (MAP_POINTER)[R0], END_MAP             ;
                                       19  11 0007F          BRB     4$                                     ; 3326
                        50             60  9A 00081 3$:      MOVZBL  (R0), R0                               ; 3334
                    0C   AE          6B40  3E 00084          MOVAW   (HEADER)[R0], 12(SP)                   ;
                        58        0C   AE  D0 00089          MOVL    12(SP), MAP_POINTER                    ;
                        50        08   A8  9A 0008D          MOVZBL  8(MAP_POINTER), R0                     ; 3335
                    10   AE       0A A840  3E 00091          MOVAW   10(MAP_POINTER)[R0], END_MAP           ;
                        58             0A  C0 00097          ADDL2   #10, MAP_POINTER                       ; 3336
                    10   AE            58  D1 0009A 4$:      CMPL    MAP_POINTER, END_MAP                   ; 3342
                                       03  1F 0009E          BLSSU   5$                                     ;
                                     00A4  31 000A0          BRW     15$                                    ;
                        08        14   AE  E9 000A3 5$:      BLBC    20(SP), 6$                             ; 3347
                           00000000G   00  16 000A7          JSB     GET_MAP_POINTER                        ; 3349
                                       0F  11 000AD          BRB     7$                                     ;
                        57        02   A8  3C 000AF 6$:      MOVZWL  2(MAP_POINTER), LBN                    ; 3352
        57          08  10             88  F0 000B3          INSV    (MAP_POINTER)+, #16, #8, LBN           ; 3353
                        56        FD   A8  9A 000B8          MOVZBL  -3(MAP_POINTER), COUNT                 ; 3354
                                       56  D6 000BC          INCL    COUNT                                  ;
                        50 00000000'   EF  D0 000BE 7$:      MOVL    CURRENT_MTL, R0                        ; 3361
                    20   A0            56  C0 000C5          ADDL2   COUNT, 32(R0)                          ;
                                       51  D4 000C9          CLRL    R1                                     ; 3369
    04   AE     26   AE  08            00  ED 000CB          CMPZV   #0, #8, WINDOW+10, RVN                 ;
                                       04  13 000D2          BEQL    8$                                     ;
                                       51  D6 000D4          INCL    R1                                     ;
                                       14  11 000D6          BRB     10$                                    ;
                                  24   AE  95 000D8 8$:      TSTB    WINDOW+8                               ; 3372
                                       0F  13 000DB          BEQL    10$                                    ;
                    50  69        04   A9  C1 000DD          ADDL3   4(P), (P), R0                          ; 3374
                        57             50  D1 000E2          CMPL    R0, LBN                                ;
                                       05  12 000E5          BNEQ    10$                                    ;
                        69             56  C0 000E7          ADDL2   COUNT, (P)                             ; 3379
                                       AE  11 000EA 9$:      BRB     4$                                     ;
                    FF   8F        24   AE  91 000EC 10$:     CMPB    WINDOW+8, #255                         ; 3382
                                       03  1E 000F1          BGEQU   11$                                    ;
                        46             51  E9 000F3          BLBC    R1, 14$                                ;
```

```
                                25   AE  94 000F6 11$:    CLRB    WINDOW+9                                ; 3389
                        52      24   AE  9A 000F9         MOVZBL  WINDOW+8, R2                            ; 3390
                        52           08  C4 000FD         MULL2   #8, R2                                  ;
                        52           14  C0 00100         ADDL2   #20, R2                                 ;
                                     52  DD 00103         PUSHL   R2                                      ;
            00000000G   00           01  FB 00105         CALLS   #1, GET_VM                              ;
                    08  AE           50  D0 0010C         MOVL    R0, DYNWCB                              ;
    08   BE         1C  AE           52  28 00110         MOVC3   R2, WINDOW, @DYNWCB                     ; 3391
                                     6E  D5 00116         TSTL    LAST_WINDOW                             ; 3392
                                     05  13 00118         BEQL    12$                                     ;
                    00  BE      08   AE  D0 0011A         MOVL    DYNWCB, @LAST_WINDOW                    ; 3393
                                0C   BC  D5 0011F 12$:    TSTL    @P_WINDOW                               ; 3394
                                     05  12 00122         BNEQ    13$                                     ;
                    0C  BC      08   AE  D0 00124         MOVL    DYNWCB, @P_WINDOW                       ;
                        6E      08   AE  D0 00129 13$:    MOVL    DYNWCB, LAST_WINDOW                     ; 3395
                                1C   AE  7C 0012D         CLRQ    WINDOW                                  ; 3396
                                24   AE  94 00130         CLRB    WINDOW+8                                ; 3398
                    26  AE      04   AE  9B 00133         MOVZBW  RVN, WINDOW+10                          ; 3399
                        59      28   AE  9E 00138         MOVAB   WINDOW+12, P                            ; 3401
                                24   AE  96 0013C 14$:    INCB    WINDOW+8                                ; 3407
                        59           08  C0 0013F         ADDL2   #8, P                                   ; 3408
                        69           56  7D 00142         MOVQ    COUNT, (P)                              ; 3409
                                     A3  11 00145         BRB     9$                                      ; 3342
                        50      24   AE  9A 00147 15$:    MOVZBL  WINDOW+8, R0                            ; 3421
                    14  AC           50  D1 0014B         CMPL    R0, WINDOW_SIZE                         ;
                                     04  1E 0014F         BGEQU   16$                                     ;
                        50      14   AC  D0 00151         MOVL    WINDOW_SIZE, R0                         ;
                        5A           50  D0 00155 16$:    MOVL    R0, W_SIZE                              ;
        7E              5A           03  78 00158         ASHL    #3, W_SIZE, -(SP)                       ; 3422
                        6E           14  C0 0015C         ADDL2   #20, (SP)                               ;
            00000000G   00           01  FB 0015F         CALLS   #1, GET_VM                              ;
                    08  AE           50  D0 00166         MOVL    R0, DYNWCB                              ;
    25   AE              5A      24   AE  83 0016A         SUBB3   WINDOW+8, W_SIZE, WINDOW+9              ; 3423
                        50      24   AE  9A 00170         MOVZBL  WINDOW+8, R0                            ; 3424
                        50           08  C4 00174         MULL2   #8, R0                                  ;
                        50           14  C0 00177         ADDL2   #20, R0                                 ;
    08   BE         1C  AE           50  28 0017A         MOVC3   R0, WINDOW, @DYNWCB                     ;
                                     6E  D5 00180         TSTL    LAST_WINDOW                             ; 3425
                                     05  13 00182         BEQL    17$                                     ;
                    00  BE      08   AE  D0 00184         MOVL    DYNWCB, @LAST_WINDOW                    ; 3426
                                0C   BC  D5 00189 17$:    TSTL    @P_WINDOW                               ; 3427
                                     05  12 0018C         BNEQ    18$                                     ;
                    0C  BC      08   AE  D0 0018E         MOVL    DYNWCB, @P_WINDOW                       ;
                        6E      08   AE  D0 00193 18$:    MOVL    DYNWCB, LAST_WINDOW                     ; 3428
                                20   AE  D4 00197         CLRL    WINDOW+4                                ; 3429
                                24   AE  94 0019A         CLRB    WINDOW+8                                ; 3430
                                27   AE  94 0019D         CLRB    WINDOW+11                               ; 3431
                        59      28   AE  9E 001A0         MOVAB   WINDOW+12, P                            ; 3432
                        50 00000000'  EF  D0 001A4         MOVL    CURRENT_MTL, R0                         ; 3437
                        6B      31   A0  E8 001AB         BLBS    49(R0), 26$                             ;
                        0A      14   AE  E9 001AF         BLBC    20(SP), 19$                             ; 3440
                                0E   AB  B5 001B3         TSTW    14(HEADER)                              ; 3442
                                     0E  12 001B6         BNEQ    21$                                     ;
                                12   AB  B5 001B8         TSTW    18(HEADER)                              ; 3443
                                     07  11 001BB         BRB     20$                                     ;
                        58      0C   AE  D0 001BD 19$:    MOVL    12(SP), MAP_POINTER                     ; 3446
                                02   A8  B5 001C1         TSTW    2(MAP_POINTER)                          ; 3447
```

```
                                  54  13 001C4 20$:   BEQL    26$                                  ;
                 0C        14     AE  E9 001C6 21$:   BLBC    20(SP), 22$                          ; 3456
              F8 AD        0E     AB  D0 001CA        MOVL    14(HEADER), EXT_FILE_ID              ; 3459
              FC AD        12     AB  B0 001CF        MOVW    18(HEADER), EXT_FILE_ID+4            ; 3461
                                  09  11 001D4        BRB     23$                                  ; 3456
              F8 AD        02     A8  D0 001D6 22$:   MOVL    2(MAP_POINTER), EXT_FILE_ID          ; 3465
              FC AD                01  B0 001DB        MOVW    #1, EXT_FILE_ID+4                    ; 3467
                           FC     AD  95 001DF 23$:   TSTB    EXT_FILE_ID+4                        ; 3469
                                  05  12 001E2        BNEQ    24$                                  ;
              FC AD        04     AE  90 001E4        MOVB    RVN, EXT_FILE_ID+4                   ;
                 5B      FDF8     CD  9E 001E9 24$:   MOVAB   LOCAL_HEADER, HEADER                 ; 3474
              04 AE        FC     AD  9A 001EE        MOVZBL  EXT_FILE_ID+4, RVN                   ; 3475
                                  5B  DD 001F3        PUSHL   HEADER                               ; 3481
                           F8     AD  9F 001F5        PUSHAB  EXT_FILE_ID                          ;
           F8E5 CF                02  FB 001F8        CALLS   #2, READ_HEADER                      ;
              18 AE             50  D0 001FD        MOVL    R0, STATUS                           ;
              0D        18     AE  E8 00201        BLBS    STATUS, 25$                          ; 3482
                        0C     BC  DD 00205        PUSHL   @P_WINDOW                            ; 3485
           0000V CF             01  FB 00208        CALLS   #1, DELETE_WINDOW                    ;
              50        18     AE  D0 0020D        MOVL    STATUS, R0                           ; 3486
                                  04 00211        RET                                          ;
              26 AE        04     AE  90 00212 25$:   MOVB    RVN, WINDOW+10                       ; 3488
                              FE40  31 00217        BRW     2$                                   ; 3313
              50                  01  D0 0021A 26$:   MOVL    #1, R0                               ; 3495
                                  04 0021D        RET                                          ;

; Routine Size:  542 bytes,    Routine Base:  CODE + 07CE
```

```
1 %SBTTL 'DELETE_WINDOW - delete a window block'
1 ROUTINE DELETE_WINDOW (WINDOW): NOVALUE=
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !       This routine deletes a window block (or blocks).
1 !
1 ! INPUT PARAMETERS:
1 !       WINDOW          - Pointer to window block.
1 !
1 ! IMPLICIT INPUTS:
1 !       NONE
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       NONE
1 !
1 ! SIDE EFFECTS:
1 !       Window blocks released.
1 !
1 !--
1
2 BEGIN
2 MAP
2       WINDOW:         REF BBLOCK;     ! Pointer to window block
2 LOCAL
2       W:              REF BBLOCK;     ! Pointer to window block
2
2
2 W = .WINDOW;
2 WHILE .W NEQ 0 DO
3     BEGIN
3     LOCAL
3       NEXT:           REF BBLOCK;     ! Pointer to next window block
3
3     NEXT = .W[WCB_LINK];                ! Point to next block
3     FREE_VM(                            ! Free current block
3       WCB_S_HEADER + (.W[WCB_SIZE] + .W[WCB_FREE]) * WCB_S_ENTRY,
3       .W);
3     W = .NEXT;                          ! Advance to next block
2     END;
1 END;
```

```
                                 000C 00000 DELETE_WINDOW:
                                                  .WORD   Save R2,R3                  ; 3497
          52        04   AC  D0 00002             MOVL    WINDOW, W                   ; 3531
                         23  13 00006 1$:         BEQL    2$                          ; 3532
```

```
                        53          62  D0 00008        MOVL    (W), NEXT                       ; 3537
                                    52  DD 0000B        PUSHL   W                               ; 3540
                        50      08  A2  9A 0000D        MOVZBL  8(W), R0                        ; 3539
                        51      09  A2  9A 00011        MOVZBL  9(W), R1                        ;
                        50          51  C0 00015        ADDL2   R1, R0                          ;
              7E        50          03  78 00018        ASHL    #3, R0, -(SP)                   ;
                        6E          14  C0 0001C        ADDL2   #20, (SP)                       ;
          00000000G     00          02  FB 0001F        CALLS   #2, FREE_VM                     ;
                        52          53  D0 00026        MOVL    NEXT, W                         ; 3541
                                    DB  11 00029        BRB     1$                              ; 3532
                                        04 0002B 2$:    RET                                     ; 3543

; Routine Size:  44 bytes,    Routine Base:  CODE + 09EC
```

```
; 2010   %SBTTL 'ADD_BLACKHOLE_MAP - add block hole pointer to window'
; 2011   ROUTINE ADD_BLACKHOLE_MAP (P_WINDOW,COUNT): NOVALUE=
; 2012
; 2013   !++
; 2014   !
; 2015   ! FUNCTIONAL DESCRIPTION:
; 2016   !       This routine adds a black hole pointer to the specified window.
; 2017   !       Write I/O's that map to a black hole pointer are discarded.
; 2018   !
; 2019   ! INPUT PARAMETERS:
; 2020   !       P_WINDOW        - Pointer to window block.
; 2021   !       COUNT           - Count of blocks.
; 2022   !
; 2023   ! IMPLICIT INPUTS:
; 2024   !       NONE
; 2025   !
; 2026   ! OUTPUT PARAMETERS:
; 2027   !       NONE
; 2028   !
; 2029   ! IMPLICIT OUTPUTS:
; 2030   !       NONE
; 2031   !
; 2032   ! ROUTINE VALUE:
; 2033   !       NONE
; 2034   !
; 2035   ! SIDE EFFECTS:
; 2036   !       NONE
; 2037   !
; 2038   !--
; 2039
; 2040   BEGIN
; 2041   LOCAL
; 2042           W:              REF BBLOCK,     ! Local pointer to window segment
; 2043           WINDOW:         REF BBLOCK;     ! Address of new window allocated
; 2044
; 2045
; 2046   ! Find the last window block.
; 2047   !
; 2048   W = .P_WINDOW;
; 2049   UNTIL .W[WCB_LINK] EQL 0 DO W = .W[WCB_LINK];
; 2050
; 2051
; 2052   ! If this window block already contains a pointer but is not a black hole,
; 2053   ! allocate a new one.  Since there is never a need for more than one mapping
; 2054   ! pointer, only allocate one.  However, if the window block is empty, transform
; 2055   ! it into a black hole.
; 2056   !
; 2057   IF NOT .W[WCB_BLACKHOLE] AND .W[WCB_SIZE] NEQ 0
; 2058   THEN
; 2059       BEGIN
; 2060       WINDOW = GET_VM(WCB_S_ENTRY + WCB_S_HEADER);
; 2061       W[WCB_LINK] = .WINDOW;
; 2062       W = .WINDOW;
; 2063       W[WCB_LINK] = 0;
; 2064       W[WCB_VBN] = 0;
; 2065       W[WCB_RVN] = 0;
; 2066       W[WCB_FREE] = 1;
```

```
3     W[WCB_SIZE] = 0;
3     W[WCB_FLAGS] = 0;
2     END;
2
2
2 ! If no pointer exists yet, initialize it.  There can be no more than one
2 ! pointer in a black hole window block.
2 !
2 IF .W[WCB_SIZE] EQL 0
2 THEN
3     BEGIN
3     W[WCB_BLACKHOLE] = TRUE;
3     W[WCB_SIZE] = 1;
3     W[WCB_FREE] = .W[WCB_FREE] - 1;
3     BBLOCK[.W + WCB_S_HEADER, WCB_COUNT] = 0;
3     BBLOCK[.W + WCB_S_HEADER, WCB_LBN] = 0;
2     END;
2
2
2 ! Finally add the blocks to the pointer.
2 !
2 BBLOCK[.W + WCB_S_HEADER, WCB_COUNT] =
2     .BBLOCK[.W + WCB_S_HEADER, WCB_COUNT] + .COUNT;
1 END;
```

```
                                0004 00000 ADD_BLACKHOLE_MAP:
                                                .WORD   Save R2                          ; 3545
          52        04   AC  D0 00002            MOVL    P_WINDOW, W                      ; 3582
                         62  D5 00006 1$:        TSTL    (W)                              ; 3583
                         05  13 00008            BEQL    2$                               ;
          52             62  D0 0000A            MOVL    (W), W                           ;
                         F7  11 0000D            BRB     1$                               ;
          20        0B   A2  E8 0000F 2$:        BLBS    11(W), 3$                        ; 3591
                    08   A2  95 00013            TSTB    8(W)                             ;
                         1B  13 00016            BEQL    3$                               ;
                         1C  DD 00018            PUSHL   #28                              ; 3594
  00000000G  00          01  FB 0001A            CALLS   #1, GET_VM                       ;
          62             50  D0 00021            MOVL    WINDOW, (W)                      ; 3595
          52             50  D0 00024            MOVL    WINDOW, W                        ; 3596
                         62  7C 00027            CLRQ    (W)                              ; 3597
     09   A2             01  B0 00029            MOVW    #1, 9(W)                         ; 3600
                    08   A2  94 0002D            CLRB    8(W)                             ; 3601
                    0B   A2  94 00030            CLRB    11(W)                            ; 3602
                    08   A2  95 00033 3$:        TSTB    8(W)                             ; 3609
                         11  12 00036            BNEQ    4$                               ;
     0B   A2             01  88 00038            BISB2   #1, 11(W)                        ; 3612
     08   A2             01  90 0003C            MOVB    #1, 8(W)                         ; 3613
                    09   A2  97 00040            DECB    9(W)                             ; 3614
          50        14   A2  9E 00043            MOVAB   20(W), R0                        ; 3615
                         60  7C 00047            CLRQ    (R0)                             ;
     14   A2        08   AC  C0 00049 4$:        ADDL2   COUNT, 20(W)                     ; 3623
                             04 0004E            RET                                      ; 3624
```

; Routine Size: 79 bytes, Routine Base: CODE + 0A18

```
1 %SBTTL 'ADD_WINDOW_MAP - add pointers to a window'
1 ROUTINE ADD_WINDOW_MAP (P_WINDOW,RVN,COUNT,LBN): NOVALUE=
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !       This routine adds a window pointer mapping the specified blocks
1 !       to the specified window.  If the window is full or describes a
1 !       different RVN, an extension of the same size is added.
1 !
1 ! INPUT PARAMETERS:
1 !       P_WINDOW        - Pointer to window block.
1 !       RVN             - Relative volume number of blocks to be added.
1 !       COUNT           - Count of blocks to be added.
1 !       LBN             - Starting LBN of blocks.
1 !
1 ! IMPLICIT INPUTS:
1 !       NONE
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       NONE
1 !
1 ! SIDE EFFECTS:
1 !       NONE
1 !
1 !--
1
2 BEGIN
2 LOCAL
2         W:              REF BBLOCK,     ! Local pointer to window segment
2         P:              REF BBLOCK,     ! Pointer to window map entry
2         SIZE,                           ! Size of new segment to allocate
2         WINDOW:         REF BBLOCK;     ! Address of new window allocated
2
2
2 ! Find the last segment of the current window.
2 !
2 W = .P_WINDOW;
2 UNTIL .W[WCB_LINK] EQL 0 DO W = .W[WCB_LINK];
2
2
2 ! If this segment has been used and if it describes blocks on a different
2 ! RVN or if this segment is full, allocate a new one.
2 !
2 IF
2     (.W[WCB_SIZE] NEQ 0 AND .W[WCB_RVN] NEQ .RVN) OR
2     .W[WCB_FREE] EQL 0
2 THEN
3     BEGIN
3     SIZE = MAXU(.W[WCB_SIZE], 10);
3     WINDOW = GET_VM(.SIZE * WCB_S_ENTRY + WCB_S_HEADER);
```

```
; 2149   3682  3      W[WCB_LINK] = .WINDOW;
; 2150   3683  3      W = .WINDOW;
; 2151   3684  3      W[WCB_LINK] = 0;
; 2152   3685  3      W[WCB_VBN] = 0;
; 2153   3686  3      W[WCB_SIZE] = 0;
; 2154   3687  3      W[WCB_FREE] = .SIZE;
; 2155   3688  3      W[WCB_FLAGS] = 0;
; 2156   3689  2      END;
; 2157   3690  2
; 2158   3691  2
; 2159   3692  2 ! Finally add the pointer.  No attempt is made at agglomeration since we
; 2160   3693  2 ! will never allocate an area that could be contiguous.
; 2161   3694  2 !
; 2162   3695  2 P = .W + WCB_S_HEADER + .W[WCB_SIZE]*WCB_S_ENTRY;
; 2163   3696  2 W[WCB_SIZE] = .W[WCB_SIZE] + 1;
; 2164   3697  2 W[WCB_FREE] = .W[WCB_FREE] - 1;
; 2165   3698  2 W[WCB_RVN] = .RVN;
; 2166   3699  2 P[WCB_COUNT] = .COUNT;
; 2167   3700  2 P[WCB_LBN] = .LBN;
; 2168   3701  1 END;


                                    000C 00000 ADD_WINDOW_MAP:
                                                       .WORD   Save R2,R3                          ; 3626
                        52      04   AC  D0 00002      MOVL    P_WINDOW, W                         ; 3668
                                     62  D5 00006 1$:  TSTL    (W)                                 ; 3669
                                     05  13 00008      BEQL    2$                                  ;
                        52           62  D0 0000A      MOVL    (W), W                              ;
                                     F7  11 0000D      BRB     1$                                  ;
                                 08  A2  95 0000F 2$:  TSTB    8(W)                                ; 3676
                                     09  13 00012      BEQL    3$                                  ;
08  AC      0A  A2           08         00  ED 00014   CMPZV   #0, #8, 10(W), RVN                  ;
                                     05  12 0001B      BNEQ    4$                                  ;
                                 09  A2  95 0001D 3$:  TSTB    9(W)                                ; 3677
                                     2F  12 00020      BNEQ    6$                                  ;
                        50       08  A2  9A 00022 4$:  MOVZBL  8(W), R0                            ; 3680
                        0A           50  91 00026      CMPB    R0, #10                             ;
                                     03  1E 00029      BGEQU   5$                                  ;
                        50           0A  D0 0002B      MOVL    #10, R0                             ;
                        53           50  D0 0002E 5$:  MOVL    R0, SIZE                            ;
                 7E     53           03  78 00031      ASHL    #3, SIZE, -(SP)                     ; 3681
                        6E           14  C0 00035      ADDL2   #20, (SP)                           ;
             00000000G  00           01  FB 00038      CALLS   #1, GET_VM                          ;
                        62           50  D0 0003F      MOVL    WINDOW, (W)                         ; 3682
                        52           50  D0 00042      MOVL    WINDOW, W                           ; 3683
                                     62  7C 00045      CLRQ    (W)                                 ; 3684
                                 08  A2  94 00047      CLRB    8(W)                                ; 3686
                     09  A2          53  90 0004A      MOVB    SIZE, 9(W)                          ; 3687
                                 0B  A2  94 0004E      CLRB    11(W)                               ; 3688
                        50       08  A2  9A 00051 6$:  MOVZBL  8(W), R0                            ; 3695
                        50       14 A240 7E 00055      MOVAQ   20(W)[R0], P                        ;
                                 08  A2  96 0005A      INCB    8(W)                                ; 3696
                                 09  A2  97 0005D      DECB    9(W)                                ; 3697
                     0A  A2      08  AC  90 00060      MOVB    RVN, 10(W)                          ; 3698
```

```
                    60      0C   AC  7D 00065        MOVQ    COUNT, (P)                          ; 3699
                                     04 00069        RET                                         ; 3701

; Routine Size:  106 bytes,    Routine Base:  CODE + 0A67
```

```
1 %SBTTL 'QIO_AST - I/O completion AST routine'
1 ROUTINE QIO_AST (VCB): NOVALUE=
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !       This routine is a completion AST routine for the $QIO service in
1 !       routine R_W_VIRTUAL.  It decreases the pending I/O count for the
1 !       volume, and if it reaches zero, sets event flag 31.
1 !
1 ! INPUT PARAMETERS:
1 !       VCB             - Pointer to VCB.
1 !       Remaining standard AST parameters (not used).
1 !
1 ! IMPLICIT INPUTS:
1 !       NONE
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       NONE
1 !
1 ! SIDE EFFECTS:
1 !       Pending I/O count in VCB decreased.  EFN 31 may be set.
1 !
1 !--
1
2 BEGIN
2 MAP
2       VCB:            REF BBLOCK;
2
2
2 VCB[VCB_IOCOUNT] = .VCB[VCB_IOCOUNT] - 1;
2 IF .VCB[VCB_IOCOUNT] LEQ 0 THEN $SETEF(EFN=31);
1 END;


                                                        .EXTRN  SYS$SETEF

                                  0000 00000 QIO_AST:.WORD   Save nothing                    ; 3703
                    50      04  AC  D0 00002         MOVL    VCB, R0                         ; 3738
                            0A  A0  B7 00006         DECW    10(R0)                          ;
                                09  14 00009         BGTR    1$                              ; 3739
                                1F  DD 0000B         PUSHL   #31                             ;
          00000000G  00         01  FB 0000D         CALLS   #1, SYS$SETEF                   ;
                                    04 00014 1$:     RET                                     ; 3740

; Routine Size:  21 bytes,    Routine Base:  CODE + 0AD1
```

```
%SBTTL 'R_W_VIRTUAL - perform read and write virtual'
ROUTINE R_W_VIRTUAL (EFN,CHAN,FUNC,IOSB,ASTADR,ASTPRM,P1,P2,P3)=

!++
!
! FUNCTIONAL DESCRIPTION:
!       This routine maps a read or write virtual block QIO to the appropriate
!       read or write logical block QIO's using the current window.
!
! INPUT PARAMETERS:
!       As for $QIO(W) service.
!       Assumptions: P2 is a multiple of 512, and P2 < 65536
!
! IMPLICIT INPUTS:
!       CURRENT_MTL     - Pointer to MTL for selected volume set.
!       CURRENT_WCB     - Pointer to WCB for current file.
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       SS$_NORMAL if execution is successful or SS$_ENDOFFILE if the
!       specified virtual block(s) are not completely within the file.
!
! SIDE EFFECTS:
!       NONE
!
!--

BEGIN

MAP
        IOSB:           REF VECTOR [,WORD];

LOCAL
        CHANNEL,                        ! Channel number
        W:              REF BBLOCK,     ! Pointer to window block
        P:              REF BBLOCK,     ! Pointer to window block entry
        N,                              ! VBN mapped so far
        LFUNC:          BBLOCK [4],     ! Logical function code
        LP1, LP2, LP3;                  ! Local copies of P1, P2, P3

! Pick up local copies of P1, P2, and P3 so that they can advance as the
! transfer is done. Note that LP2 is maintained as a block count instead
! of as a byte count. Get the appropriate logical function code.
!
LP1 = .P1;
LP2 = .P2 / 512;
LP3 = .P3;
LFUNC = .FUNC - IO$_READVBLK + IO$_READLBLK;

! The virtual block number must not be 0, and there must be a window.
```

```
; 2267   3798  2 !
; 2268   3799  2 IF .LP3 EQL 0 OR .CURRENT_WCB EQL 0
; 2269   3800  2 THEN
; 2270   3801  2     RETURN SS$_ENDOFFILE;
; 2271   3802  2
; 2272   3803  2 ! If this is a write, check the file's highwater mark. If the write
; 2273   3804  2 ! starts beyond it, back up the VBN to the highwater mark. The mapping
; 2274   3805  2 ! code below will then execute erase functions until we reach the
; 2275   3806  2 ! start of the write.
; 2276   3807  2 !
; 2277   3808  2
; 2278   3809  2 IF .FUNC<0,6> EQL IO$_WRITEVBLK
; 2279   3810  2 THEN
; 2280   3811  3     BEGIN
; 2281   3812  3     IF .LP3 GTRU .CURRENT_WCB[WCB_CUR_HWM]
; 2282   3813  3     AND NOT .CURRENT_MTL[MTL_NOHWM]
; 2283   3814  3     THEN
; 2284   3815  4         BEGIN
; 2285   3816  4         LFUNC = IO$_WRITELBLK OR IO$M_ERASE;
; 2286   3817  4         LP1 = UPLIT (0);
; 2287   3818  4         LP2 = .LP3 - .CURRENT_WCB[WCB_CUR_HWM];
; 2288   3819  4         LP3 = .CURRENT_WCB[WCB_CUR_HWM];
; 2289   3820  3         END;
; 2290   3821  3     END
; 2291   3822  3
; 2292   3823  3 ! If a read goes past the file's highwater mark (and highwater marking
; 2293   3824  3 ! is enforced), stop it at that point and fill the rest of the buffer
; 2294   3825  3 ! with zeroes.
; 2295   3826  3 !
; 2296   3827  3
; 2297   3828  2 ELSE
; 2298   3829  3     BEGIN
; 2299   3830  3     IF .LP2 + .LP3 GTRU .CURRENT_WCB[WCB_CUR_HWM]
; 2300   3831  3     AND NOT .CURRENT_MTL[MTL_NOHWM]
; 2301   3832  3     THEN
; 2302   3833  4         BEGIN
; 2303   3834  4         LP2 = MAX (.CURRENT_WCB[WCB_CUR_HWM] - .LP3, 0);
; 2304   3835  4         CH$FILL (0, .P2 - .[P2*512, .P1 + .LP2*512);
; 2305   3836  3         END;
; 2306   3837  2     END;
; 2307   3838  2
; 2308   3839  2 ! Loop over the window blocks.
; 2309   3840  2 !
; 2310   3841  2 W = .CURRENT_WCB;
; 2311   3842  2 N = .W[WCB_VBN];
; 2312   3843  2 WHILE .W NEQ 0 DO
; 2313   3844  3     BEGIN
; 2314   3845  3     P = .W + WCB_S_HEADER;
; 2315   3846  3
; 2316   3847  3
; 2317   3848  3     ! Loop over the entries within the window block. Maintain the
; 2318   3849  3     ! byte count in IOSB in case we exit.
; 2319   3850  3     !
; 2320   3851  3     DECR I FROM .W[WCB_SIZE] TO 1 DO
; 2321   3852  4         BEGIN
; 2322   3853  4
; 2323   3854  4         ! Since an erase may end and a write begin in the same map pointer,
```

```
; 2324          3855  4          ! loop on the map pointer until it does no good.
; 2325          3856  4          !
; 2326          3857  4          WHILE TRUE DO
; 2327          3858  5              BEGIN
; 2328          3859  5
; 2329          3860  5              ! If this entry maps the first VBN of the transfer, do it.
; 2330          3861  5              !
; 2331          3862  5              IF .LP3 GEQU .N AND .LP3 LSSU .N + .P[WCB_COUNT]
; 2332          3863  5              THEN
; 2333          3864  6                  BEGIN
; 2334          3865  6                  LOCAL
; 2335          3866  6                      STATUS,
; 2336          3867  6                      XP2,
; 2337          3868  6                      YP2,
; 2338          3869  6                      XP3;
; 2339          3870  6
; 2340          3871  6                  ! Compute LBN and byte count for this segment and update the
; 2341          3872  6                  ! highwater mark. Then do the I/O function appropriate to the
; 2342          3873  6                  ! circumstances.
; 2343          3874  6                  !
; 2344          3875  6                  XP3 = .P[WCB_LBN] + .LP3 - .N;
; 2345          3876  6                  XP2 = MINU(.LP2, .P[WCB_COUNT] - .LP3 + .N);
; 2346          3877  6                  CURRENT_WCB[WCB_CUR_HWM] = MAXU (.CURRENT_WCB[WCB_CUR_HWM], .LP3 + .XP2);
; 2347          3878  6                  IF .LP2 EQL .XP2 AND .LP1 EQL .P1
; 2348          3879  6                  THEN
; 2349          3880  7                      BEGIN
; 2350          3881  7                      IF .W[WCB_BLACKHOLE]
; 2351          3882  7                      THEN
; 2352          3883  8                          BEGIN
; 2353          3884  8                          $SETEF(EFN=.EFN);
; 2354          3885  8                          IF .IOSB NEQ 0 THEN IOSB[0] = SS$_NORMAL;
; 2355          3886  8                          RETURN SS$_NORMAL;
; 2356          3887  8                          END
; 2357          3888  7                      ELSE
; 2358          3889  8                          BEGIN
; 2359          3890  8                          LOCAL
; 2360          3891  8                              VCB:        REF BBLOCK;
; 2361          3892  8
; 2362          3893  8                          VCB = .CURRENT_MTL[MTL_VCB(.W[WCB_RVN]-.CURRENT_MTL[MTL_RVN_BASE])];
; 2363          3894  8                          CHANNEL = SWITCH_VOLUME(.W[WCB_RVN]);
; 2364        P 3895  8                          STATUS = $QIO(
; 2365        P 3896  8                              FUNC=.LFUNC,
; 2366        P 3897  8                              CHAN=.CHANNEL,
; 2367        P 3898  8                              IOSB=.IOSB,
; 2368        P 3899  8                              EFN=.EFN,
; 2369        P 3900  8                              ASTADR=QIO_AST,
; 2370        P 3901  8                              ASTPRM=.VCB,
; 2371        P 3902  8                              P1=.LP1,
; 2372        P 3903  8                              P2=.XP2*512,
; 2373          3904  8                              P3=.XP3);
; 2374          3905  8
; 2375          3906  8
; 2376          3907  8                          ! Increment the pending I/O count for this volume.
; 2377          3908  8                          !
; 2378          3909  8                          IF .STATUS THEN VCB[VCB_IOCOUNT] = .VCB[VCB_IOCOUNT] + 1;
; 2379          3910  8                          RETURN .STATUS;
; 2380          3911  8                          END
```

```
3912  7                    END
3913  6                ELSE
3914  7                    BEGIN
3915  7                    IF NOT .W[WCB_BLACKHOLE]
3916  7                    THEN
3917  8                        BEGIN
3918  8                        LOCAL
3919  8                            L_IOSB:     VECTOR[4,WORD];
3920  8
3921  8                        CHANNEL = SWITCH_VOLUME(.W[WCB_RVN]);
3922  8
3923  8                        ! All erases get done here. Since the area to be
3924  8                        ! erased is potentially huge, repeat the I/O's
3925  8                        ! until the count is run out.
3926  8                        !
3927  8                        YP2 = .XP2;
3928  8                        DO
3929  9                            BEGIN
P 3930  9                            STATUS = $QIOW(
P 3931  9                                FUNC=.LFUNC,
P 3932  9                                CHAN=.CHANNEL,
P 3933  9                                IOSB=L_IOSB,
P 3934  9                                P1=.LPT,
P 3935  9                                P2=MINU (.YP2, 127)*512,
3936  9                                P3=.XP3);
3937  9                            IF .STATUS THEN STATUS = .L_IOSB[0];
3938  9                            IF NOT .STATUS
3939  9                            THEN RETURN .STATUS;
3940  9                            YP2 = .YP2 - 127;
3941  9                            XP3 = .XP3 + 127;
3942  9                            END
3943  8                        UNTIL .YP2 LEQ 0;
3944  7                        END;
3945  6                    END;
3946  6                LP2 = .LP2 - .XP2;
3947  6                LP3 = .LP3 + .XP2;
3948  6
3949  6                ! If we are erasing, check if we have arrived at the start
3950  6                ! of the actual transfer. If so, set the parameters up
3951  6                ! up for the transfer.
3952  6                !
3953  6                IF .LFUNC[IO$V_ERASE]
3954  6                AND .LP2 LEQ 0
3955  6                THEN
3956  7                    BEGIN
3957  7                    LFUNC = .FUNC - IO$_READVBLK + IO$_READLBLK;
3958  7                    LP1 = .P1;
3959  7                    LP2 = .P2 / 512;
3960  7                    LP3 = .P3;
3961  7                    END
3962  7
3963  7                ! Maintain byte count in IOSB and check for completion.
3964  7                !
3965  6                ELSE
3966  7                    BEGIN
3967  7                    LP1 = .LP1 + .XP2*512;
3968  7                    IF .IOSB NEQ 0
```

```
7                       THEN
8                           BEGIN
8                           IOSB[0] = SS$_NORMAL;
8                           IOSB[1] = .P2 - .LP2*512;
7                           END;
7                       IF .LP2 LEQ 0
7                       THEN RETURN SS$_NORMAL;
7                       EXITLOOP;
6                       END;
6                   END
5               ELSE
5                   EXITLOOP;
5
4               END;                        ! end of loop on map pointer
4
4
4           ! Advance to next entry.
4           !
4           N = .N + .P[WCB_COUNT];
4           P = .P + WCB_S_ENTRY;
3           END;
3
3
3       ! Advance to next window block.
3       !
3       W = .W[WCB_LINK];
2       END;
2
2
2   ! There were not enough mapping pointers to advance to the specified virtual
2   ! block number.  Therefore, return SS$_ENDOFFILE.
2   !
2   SS$_ENDOFFILE
1   END;


                                    00AE6          .BLKB   2
                        00000000    00AE8 P.AAB:   .LONG   0                                    ;

                                                   .EXTRN  SYS$QIO, SYS$QIOW

                                 0FFC 00000 R_W_VIRTUAL:
                                                   .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10,R11   ; 3742
                    5E          20  C2 00002       SUBL2   #32, SP                                ;
                    5B      1C  AC  D0 00005       MOVL    P1, LP1                                ; 3791
      0C   AE   20  AC 00000200  8F  C7 00009      DIVL3   #512, P2, 12(SP)                       ; 3792
                    57      0C  AE  D0 00013       MOVL    12(SP), LP2                            ;
                    56      24  AC  D0 00017       MOVL    P3, LP3                                ; 3793
      08   AE   0C  AC          10  C3 0001B       SUBL3   #16, FUNC, 8(SP)                       ; 3794
                04  AE      08  AE  D0 00021       MOVL    8(SP), LFUNC                           ;
                                56  D5 00026       TSTL    LP3                                    ; 3799
                                7E  13 00028       BEQL    5$                                     ;
                        00000000' EF  D5 0002A     TSTL    CURRENT_WCB                            ;
                                76  13 00030       BEQL    5$                                     ;
                    50 00000000' EF  D0 00032      MOVL    CURRENT_WCB, R0                        ; 3812
30    0C   AC       06          00  ED 00039       CMPZV   #0, #6, FUNC, #48                      ; 3809
```

```
                                27  12 0003F          BNEQ    1$                          ;
                    0C  A0      56  D1 00041          CMPL    LP3, 12(R0)                 ; 3812
                                54  1B 00045          BLEQU   3$                          ;
                        51 00000000'  EF  D0 00047    MOVL    CURRENT_MTL, R1             ; 3813
                48  31  A1      02  E0 0004E          BBS     #2, 49(R1), 3$              ;
                    04  AE    0420  8F  3C 00053      MOVZWL  #1056, LFUNC                ; 3816
                        5B      A0  AF  9E 00059      MOVAB   P.AAB, LP1                  ; 3817
                57      56      0C  A0  C3 0005D      SUBL3   12(R0), LP3, LP2            ; 3818
                        56      0C  A0  D0 00062      MOVL    12(R0), LP3                 ; 3819
                                33  11 00066          BRB     3$                          ; 3809
                51      57          56  C1 00068 1$:  ADDL3   LP3, LP2, R1                ; 3830
                    0C  A0      51  D1 0006C          CMPL    R1, 12(R0)                  ;
                                29  1B 00070          BLEQU   3$                          ;
                        51 00000000'  EF  D0 00072    MOVL    CURRENT_MTL, R1             ; 3831
                1D  31  A1      02  E0 00079          BBS     #2, 49(R1), 3$              ;
                50  0C  A0      56  C3 0007E          SUBL3   LP3, 12(R0), R0             ; 3834
                                02  18 00083          BGEQ    2$                          ;
                                50  D4 00085          CLRL    R0                          ;
                        57      50  D0 00087 2$:      MOVL    R0, LP2                     ;
                50      57      09  78 0008A          ASHL    #9, LP2, R0                 ; 3835
                51  20  AC      50  C3 0008E          SUBL3   R0, P2, R1                  ;
            51  00      6E      00  2C 00093          MOVC5   #0, (SP), #0, R1, @P1[R0]   ;
                            1C BC40     00098         ;                                   ;
                        52 00000000'  EF  D0 0009B 3$:  MOVL    CURRENT_WCB, W              ; 3841
                        58      04  A2  D0 000A2      MOVL    4(W), N                     ; 3842
                                52  D5 000A6 4$:      TSTL    W                           ; 3843
                                03  12 000A8 5$:      BNEQ    6$                          ;
                            017F  31 000AA            BRW     25$                         ;
                        55      14  A2  9E 000AD 6$:  MOVAB   20(R2), P                   ; 3845
                        6E      08  A2  9A 000B1      MOVZBL  8(W), (SP)                  ; 3851
            10  AE      6E          01  C1 000B5      ADDL3   #1, (SP), I                 ;
                            0165  31 000BA            BRW     24$                         ;
                        58          56  D1 000BD 7$:  CMPL    LP3, N                      ; 3862
                                03  1E 000C0          BGEQU   9$                          ;
                            0157  31 000C2 8$:        BRW     23$                         ;
                50      58          65  C1 000C5 9$:  ADDL3   (P), N, R0                  ;
                        50          56  D1 000C9      CMPL    LP3, R0                     ;
                                F4  1E 000CC          BGEQU   8$                          ;
                51      56      04  A5  C1 000CE      ADDL3   4(P), LP3, R1               ; 3875
                5A      51          58  C3 000D3      SUBL3   N, R1, XP3                  ;
                51      65          56  C3 000D7      SUBL3   LP3, (P), R1                ; 3876
                        51          58  C0 000DB      ADDL2   N, R1                       ;
                        50          57  D0 000DE      MOVL    LP2, R0                     ;
                        51          50  D1 000E1      CMPL    R0, R1                      ;
                                03  1B 000E4          BLEQU   10$                         ;
                        50          51  D0 000E6      MOVL    R1, R0                      ;
                        53          50  D0 000E9 10$: MOVL    R0, XP2                     ;
                        50 00000000'  EF  D0 000EC    MOVL    CURRENT_WCB, R0             ; 3877
                54      56          53  C1 000F3      ADDL3   XP2, LP3, R4                ;
                        51      0C  A0  D0 000F7      MOVL    12(R0), R1                  ;
                        54          51  D1 000FB      CMPL    R1, R4                      ;
                                03  1E 000FE          BGEQU   11$                         ;
                        51          54  D0 00100      MOVL    R4, R1                      ;
                    0C  A0          51  D0 00103 11$: MOVL    R1, 12(R0)                  ;
                        53          57  D1 00107      CMPL    LP2, XP2                    ; 3878
                                71  12 0010A          BNEQ    14$                         ;
                    1C  AC      5B  D1 0010C          CMPL    LP1, P1                     ;
```

```
                                 6B  12 00110          BNEQ    14$                                  ;
                     59      10  AC  D0 00112          MOVL    IOSB, R9                             ; 3885
                     14      0B  A2  E9 00116          BLBC    11(W), 13$                           ; 3881
                             04  AC  DD 0011A          PUSHL   EFN                                  ; 3884
          00000000G  00          01  FB 0011D          CALLS   #1, SYS$SETEF                        ;
                                 59  D5 00124          TSTL    R9                                   ; 3885
                                 03  13 00126          BEQL    12$                                  ;
                     69          01  B0 00128          MOVW    #1, (R9)                             ;
                               00EA  31 0012B 12$:     BRW     22$                                  ; 3889
                     51 00000000' EF  D0 0012E 13$:     MOVL    CURRENT_MTL, R1                      ; 3893
                     50      0A  A2  9A 00135          MOVZBL  10(W), R0                            ;
                     54      30  A1  9A 00139          MOVZBL  48(R1), R4                           ;
                     50          54  C2 0013D          SUBL2   R4, R0                               ;
                     54      34 A140 D0 00140          MOVL    52(R1)[R0], VCB                      ;
                     7E      0A  A2  9A 00145          MOVZBL  10(W), -(SP)                         ; 3894
                F507 CF          01  FB 00149          CALLS   #1, SWITCH_VOLUME                    ;
                  14 AE          50  D0 0014E          MOVL    R0, CHANNEL                          ;
                                 7E  7C 00152          CLRQ    -(SP)                                ; 3904
                                 7E  D4 00154          CLRL    -(SP)                                ;
                                 5A  DD 00156          PUSHL   XP3                                  ;
             7E      53          09  78 00158          ASHL    #9, XP2, -(SP)                       ;
                           0810  8F  BB 0015C          PUSHR   #^M<R4,R11>                          ;
                           FE81  CF  9F 00160          PUSHAB  QIO_AST                              ;
                                 59  DD 00164          PUSHL   R9                                   ;
                             28  AE  DD 00166          PUSHL   LFUNC                                ;
                             3C  AE  DD 00169          PUSHL   CHANNEL                              ;
                             04  AC  DD 0016C          PUSHL   EFN                                  ;
          00000000G  00          0C  FB 0016F          CALLS   #12, SYS$QIO                         ;
                     4F          50  E9 00176          BLBC    STATUS, 17$                          ; 3909
                             0A  A4  B6 00179          INCW    10(VCB)                              ;
                                 04  0017C             RET                                          ; 3889
                     56      0B  A2  E8 0017D 14$:     BLBS    11(W), 18$                           ; 3915
                     7E      0A  A2  9A 00181          MOVZBL  10(W), -(SP)                         ; 3921
                F4CB CF          01  FB 00185          CALLS   #1, SWITCH_VOLUME                    ;
                  14 AE          50  D0 0018A          MOVL    R0, CHANNEL                          ;
                     59          53  D0 0018E          MOVL    XP2, YP2                             ; 3927
                                 7E  7C 00191 15$:     CLRQ    -(SP)                                ; 3936
                                 7E  D4 00193          CLRL    -(SP)                                ;
                                 5A  DD 00195          PUSHL   XP3                                  ;
                     51          59  D0 00197          MOVL    YP2, R1                              ;
          0000007F   8F          51  D1 0019A          CMPL    R1, #127                             ;
                                 04  1B 001A1          BLEQU   16$                                  ;
                     51      7F  8F  9A 001A3          MOVZBL  #127, R1                             ;
             7E      51          09  78 001A7 16$:     ASHL    #9, R1, -(SP)                        ;
                                 5B  DD 001AB          PUSHL   LP1                                  ;
                                 7E  7C 001AD          CLRQ    -(SP)                                ;
                             38  AE  9F 001AF          PUSHAB  L_IOSB                               ;
                             28  AE  DD 001B2          PUSHL   LFUNC                                ;
                             3C  AE  DD 001B5          PUSHL   CHANNEL                              ;
                                 7E  D4 001B8          CLRL    -(SP)                                ;
          00000000G  00          0C  FB 001BA          CALLS   #12, SYS$QIOW                        ;
                     6D          50  E9 001C1          BLBC    STATUS, 26$                          ; 3937
                     50      18  AE  3C 001C4          MOVZWL  L_IOSB, STATUS                       ;
                     66          50  E9 001C8 17$:     BLBC    STATUS, 26$                          ; 3938
                     59      81  A9  9E 001CB          MOVAB   -127(R9), YP2                        ; 3940
                     5A      7F  AA  9E 001CF          MOVAB   127(R10), XP3                        ; 3941
                                 59  D5 001D3          TSTL    YP2                                  ; 3943
```

```
                                    BA  14 001D5          BGTR    15$                                  ;
                        57          53  C2 001D7 18$:     SUBL2   XP2, LP2                             ; 3946
                        56          53  C0 001DA          ADDL2   XP2, LP3                             ; 3947
                18      AE          02  E1 001DD          BBC     #2, LFUNC+1, 20$                     ; 3953
                                    57  D5 001E2          TSTL    LP2                                  ; 3954
                                    14  14 001E4          BGTR    20$                                  ;
                        AE      08  AE  D0 001E6          MOVL    8(SP), LFUNC                         ; 3957
                        5B      1C  AC  D0 001EB          MOVL    P1, LP1                              ; 3958
                        57      0C  AE  D0 001EF          MOVL    12(SP), LP2                          ; 3959
                        56      24  AC  D0 001F3          MOVL    P3, LP3                              ; 3960
                                    FEC3 31 001F7 19$:    BRW     7$                                   ; 3953
                53      53          09  78 001FA 20$:     ASHL    #9, R3, R3                           ; 3967
                        5B          53  C0 001FE          ADDL2   R3, LP1                              ;
                        50      10  AC  D0 00201          MOVL    IOSB, R0                             ; 3968
                                    0D  13 00205          BEQL    21$                                  ;
                        60          01  B0 00207          MOVW    #1, (R0)                             ; 3971
                51      57          09  78 0020A          ASHL    #9, LP2, R1                          ; 3972
            02  A0      AC          51  A3 0020E          SUBW3   R1, P2, 2(R0)                        ;
                                    57  D5 00214 21$:     TSTL    LP2                                  ; 3974
                                    04  14 00216          BGTR    23$                                  ;
                        50          01  D0 00218 22$:     MOVL    #1, R0                               ; 3975
                                        04 0021B          RET                                          ;
                        58          85  C0 0021C 23$:     ADDL2   (P)+, N                              ; 3987
                        55          04  C0 0021F          ADDL2   #4, P                                ; 3988
                        D1      10  AE  F5 00222 24$:     SOBGTR  I, 19$                               ; 3851
                        52          62  D0 00226          MOVL    (W), W                               ; 3994
                                    FE7A 31 00229         BRW     4$                                   ; 3843
                        50      0870 8F 3C 0022C 25$:     MOVZWL  #2160, R0                            ; 4002
                                        04 00231 26$:     RET                                          ;

; Routine Size:  562 bytes,    Routine Base:  CODE + 0AEC
```

```
%SBTTL 'READ_HOMEBLOCK - read volume home block'
ROUTINE READ_HOMEBLOCK (CHANNEL,DEVICE_CHAR,HOME_BLOCK): NOVALUE=

!++
!
! FUNCTIONAL DESCRIPTION:
!       This routine reads the home block from a specified volume.
!
! INPUT PARAMETERS:
!       CHANNEL         - Channel number assigned to device.
!       DEVICE_CHAR     - Device characteristics of device.
!       HOME_BLOCK      - Buffer into which home block will be read.
!
! IMPLICIT INPUTS:
!       CURRENT_VCB
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       NONE
!
! SIDE EFFECTS:
!       NONE
!
!--

BEGIN
MAP
        HOME_BLOCK:     REF BBLOCK,     ! Pointer to home block buffer
        DEVICE_CHAR:    REF BBLOCK;     ! Pointer to device characteristics
LOCAL
        DELTA,                          ! Home block search delta
        BLOCKFACT,                      ! Device blocking factor
        STATUS,                         ! Status variable
        IOSB:           VECTOR[4,WORD]; ! I/O status block

! Compute the home block search delta from the volume geometry, according
! to the following rules, where volume geometry is expressed in the order
! sectors, tracks, cylinders:
!
!       n x 1 x 1:      1
!       1 x n x 1:      1
!       1 x 1 x n:      1
!
!       n x m x 1:      n+1
!       n x 1 x m:      n+1
!       1 x n x m:      n+1
!
!       s x t x c:      (t+1)*s+1
!
BLOCKFACT = (.DEVICE_CHAR[DIB$B_SECTORS]
                * .DEVICE_CHAR[DIB$B_TRACKS]
```

```
; 2530          4060  3                 * .DEVICE_CHAR[DIB$W_CYLINDERS])
; 2531          4061  2                 / .DEVICE_CHAR[DIB$L_MAXBLOCK];
; 2532          4062  2
; 2533          4063  2
; 2534          4064  2 DELTA = 1;
; 2535          4065  2
; 2536          4066  2
; 2537          4067  2 IF
; 2538          4068  2     .DEVICE_CHAR[DIB$W_CYLINDERS] GTR 1 AND
; 2539          4069  2     .DEVICE_CHAR[DIB$B_TRACKS] GTR 1
; 2540          4070  2 THEN
; 2541          4071  2     DELTA = .DELTA + .DEVICE_CHAR[DIB$B_TRACKS];
; 2542          4072  2
; 2543          4073  2
; 2544          4074  2 IF
; 2545          4075  2     .DEVICE_CHAR[DIB$B_SECTORS] GTR 1 AND
; 2546          4076  3     (.DEVICE_CHAR[DIB$W_CYLINDERS] GTR 1 OR
; 2547          4077  3         .DEVICE_CHAR[DIB$B_TRACKS] GTR 1)
; 2548          4078  2 THEN
; 2549          4079  2     DELTA = (.DELTA * .DEVICE_CHAR[DIB$B_SECTORS] + .BLOCKFACT) / .BLOCKFACT;
; 2550          4080  2
; 2551          4081  2
; 2552          4082  2 IF
; 2553          4083  2     .DELTA EQL 0 OR
; 2554          4084  2     .DELTA GTRU .DEVICE_CHAR[DIB$L_MAXBLOCK] / 10
; 2555          4085  2 THEN
; 2556          4086  2     DELTA = 1;
; 2557          4087  2
; 2558          4088  2
; 2559          4089  2 ! Search for a valid home block.  The loop terminates when one is found.
; 2560          4090  2 ! If an error other than a surface error occurs, or when the entire
; 2561          4091  2 ! volume has been examined and no valid home block found, a fatal error
; 2562          4092  2 ! is signalled.
; 2563          4093  2 !
; 2564          4094  2 INCRU LBN FROM 1 BY .DELTA DO
; 2565          4095  3     BEGIN
; 2566        P 4096  3     STATUS = $QIOW(
; 2567        P 4097  3         FUNC=IO$_READLBLK,
; 2568        P 4098  3         CHAN=.CHANNEL,
; 2569        P 4099  3         IOSB=IOSB,
; 2570        P 4100  3         P1=.HOME_BLOCK,
; 2571        P 4101  3         P2=512,
; 2572          4102  3         P3=.LBN);
; 2573          4103  3     IF .STATUS THEN STATUS = .IOSB[0];
; 2574          4104  3     IF .STATUS
; 2575          4105  3     THEN
; 2576          4106  4         BEGIN
; 2577          4107  4         IF
; 2578          4108  5             BEGIN
; 2579          4109  5             SELECTONE .HOME_BLOCK[HM2$B_STRUCLEV] OF
; 2580          4110  5                 SET
; 2581          4111  5
; 2582          4112  5                 [1]:
; 2583          4113  6                     BEGIN
; 2584          4114  7                     (.HOME_BLOCK[HM1$W_STRUCLEV] EQL HM1$C_LEVEL1 OR
; 2585          4115  6                      .HOME_BLOCK[HM1$W_STRUCLEV] EQL HM1$C_LEVEL2) AND
; 2586          4116  6                     .HOME_BLOCK[HM1$W_IBMAPSIZE] NEQ 0 AND
```

```
                        .HOME_BLOCK[HM1$L_IBMAPLBN] NEQ 0 AND
                        .HOME_BLOCK[HM1$W_MAXFILES] NEQ 0 AND
                        .HOME_BLOCK[HM1$W_CLUSTER] NEQ 0 AND
                        CHECKSUM2(.HOME_BLOCK, $BYTEOFFSET(HM1$W_CHECKSUM1)) AND
                        CHECKSUM2(.HOME_BLOCK, $BYTEOFFSET(HM1$W_CHECKSUM2))
                        END;


                    [2]:
                        BEGIN
                        .HOME_BLOCK[HM2$L_HOMELBN] EQL .LBN AND
                        .HOME_BLOCK[HM2$L_ALTIDXLBN] NEQ 0 AND
                        .HOME_BLOCK[HM2$W_CLUSTER] NEQ 0 AND
                        .HOME_BLOCK[HM2$W_HOMEVBN] NEQ 0 AND
                        .HOME_BLOCK[HM2$W_ALHOMEVBN] NEQ 0 AND
                        .HOME_BLOCK[HM2$W_ALTIDXVBN] NEQ 0 AND
                        .HOME_BLOCK[HM2$W_IBMAPVBN] NEQ 0 AND
                        .HOME_BLOCK[HM2$L_IBMAPLBN] NEQ 0 AND
                        .HOME_BLOCK[HM2$L_MAXFILES] NEQ 0 AND
                        .HOME_BLOCK[HM2$W_IBMAPSIZE] NEQ 0 AND
                        .HOME_BLOCK[HM2$W_RESFILES] NEQ 0 AND
                        CHECKSUM2(.HOME_BLOCK, $BYTEOFFSET(HM2$W_CHECKSUM1)) AND
                        CHECKSUM2(.HOME_BLOCK, $BYTEOFFSET(HM2$W_CHECKSUM2))
                        END;


                    [OTHERWISE]:
                        FALSE;


                    TES
                END
            THEN
                EXITLOOP;
            END
        ELSE
            BEGIN
            IF .STATUS EQL SS$_ILLBLKNUM
            THEN
                SIGNAL(BACKUP$_NOHOMEBLK, 1, CURRENT_VCB[VCB_DEVICE]);

            IF
                .STATUS NEQ SS$_PARITY AND
                .STATUS NEQ SS$_FORMAT AND
                .STATUS NEQ SS$_DATACHECK
            THEN
                SIGNAL(BACKUP$_READERR + STS$K_SEVERE, 1, CURRENT_VCB[VCB_DEVICE], .STATUS);
            END;
        END;
    END;


                    01FC 00000 READ_HOMEBLOCK:
                                .WORD   Save R2,R3,R4,R5,R6,R7,R8                    ; 4004
```

```
                    58 00000000G  00  9E 00002          MOVAB   LIB$SIGNAL, R8                          ;
                    57 00000000'  EF  9E 00009          MOVAB   CURRENT_VCB, R7                         ;
                    56 00000000G  00  9E 00010          MOVAB   CHECKSUM2, R6                           ;
                    5E            08  C2 00017          SUBL2   #8, SP                                  ;
                    50        08  AC  D0 0001A          MOVL    DEVICE_CHAR, R0                         ; 4058
                    51        08  A0  9A 0001E          MOVZBL  8(R0), R1                               ; 4059
                    52        09  A0  9A 00022          MOVZBL  9(R0), R2                               ;
                    51            52  C4 00026          MULL2   R2, R1                                  ;
                    53        0A  A0  3C 00029          MOVZWL  10(R0), R3                              ; 4060
                    51            53  C4 0002D          MULL2   R3, R1                                  ;
                 53 51        70  A0  C7 00030          DIVL3   112(R0), R1, BLOCKFACT                  ; 4061
                    52            01  D0 00035          MOVL    #1, DELTA                               ; 4064
                                  51  D4 00038          CLRL    R1                                      ; 4068
                    01        0A  A0  B1 0003A          CMPW    10(R0), #1                              ;
                                  0F  1B 0003E          BLEQU   1$                                      ;
                                  51  D6 00040          INCL    R1                                      ;
                    01        09  A0  91 00042          CMPB    9(R0), #1                               ; 4069
                                  07  1B 00046          BLEQU   1$                                      ;
                    54        09  A0  9A 00048          MOVZBL  9(R0), R4                               ; 4071
                    52            54  C0 0004C          ADDL2   R4, DELTA                               ;
                    01        08  A0  91 0004F 1$:      CMPB    8(R0), #1                               ; 4075
                                  17  1B 00053          BLEQU   3$                                      ;
                    06            51  E8 00055          BLBS    R1, 2$                                  ; 4076
                    01        09  A0  91 00058          CMPB    9(R0), #1                               ; 4077
                                  0E  1B 0005C          BLEQU   3$                                      ;
                    51        08  A0  9A 0005E 2$:      MOVZBL  8(R0), R1                               ; 4079
                    51            52  C4 00062          MULL2   DELTA, R1                               ;
                    51            53  C0 00065          ADDL2   BLOCKFACT, R1                           ;
                 52 51            53  C7 00068          DIVL3   BLOCKFACT, R1, DELTA                    ;
                                  52  D5 0006C 3$:       TSTL    DELTA                                   ; 4083
                                  0A  13 0006E          BEQL    4$                                      ;
                 50       70  A0      0A  C7 00070       DIVL3   #10, 112(R0), R0                        ; 4084
                    50            52  D1 00075          CMPL    DELTA, R0                               ;
                                  03  1B 00078          BLEQU   5$                                      ;
                    52            01  D0 0007A 4$:      MOVL    #1, DELTA                               ; 4086
                    53        0C  AC  D0 0007D 5$:      MOVL    HOME_BLOCK, R3                          ; 4102
                    55            01  D0 00081          MOVL    #1, LBN                                 ;
                                  7E  7C 00084 6$:      CLRQ    -(SP)                                   ;
                                  7E  D4 00086          CLRL    -(SP)                                   ;
                                  55  DD 00088          PUSHL   LBN                                     ;
                    7E      0200  8F  3C 0008A          MOVZWL  #512, -(SP)                             ;
                                  53  DD 0008F          PUSHL   R3                                      ;
                                  7E  7C 00091          CLRQ    -(SP)                                   ;
                            20    AE  9F 00093          PUSHAB  IOSB                                    ;
                                  21  DD 00096          PUSHL   #33                                     ;
                            04    AC  DD 00098          PUSHL   CHANNEL                                 ;
                                  7E  D4 0009B          CLRL    -(SP)                                   ;
             00000000G  00        0C  FB 0009D          CALLS   #12, SYS$QIOW                           ;
                    54            50  D0 000A4          MOVL    R0, STATUS                              ;
                    03            54  E9 000A7          BLBC    STATUS, 7$                              ; 4103
                    54            6E  3C 000AA          MOVZWL  IOSB, STATUS                            ;
                    03            54  E8 000AD 7$:      BLBS    STATUS, 8$                              ; 4104
                            0089  31 000B0              BRW     17$                                     ;
                    50        0D  A3  9A 000B3 8$:      MOVZBL  13(R3), R0                              ; 4109
                    01            50  91 000B7          CMPB    R0, #1                                  ; 4112
                                  29  12 000BA          BNEQ    12$                                     ;
                0101 8F       0C  A3  B1 000BC          CMPW    12(R3), #257                            ; 4114
```

```
                                    08  13 000C2          BEQL    9$                                  ;
                0102   8F      0C   A3  B1 000C4          CMPW    12(R3), #258                        ; 4115
                                    21  12 000CA          BNEQ    13$                                 ;
                                    63  B5 000CC 9$:      TSTW    (R3)                                ; 4116
                                    52  13 000CE          BEQL    16$                                 ;
                                02  A3  D5 000D0          TSTL    2(R3)                               ; 4117
                                    03  12 000D3          BNEQ    10$                                 ;
                                  0083  31 000D5          BRW     19$                                 ;
                                06  A3  B5 000D8 10$:     TSTW    6(R3)                               ; 4118
                                    03  12 000DB          BNEQ    11$                                 ;
                                  0084  31 000DD          BRW     20$                                 ;
                                08  A3  B5 000E0 11$:     TSTW    8(R3)                               ; 4119
                                    3D  11 000E3          BRB     16$                                 ;
                         02         50  91 000E5 12$:     CMPB    R0, #2                              ; 4125
                                    03  12 000E8          BNEQ    13$                                 ;
                         55         63  D1 000EA          CMPL    (R3), LBN                           ; 4127
                                    03  13 000ED 13$:     BEQL    15$                                 ;
                                  008E  31 000EF 14$:     BRW     21$                                 ;
                                08  A3  D5 000F2 15$:     TSTL    8(R3)                               ; 4128
                                    F8  13 000F5          BEQL    14$                                 ;
                                0E  A3  B5 000F7          TSTW    14(R3)                              ; 4129
                                    F3  13 000FA          BEQL    14$                                 ;
                                10  A3  B5 000FC          TSTW    16(R3)                              ; 4130
                                    7F  13 000FF          BEQL    21$                                 ;
                                12  A3  B5 00101          TSTW    18(R3)                              ; 4131
                                    7A  13 00104          BEQL    21$                                 ;
                                14  A3  B5 00106          TSTW    20(R3)                              ; 4132
                                    75  13 00109          BEQL    21$                                 ;
                                16  A3  B5 0010B          TSTW    22(R3)                              ; 4133
                                    70  13 0010E          BEQL    21$                                 ;
                                18  A3  D5 00110          TSTL    24(R3)                              ; 4134
                                    6B  13 00113          BEQL    21$                                 ;
                                1C  A3  D5 00115          TSTL    28(R3)                              ; 4135
                                    66  13 00118          BEQL    21$                                 ;
                                20  A3  B5 0011A          TSTW    32(R3)                              ; 4136
                                    61  13 0011D          BEQL    21$                                 ;
                                22  A3  B5 0011F          TSTW    34(R3)                              ; 4137
                                    5C  13 00122 16$:     BEQL    21$                                 ;
                                    3A  DD 00124          PUSHL   #58                                 ; 4138
                                    53  DD 00126          PUSHL   R3                                  ;
                         66         02  FB 00128          CALLS   #2, CHECKSUM2                       ;
                         52         50  E9 0012B          BLBC    R0, 21$                             ;
                         7E     01FE 8F  3C 0012E          MOVZWL  #510, -(SP)                         ; 4139
                                    53  DD 00133          PUSHL   R3                                  ;
                         66         02  FB 00135          CALLS   #2, CHECKSUM2                       ;
                         45         50  E9 00138          BLBC    R0, 21$                             ;
                                    04  00138             RET                                         ;
          000000DC       8F         54  D1 0013C 17$:     CMPL    STATUS, #220                        ; 4154
                                    0F  12 00143          BNEQ    18$                                 ;
      7E                 67         20  C1 00145          ADDL3   #32, CURRENT_VCB, -(SP)             ; 4156
                                    01  DD 00149          PUSHL   #1                                  ;
                         00000000G  8F  DD 0014B          PUSHL   #BACKUP$_NOHOMEBLK                  ;
                         68         03  FB 00151          CALLS   #3, LIB$SIGNAL                      ;
          000001F4       8F         54  D1 00154 18$:     CMPL    STATUS, #500                        ; 4159
                                    23  13 0015B 19$:     BEQL    21$                                 ;
          000000BC       8F         54  D1 0015D          CMPL    STATUS, #188                        ; 4160
                                    1A  13 00164 20$:     BEQL    21$                                 ;
```

```
                0000005C   8F          54  D1 00166          CMPL    STATUS, #92                          ; 4161
                                       11  13 0016D          BEQL    21$                                  ;
                                       54  DD 0016F          PUSHL   STATUS                               ; 4163
            7E             67          20  C1 00171          ADDL3   #32, CURRENT_VCB, -(SP)              ;
                                       01  DD 00175          PUSHL   #1                                   ;
                        00000000G      8F  DD 00177          PUSHL   #BACKUP$_READERR+4                   ;
                           68          04  FB 0017D          CALLS   #4, LIB$SIGNAL                       ;
                           55          52  C0 00180 21$:     ADDL2   DELTA, LBN                           ; 4094
                                     FEFE  31 00183          BRW     6$                                   ;

; Routine Size:  390 bytes,    Routine Base:  CODE + 0D1E
```

```
; 2638   1 %SBTTL 'STA_INIVOL - initialize volume'
; 2639   1 GLOBAL ROUTINE STA_INIVOL : NOVALUE=
; 2640   1
; 2641   1 !++
; 2642   1 !
; 2643   1 ! FUNCTIONAL DESCRIPTION:
; 2644   1 !       This routine initializes a volume.
; 2645   1 !
; 2646   1 ! INPUT PARAMETERS:
; 2647   1 !       NONE
; 2648   1 !
; 2649   1 ! IMPLICIT INPUTS:
; 2650   1 !       OUTPUT_ATTBUF   - Contains volume summary attributes.
; 2651   1 !       OUTPUT_MTL      - Pointer to MTL for output volume set.
; 2652   1 !
; 2653   1 ! OUTPUT PARAMETERS:
; 2654   1 !       NONE
; 2655   1 !
; 2656   1 ! IMPLICIT OUTPUTS:
; 2657   1 !       NONE
; 2658   1 !
; 2659   1 ! ROUTINE VALUE:
; 2660   1 !       NONE
; 2661   1 !
; 2662   1 ! SIDE EFFECTS:
; 2663   1 !       NONE
; 2664   1 !
; 2665   1 !--
; 2666   1
; 2667   2 BEGIN
; 2668   2 LOCAL
; 2669   2         HOME_BLOCK:     BBLOCK[512],     ! Home block buffer
; 2670   2         RVN,                             ! Actual RVN
; 2671   2         CHANNEL,                         ! Channel number
; 2672   2         DESC:           VECTOR[2],       ! Descriptor
; 2673   2         DEVCHAR:        BBLOCK[DIB$C_LENGTH],   ! Device characteristics
; 2674   2         STATUS;                          ! Status variable
; 2675   2
; 2676   2
; 2677   2 ! Find the MTL and VCB for the volume to be initialized.
; 2678   2 !
; 2679   2 RVN = .OUTPUT_ATTBUF[VSR_RVN];
; 2680   2 IF .RVN EQL 0 THEN RVN = 1;
; 2681   2 CURRENT_MTL = .OUTPUT_MTL;
; 2682   2
; 2683   2
; 2684   2 ! Make sure the number of output volumes specified in the command matches
; 2685   2 ! the number specified in the save set.
; 2686   2 !
; 2687   2 IF NOT .QUAL[QUAL_VOLU]
; 2688   2 THEN
; 2689   2     IF
; 2690   3         BEGIN
; 2691   3         IF .COM_O_SETCOUNT EQL 0
; 2692   3             THEN .CURRENT_MTL[MTL_SETCOUNT] NEQ 1
; 2693   3             ELSE .CURRENT_MTL[MTL_SETCOUNT] NEQ .COM_O_SETCOUNT
; 2694   3         END
```

```
; 2695    4224  2      THEN
; 2696    4225  2          SIGNAL(BACKUP$_BADSETCNT);
; 2697    4226  2
; 2698    4227  2
; 2699    4228  2  ! Make sure the relative volume number specified in the save set is
; 2700    4229  2  ! within range.
; 2701    4230  2  !
; 2702    4231  2  IF .RVN-.CURRENT_MTL[MTL_RVN_BASE] GTRU .CURRENT_MTL[MTL_SETCOUNT]
; 2703    4232  2  THEN
; 2704    4233  2      SIGNAL(BACKUP$_INVATTVAL);
; 2705    4234  2
; 2706    4235  2
; 2707    4236  2  ! Assign a channel to the volume and get the device characteristics.
; 2708    4237  2  !
; 2709    4238  2  CURRENT_VCB = .CURRENT_MTL[MTL_VCB(.RVN-.CURRENT_MTL[MTL_RVN_BASE])];
; 2710    4239  2  CHANNEL = SWITCH_VOLUME(.RVN);
; 2711    4240  2  DESC[0] = DIB$C_LENGTH;
; 2712    4241  2  DESC[1] = DEVCHAR;
; 2713    4242  2  STATUS = $GETCHN(CHAN=.CHANNEL, PRIBUF=DESC);
; 2714    4243  2  IF NOT .STATUS
; 2715    4244  2  THEN
; 2716    4245  2      SIGNAL(BACKUP$_GETCHN, 1, CURRENT_VCB[VCB_DEVICE]);
; 2717    4246  2
; 2718    4247  2
; 2719    4248  2  ! If the initialization parameters are to be propagated from the output
; 2720    4249  2  ! volume, read its home block and reinitialize OUTPUT_ATTBUF as appropriate.
; 2721    4250  2  !
; 2722    4251  2  IF NOT .QUAL[QUAL_INIT]
; 2723    4252  2  THEN
; 2724    4253  3      BEGIN
; 2725    4254  3
; 2726    4255  3      ! Read the home block.
; 2727    4256  3      !
; 2728    4257  3      READ_HOMEBLOCK(.CHANNEL, DEVCHAR, HOME_BLOCK);
; 2729    4258  3
; 2730    4259  3
; 2731    4260  3      ! Make sure that the new structure level matches the old.  This is the
; 2732    4261  3      ! only initialization parameter that must not change.
; 2733    4262  3      !
; 2734    4263  3      IF .HOME_BLOCK[HM2$B_STRUCLEV] NEQ .(OUTPUT_ATTBUF[VSR_VOLSTRUCT])<8,8>
; 2735    4264  3      THEN
; 2736    4265  3          SIGNAL(BACKUP$_STRUCLEV, 1, CURRENT_VCB[VCB_DEVICE]);
; 2737    4266  3
; 2738    4267  3
; 2739    4268  3      ! Reinitialize the OUTPUT_ATTBUF area with the initialization parameters
; 2740    4269  3      ! from the output volume.
; 2741    4270  3      !
; 2742    4271  3      IF .HOME_BLOCK[HM2$B_STRUCLEV] EQL 2
; 2743    4272  3      THEN
; 2744    4273  4          BEGIN
; 2745    4274  4          BBLOCK[OUTPUT_ATTBUF[VSR_VOLNAME], DSC$W_LENGTH] = HM2$S_VOLNAME;
; 2746    4275  4          BBLOCK[OUTPUT_ATTBUF[VSR_VOLNAME], DSC$A_POINTER] = HOME_BLOCK[HM2$T_VOLNAME];
; 2747    4276  4          BBLOCK[OUTPUT_ATTBUF[VSR_OWNERNAME], DSC$W_LENGTH] = HM2$S_OWNERNAME;
; 2748    4277  4          BBLOCK[OUTPUT_ATTBUF[VSR_OWNERNAME], DSC$A_POINTER] = HOME_BLOCK[HM2$T_OWNERNAME];
; 2749    4278  4          (OUTPUT_ATTBUF[VSR_VOLDATE]) = .(HOME_BLOCK[HM2$Q_CREDATE]);
; 2750    4279  4          (OUTPUT_ATTBUF[VSR_VOLDATE]+4) = .(HOME_BLOCK[HM2$Q_CREDATE]+4);
; 2751    4280  4          OUTPUT_ATTBUF[VSR_VOLOWNER] = .HOME_BLOCK[HM2$L_VOLOWNER];
```

```
; 2752   4281  4          OUTPUT_ATTBUF[VSR_MAXFILES] = .HOME_BLOCK[HM2$L_MAXFILES];
; 2753   4282  4          OUTPUT_ATTBUF[VSR_PROTECT] = .HOME_BLOCK[HM2$W_PROTECT];
; 2754   4283  4          OUTPUT_ATTBUF[VSR_FILEPROT] = .HOME_BLOCK[HM2$Q_FILEPROT];
; 2755   4284  4          OUTPUT_ATTBUF[VSR_RECPROT] = .HOME_BLOCK[HM2$W_RECPROT];
; 2756   4285  4          OUTPUT_ATTBUF[VSR_VOLCHAR] = .HOME_BLOCK[HM2$W_VOLCHAR];
; 2757   4286  4          OUTPUT_ATTBUF[VSR_EXTEND] = .HOME_BLOCK[HM2$W_EXTEND];
; 2758   4287  4          OUTPUT_ATTBUF[VSR_CLUSTER] = .HOME_BLOCK[HM2$Q_CLUSTER];
; 2759   4288  4          OUTPUT_ATTBUF[VSR_WINDOW] = .HOME_BLOCK[HM2$B_WINDOW];
; 2760   4289  4          OUTPUT_ATTBUF[VSR_LRU_LIM] = .HOME_BLOCK[HM2$B_LRU_LIM];
; 2761   4290  4          OUTPUT_ATTBUF[VSR_INDEXLBN] = .HOME_BLOCK[HM2$L_IBMAPLBN];
; 2762   4291  4          (OUTPUT_ATTBUF[VSR_RETAINMIN]) = .(HOME_BLOCK[HM2$Q_RETAINMIN]);
; 2763   4292  4          (OUTPUT_ATTBUF[VSR_RETAINMIN]+4) = .(HOME_BLOCK[HM2$Q_RETAINMIN]+4);
; 2764   4293  4          (OUTPUT_ATTBUF[VSR_RETAINMAX]) = .(HOME_BLOCK[HM2$Q_RETAINMAX]);
; 2765   4294  4          (OUTPUT_ATTBUF[VSR_RETAINMAX]+4) = .(HOME_BLOCK[HM2$Q_RETAINMAX]+4);
; 2766   4295  4          IF .HOME_BLOCK[HM2$W_RVN] EQL 1 AND .HOME_BLOCK[HM2$W_SETCOUNT] NEQ 0
; 2767   4296  4          THEN
; 2768   4297  4              CH$MOVE(
; 2769   4298  4                  HM2$S_STRUCNAME,
; 2770   4299  4                  HOME_BLOCK[HM2$T_STRUCNAME],
; 2771   4300  4                  COM_D_STRUCNAME);
; 2772   4301  4          END
; 2773   4302  3      ELSE
; 2774   4303  4          BEGIN
; 2775   4304  4          OUTPUT_ATTBUF[VSR_STRUCLEV] = .HOME_BLOCK[HM1$W_STRUCLEV];
; 2776   4305  4          BBLOCK[OUTPUT_ATTBUF[VSR_VOLNAME], DSC$W_LENGTH] = HM1$S_VOLNAME;
; 2777   4306  4          BBLOCK[OUTPUT_ATTBUF[VSR_VOLNAME], DSC$A_POINTER] = HOME_BLOCK[HM1$T_VOLNAME2];
; 2778   4307  4          BBLOCK[OUTPUT_ATTBUF[VSR_OWNERNAME], DSC$W_LENGTH] = HM1$S_OWNERNAME;
; 2779   4308  4          BBLOCK[OUTPUT_ATTBUF[VSR_OWNERNAME], DSC$A_POINTER] = HOME_BLOCK[HM1$T_OWNERNAME];
; 2780   4309  4          FROM_ODS1_DATE(HOME_BLOCK[HM1$T_CREDATE], OUTPUT_ATTBUF[VSR_VOLDATE]);
; 2781   4310  4          OUTPUT_ATTBUF[VSR_VOLOWNER] = .(HOME_BLOCK[HM1$W_VOLOWNER])<0,8>;
; 2782   4311  4          (OUTPUT_ATTBUF[VSR_VOLOWNER])<16,8> = .(HOME_BLOCK[HM1$W_VOLOWNER])<8,8>;
; 2783   4312  4          OUTPUT_ATTBUF[VSR_MAXFILES] = .HOME_BLOCK[HM1$W_MAXFILES];
; 2784   4313  4          OUTPUT_ATTBUF[VSR_PROTECT] = .HOME_BLOCK[HM1$W_PROTECT];
; 2785   4314  4          OUTPUT_ATTBUF[VSR_FILEPROT] = .HOME_BLOCK[HM1$Q_FILEPROT];
; 2786   4315  4          OUTPUT_ATTBUF[VSR_EXTEND] = .HOME_BLOCK[HM1$B_EXTEND];
; 2787   4316  4          OUTPUT_ATTBUF[VSR_WINDOW] = .HOME_BLOCK[HM1$B_WINDOW];
; 2788   4317  4          OUTPUT_ATTBUF[VSR_LRU_LIM] = .HOME_BLOCK[HM1$B_LRU_LIM];
; 2789   4318  4          OUTPUT_ATTBUF[VSR_INDEXLBN] = ROT(.HOME_BLOCK[HM1$L_IBMAPLBN], 16);
; 2790   4319  3          END;
; 2791   4320  2      END;
; 2792   4321  2
; 2793   4322  2
; 2794   4323  2 ! Call the volume initialization routine to complete the work.
; 2795   4324  2 !
; 2796   4325  2 CURRENT_MTL[MTL_STRUCLEV] = .OUTPUT_ATTBUF[VSR_STRUCLEV];
; 2797   4326  2 CURRENT_VCB[VCB_ODS_2] = (.CURRENT_MTL[MTL_STRUCLEV] EQL 2);
; 2798   4327  2 INITIALIZE_VOLUME(.CURRENT_VCB, DEVCHAR);
; 2799   4328  1 END;


                                                    .EXTRN  SYS$GETCHN

                                  00FC 00000        .ENTRY  STA_INIVOL, Save R2,R3,R4,R5,R6,R7          ; 4168
                57 00000000G  00   9E 00002        MOVAB   LIB$SIGNAL, R7                              ;
                56 00000000'  EF   9E 00009        MOVAB   CURRENT_MTL, R6                             ;
                5E      FD84  CE   9E 00010        MOVAB   -636(SP), SP                                ;
```

```
                                52      FB52   C6  3C 00015          MOVZWL  OUTPUT_ATTBUF+66, RVN                  ; 4208
                                                03  12 0001A          BNEQ    1$                                     ; 4209
                                52             01  D0 0001C          MOVL    #1, RVN                                ;
                                66        FC   A6  D0 0001F 1$:      MOVL    OUTPUT_MTL, CURRENT_MTL                ; 4210
                                1F      F996   C6  E8 00023          BLBS    QUAL+14, 4$                            ; 4216
                                50             66  D0 00028          MOVL    CURRENT_MTL, R0                        ; 4221
                                51      FA07   C6  9A 0002B          MOVZBL  COM_O_SETCOUNT, R1                     ; 4220
                                                06  12 00030          BNEQ    2$                                     ;
                                01        1F   A0  91 00032          CMPB    31(R0), #1                             ; 4221
                                                04  11 00036          BRB     3$                                     ;
                                51        1F   A0  91 00038 2$:      CMPB    31(R0), R1                             ; 4222
                                                09  13 0003C 3$:      BEQL    4$                                     ;
                            00000000G          8F  DD 0003E          PUSHL   #BACKUP$_BADSETCNT                     ; 4225
                                67             01  FB 00044          CALLS   #1, LIB$SIGNAL                         ;
                                50             66  D0 00047 4$:      MOVL    CURRENT_MTL, R0                        ; 4231
                                51        30   A0  9A 0004A          MOVZBL  48(R0), R1                             ;
                  51            52             51  C3 0004E          SUBL3   R1, RVN, R1                            ;
      51      1F  A0            08             00  ED 00052          CMPZV   #0, #8, 31(R0), R1                     ;
                                                09  1E 00058          BGEQU   5$                                     ;
                            00000000G          8F  DD 0005A          PUSHL   #BACKUP$_INVATTVAL                     ; 4233
                                67             01  FB 00060          CALLS   #1, LIB$SIGNAL                         ;
                                51             66  D0 00063 5$:      MOVL    CURRENT_MTL, R1                        ; 4238
                                50        30   A1  9A 00066          MOVZBL  48(R1), R0                             ;
                  50            52             50  C3 0006A          SUBL3   R0, RVN, R0                            ;
                        04      A6        34 A140  D0 0006E          MOVL    52(R1)[R0], CURRENT_VCB                ;
                                                52  DD 00074          PUSHL   RVN                                    ; 4239
                      F222      CF             01  FB 00076          CALLS   #1, SWITCH_VOLUME                      ;
                                52             50  D0 0007B          MOVL    R0, CHANNEL                            ;
                        74      AE        74   8F  9A 0007E          MOVZBL  #116, DESC                             ; 4240
                        78      AE             6E  9E 00083          MOVAB   DEVCHAR, DESC+4                        ; 4241
                                                7E  7C 00087          CLRQ    -(SP)                                  ; 4242
                                          7C   AE  9F 00089          PUSHAB  DESC                                   ;
                                                7E  D4 0008C          CLRL    -(SP)                                  ;
                                                52  DD 0008E          PUSHL   CHANNEL                                ;
                  00000000G     00             05  FB 00090          CALLS   #5, SYS$GETCHN                         ;
                                10             50  E8 00097          BLBS    STATUS, 6$                             ; 4243
                  7E      04    A6             20  C1 0009A          ADDL3   #32, CURRENT_VCB, -(SP)                ; 4245
                                                01  DD 0009F          PUSHL   #1                                     ;
                            00000000G          8F  DD 000A1          PUSHL   #BACKUP$_GETCHN                        ;
                                67             03  FB 000A7          CALLS   #3, LIB$SIGNAL                         ;
                  03      F992  C6             05  E1 000AA 6$:      BBC     #5, QUAL+10, 7$                        ; 4251
                                            011B  31 000B0          BRW     11$                                    ;
                                          7C   AE  9F 000B3 7$:      PUSHAB  HOME_BLOCK                             ; 4257
                                          04   AE  9F 000B6          PUSHAB  DEVCHAR                                ;
                                                52  DD 000B9          PUSHL   CHANNEL                                ;
                      FDBA      CF             03  FB 000BB          CALLS   #3, READ_HOMEBLOCK                     ;
                      FB51      C6      0089   CE  91 000C0          CMPB    HOME_BLOCK+13, OUTPUT_ATTBUF+65        ; 4263
                                                10  13 000C7          BEQL    8$                                     ;
                  7E      04    A6             20  C1 000C9          ADDL3   #32, CURRENT_VCB, -(SP)                ; 4265
                                                01  DD 000CE          PUSHL   #1                                     ;
                            00000000G          8F  DD 000D0          PUSHL   #BACKUP$_STRUCLEV                      ;
                                67             03  FB 000D6          CALLS   #3, LIB$SIGNAL                         ;
                                02      0089   CE  91 000D9 8$:      CMPB    HOME_BLOCK+13, #2                      ; 4271
                                                03  13 000DE          BEQL    9$                                     ;
                                            0080  31 000E0          BRW     10$                                    ;
                      FB10      C6             0C  B0 000E3 9$:      MOVW    #12, OUTPUT_ATTBUF                     ; 4274
                      FB14      C6        D8   AD  9E 000E8          MOVAB   HOME_BLOCK+472, OUTPUT_ATTBUF+4        ; 4275
```

```
                FB18  C6          0C  B0 000EE          MOVW    #12, OUTPUT_ATTBUF+8                          ; 4276
                FB1C  C6     E4   AD  9E 000F3          MOVAB   HOME_BLOCK+484, OUTPUT_ATTBUF+12              ; 4277
                FB28  C6   00B8   CE  7D 000F9          MOVQ    HOME_BLOCK+60, OUTPUT_ATTBUF+24               ; 4278
                FB38  C6   00A8   CE  D0 00100          MOVL    HOME_BLOCK+44, OUTPUT_ATTBUF+40               ; 4280
                FB44  C6   0098   CE  D0 00107          MOVL    HOME_BLOCK+28, OUTPUT_ATTBUF+52               ; 4281
                FB54  C6   00B0   CE  D0 0010E          MOVL    HOME_BLOCK+52, OUTPUT_ATTBUF+68               ; 4282
                FB58  C6   00B4   CE  B0 00115          MOVW    HOME_BLOCK+56, OUTPUT_ATTBUF+72               ; 4284
                FB5A  C6   00A6   CE  B0 0011C          MOVW    HOME_BLOCK+42, OUTPUT_ATTBUF+74               ; 4285
                FB5C  C6   00C2   CE  B0 00123          MOVW    HOME_BLOCK+70, OUTPUT_ATTBUF+76               ; 4286
                FB5E  C6   008A   CE  B0 0012A          MOVW    HOME_BLOCK+14, OUTPUT_ATTBUF+78               ; 4287
                FB62  C6   00C0   CE  B0 00131          MOVW    HOME_BLOCK+68, OUTPUT_ATTBUF+82               ; 4288
                FB64  C6   0094   CE  D0 00138          MOVL    HOME_BLOCK+24, OUTPUT_ATTBUF+84               ; 4290
                FB70  C6   00C4   CE  7D 0013F          MOVQ    HOME_BLOCK+72, OUTPUT_ATTBUF+96               ; 4291
                FB78  C6   00CC   CE  7D 00146          MOVQ    HOME_BLOCK+80, OUTPUT_ATTBUF+104              ; 4293
                      01   00A2   CE  B1 0014D          CMPW    HOME_BLOCK+38, #1                             ; 4295
                                  7A  12 00152          BNEQ    11$                                           ;
                           00A4   CE  B5 00154          TSTW    HOME_BLOCK+40                                 ;
                                  74  13 00158          BEQL    11$                                           ;
        FA14  C6     CC   AD      0C  28 0015A          MOVC3   #12, HOME_BLOCK+460, COM_O_STRUCNAME          ; 4299
                                  6B  11 00161          BRB     11$                                           ; 4271
                FB51  C6   0088   CE  90 00163 10$:     MOVB    HOME_BLOCK+12, OUTPUT_ATTBUF+65               ; 4304
                FB10  C6          0C  B0 0016A          MOVW    #12, OUTPUT_ATTBUF                            ; 4305
                FB14  C6     D8   AD  9E 0016F          MOVAB   HOME_BLOCK+472, OUTPUT_ATTBUF+4               ; 4306
                FB18  C6          0C  B0 00175          MOVW    #12, OUTPUT_ATTBUF+8                          ; 4307
                FB1C  C6     E4   AD  9E 0017A          MOVAB   HOME_BLOCK+484, OUTPUT_ATTBUF+12              ; 4308
                           FB28   C6  9F 00180          PUSHAB  OUTPUT_ATTBUF+24                              ; 4309
                           00BC   CE  9F 00184          PUSHAB  HOME_BLOCK+60                                 ;
          00000000G  00           02  FB 00188          CALLS   #2, FROM_ODS1_DATE                            ;
                FB38  C6   009A   CE  9A 0018F          MOVZBL  HOME_BLOCK+30, OUTPUT_ATTBUF+40               ; 4310
                FB3A  C6   009B   CE  90 00196          MOVB    HOME_BLOCK+31, OUTPUT_ATTBUF+42               ; 4311
                FB44  C6   0082   CE  3C 0019D          MOVZWL  HOME_BLOCK+6, OUTPUT_ATTBUF+52                ; 4312
                FB54  C6   009C   CE  B0 001A4          MOVW    HOME_BLOCK+32, OUTPUT_ATTBUF+68               ; 4313
                FB56  C6   00A0   CE  B0 001AB          MOVW    HOME_BLOCK+36, OUTPUT_ATTBUF+70               ; 4314
                FB5C  C6   00A9   CE  9B 001B2          MOVZBW  HOME_BLOCK+45, OUTPUT_ATTBUF+76               ; 4315
                FB62  C6   00A8   CE  90 001B9          MOVB    HOME_BLOCK+44, OUTPUT_ATTBUF+82               ; 4316
                FB63  C6   00AA   CE  90 001C0          MOVB    HOME_BLOCK+46, OUTPUT_ATTBUF+83               ; 4317
        FB64  C6     7E   AE      10  9C 001C7          ROTL    #16, HOME_BLOCK+2, OUTPUT_ATTBUF+84           ; 4318
                          50      66  D0 001CE 11$:     MOVL    CURRENT_MTL, R0                               ; 4325
                     1E   A0 FB51 C6  90 001D1          MOVB    OUTPUT_ATTBUF+65, 30(R0)                      ;
                          52   04  A6  D0 001D7          MOVL    CURRENT_VCB, R2                               ; 4326
                                  51  D4 001DB          CLRL    R1                                            ;
                          02   1E  A0  91 001DD          CMPB    30(R0), #2                                    ;
                                  02  12 001E1          BNEQ    12$                                           ;
                                  51  D6 001E3          INCL    R1                                            ;
  07  A2        01      01      51  F0 001E5 12$:     INSV    R1, #1, #1, 7(R2)                             ;
                           4004   8F  BB 001EB          PUSHR   #^M<R2,SP>                                    ; 4327
          00000000G  00           02  FB 001EF          CALLS   #2, INITIALIZE_VOLUME                         ;
                                  04 001F6              RET                                                   ; 4328

; Routine Size:  503 bytes,    Routine Base:  CODE + 0EA4
```

```
; 2801          4329  1 %SBTTL 'STA_INIT_HDRS - initialize volume file headers'
; 2802          4330  1 GLOBAL ROUTINE STA_INIT_HDRS (REC): NOVALUE=
; 2803          4331  1
; 2804          4332  1 !++
; 2805          4333  1 !
; 2806          4334  1 ! FUNCTIONAL DESCRIPTION:
; 2807          4335  1 !       This routine initializes file headers on an output volume to have the
; 2808          4336  1 !       file sequence numbers that they had originally.
; 2809          4337  1 !
; 2810          4338  1 ! INPUT PARAMETERS:
; 2811          4339  1 !       REC             - Pointer to save set record, type BRH$K_FID.
; 2812          4340  1 !
; 2813          4341  1 ! IMPLICIT INPUTS:
; 2814          4342  1 !       OUTPUT_MTL      - Pointer to MTL for output volume set.
; 2815          4343  1 !
; 2816          4344  1 ! OUTPUT PARAMETERS:
; 2817          4345  1 !       NONE
; 2818          4346  1 !
; 2819          4347  1 ! IMPLICIT OUTPUTS:
; 2820          4348  1 !       NONE
; 2821          4349  1 !
; 2822          4350  1 ! ROUTINE VALUE:
; 2823          4351  1 !       NONE
; 2824          4352  1 !
; 2825          4353  1 ! SIDE EFFECTS:
; 2826          4354  1 !       NONE
; 2827          4355  1 !
; 2828          4356  1 !--
; 2829          4357  1
; 2830          4358  2 BEGIN
; 2831          4359  2 MAP
; 2832          4360  2         REC:            REF BBLOCK;             ! Pointer to save set record
; 2833          4361  2 LOCAL
; 2834          4362  2         RSA:            VECTOR[NAM$C_MAXRSS,BYTE],      ! Resultant string area
; 2835          4363  2         CHANNEL,                                ! Channel for output volume
; 2836          4364  2         STATUS,                                 ! Status return
; 2837          4365  2         IOSB:           VECTOR[4,WORD],         ! I/O status block
; 2838          4366  2         FILE_ID:        BBLOCK[FID$C_LENGTH],   ! Current file ID
; 2839          4367  2         FILE_NUMBER,                            ! File number of first header
; 2840          4368  2         AREA,                                   ! Pointer to allocated memory
; 2841          4369  2         HDR:            REF BBLOCK,             ! Pointer to current header
; 2842          4370  2         SEQ:            REF BBLOCK;             ! Cursor for sequence vector
; 2843          4371  2
; 2844          4372  2
; 2845          4373  2 ! Initialize.
; 2846          4374  2 !
; 2847          4375  2 CURRENT_MTL = .OUTPUT_MTL;
; 2848          4376  2 IF .REC[BSA$B_FID_RVN] GEQU .CURRENT_MTL[MTL_SETCOUNT] + .CURRENT_MTL[MTL_RVN_BASE]
; 2849          4377  2 OR .REC[BSA$B_FID_RVN] LSSU .CURRENT_MTL[MTL_RVN_BASE]
; 2850          4378  2 THEN SIGNAL(BACKUP$_INVATTVAL);
; 2851          4379  2 CURRENT_VCB = .CURRENT_MTL[MTL_VCB(.REC[BSA$B_FID_RVN]-.CURRENT_MTL[MTL_RVN_BASE])];
; 2852          4380  2 RSA_DESC[0] = NAM$C_MAXRSS;
; 2853          4381  2 RSA_DESC[1] = RSA;
; 2854        P 4382  2 $FAO(
; 2855        P 4383  2     $DESCRIPTOR('!AS[000000]INDEXF.SYS;1'),
; 2856        P 4384  2     RSA_DESC,
; 2857        P 4385  2     RSA_DESC,
```

```
; 2858          4386  2      CURRENT_VCB[VCB_DEVICE]);
; 2859          4387  2
; 2860          4388  2
; 2861          4389  2  ! Get memory for buffer.
; 2862          4390  2  !
; 2863          4391  2  AREA = GET_VM(512 * .REC[BSA$W_FID_COUNT]);
; 2864          4392  2
; 2865          4393  2
; 2866          4394  2  HDR = .AREA;
; 2867          4395  2  SEQ = .REC;
; 2868          4396  2  FILE_NUMBER = .REC[BSA$W_FID_NUM];
; 2869          4397  2  FILE_NUMBER<16,8> = .REC[BSA$B_FID_NMX];
; 2870          4398  2  INCR N FROM .FILE_NUMBER TO .FILE_NUMBER+.REC[BSA$W_FID_COUNT]-1 DO
; 2871          4399  3      BEGIN
; 2872          4400  3      IF .N GTRU .CURRENT_VCB[VCB_MAXFILIDX] THEN SIGNAL(BACKUP$_INVATTVAL);
; 2873          4401  3      FILE_ID[FID$W_NUM] = .N;
; 2874          4402  3      FILE_ID[FID$B_NMX] = .N<16,8>;
; 2875          4403  3      FILE_ID[FID$W_SEQ] = .SEQ[BSA$W_FID_SEQ];
; 2876          4404  3      FILE_ID[FID$B_RVN] = .REC[BSA$B_FID_RVN];
; 2877          4405  3      IF
; 2878          4406  4          BEGIN
; 2879          4407  4          IF .N-1 LEQU 15
; 2880          4408  4          THEN
; 2881          4409  4              .BITVECTOR[CURRENT_VCB[VCB_INIT_HDRS], .N-1]
; 2882          4410  4          ELSE
; 2883          4411  4              FALSE
; 2884          4412  4          END
; 2885          4413  3      THEN
; 2886          4414  4          BEGIN
; 2887          4415  4
; 2888          4416  4          ! Initial file header.  Reread it, rather than blowing it away.
; 2889          4417  4          !
; 2890          4418  4          READ_HEADER(FILE_ID, .HDR);
; 2891          4419  4          END
; 2892          4420  3      ELSE
; 2893          4421  4          BEGIN
; 2894          4422  4
; 2895          4423  4          ! Initialize file header as a deleted header with the appropriate
; 2896          4424  4          ! file sequence number.
; 2897          4425  4          !
; 2898          4426  4          CREATE_DELHDR(FILE_ID, .HDR);
; 2899          4427  3          END;
; 2900          4428  3      HDR = .HDR + 512;
; 2901          4429  3      SEQ = .SEQ + 2;
; 2902          4430  2      END;
; 2903          4431  2
; 2904          4432  2
; 2905          4433  2  ! Write out buffer to index file.
; 2906          4434  2  !
; 2907          4435  2  CHANNEL = SWITCH_VOLUME(.REC[BSA$B_FID_RVN]);
; 2908          4436  2  CURRENT_WCB = .CURRENT_VCB[VCB_INDEXF];
; 2909          4437  2  STATUS = R_W_VIRTUAL(
; 2910          4438  2      0,
; 2911          4439  2      0,
; 2912          4440  2      IO$_WRITEVBLK,
; 2913          4441  2      IOSB,
; 2914          4442  2      0,
```

```
; 2915          4443  2      0,
; 2916          4444  2      .AREA,
; 2917          4445  2      512 * .REC[BSA$W_FID_COUNT],
; 2918          4446  2      .FILE_NUMBER + .CURRENT_VCB[VCB_HDR_OFFSET]);
; 2919          4447  2  $WAITFR(EFN=0);
; 2920          4448  2  IF .STATUS THEN STATUS = .IOSB[0];
; 2921          4449  2  IF NOT .STATUS
; 2922          4450  2  THEN
; 2923          4451  2      SIGNAL(BACKUP$_WRITEERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
; 2924          4452  2
; 2925          4453  2
; 2926          4454  2  ! Release memory for buffer.
; 2927          4455  2  !
; 2928          4456  2  FREE_VM(512 * .REC[BSA$W_FID_COUNT], .AREA);
; 2929          4457  1  END;


45  44  4E  49  5D  30  30  30  30  30  30  5B  53  41  21  0109B P.AAD:  .ASCII  \!AS[000000]INDEXF.SYS;1\                    ;
                            31  3B  53  59  53  2E  46  58  010AA                                                          ;
                                                            010B2         .BLKB   2
                                                  00000017  010B4 P.AAC:  .LONG   23                                         ;
                                                  00000000' 010B8         .ADDRESS P.AAD                                     ;

                                                                          .EXTRN  SYS$FAO

                                                      0FFC 00000          .ENTRY  STA_INIT_HDRS, Save R2,R3,R4,R5,R6,R7,R8,-  ; 4330
                                                                                  R9,R10,R11                                 ;
                                  5B 00000000'  EF  9E 00002          MOVAB   RSA_DESC, R11                              ;
                                  5A 00000000'  EF  9E 00009          MOVAB   CURRENT_VCB, R10                           ;
                                  5E     FEF0   CE  9E 00010          MOVAB   -272(SP), SP                               ;
                          FC      AA       F8   AA  D0 00015          MOVL    OUTPUT_MTL, CURRENT_MTL                    ; 4375
                                  53       04   AC  D0 0001A          MOVL    REC, R3                                    ; 4376
                                  56       04   A3  9A 0001E          MOVZBL  4(R3), R6                                  ;
                                  50       FC   AA  D0 00022          MOVL    CURRENT_MTL, R0                            ;
                                  51       1F   A0  9A 00026          MOVZBL  31(R0), R1                                 ;
                                  52       30   A0  9A 0002A          MOVZBL  48(R0), R2                                 ;
                                  51            52  C0 0002E          ADDL2   R2, R1                                     ;
                                  51            56  D1 00031          CMPL    R6, R1                                     ;
                                                06  1E 00034          BGEQU   1$                                         ;
                                  56       30   A0  91 00036          CMPB    48(R0), R6                                 ; 4377
                                                0D  1B 0003A          BLEQU   2$                                         ;
                                      00000000G 8F  DD 0003C 1$:      PUSHL   #BACKUP$_INVATTVAL                         ; 4378
                      00000000G   00            01  FB 00042          CALLS   #1, LIB$SIGNAL                             ;
                                  51       FC   AA  D0 00049 2$:      MOVL    CURRENT_MTL, R1                            ; 4379
                                  50       30   A1  9A 0004D          MOVZBL  48(R1), R0                                 ;
                  50              56            50  C3 00051          SUBL3   R0, R6, R0                                 ;
                                  6A       34 A140  D0 00055          MOVL    52(R1)[R0], CURRENT_VCB                    ;
                                  6B       FF   8F  9A 0005A          MOVZBL  #255, RSA_DESC                             ; 4380
                          04      AB       10   AE  9E 0005E          MOVAB   RSA, RSA_DESC+4                            ; 4381
                  7E              6A            20  C1 00063          ADDL3   #32, CURRENT_VCB, -(SP)                    ; 4386
                                                5B  DD 00067          PUSHL   R11                                        ;
                                                5B  DD 00069          PUSHL   R11                                        ;
                                          8A   AF  9F 0006B          PUSHAB  P.AAC                                      ;
                      00000000G   00            04  FB 0006E          CALLS   #4, SYS$FAO                                ;
                                  55       06   A3  3C 00075          MOVZWL  6(R3), R5                                  ; 4391
                  57              55            09  78 00079          ASHL    #9, R5, R7                                 ;
```

```
                                        57  DD 0007D          PUSHL   R7                                  ;
                00000000G  00           01  FB 0007F          CALLS   #1, GET_VM                          ;
                           59           50  D0 00086          MOVL    R0, AREA                            ;
                           58           59  D0 00089          MOVL    AREA, HDR                           ; 4394
                           54           53  D0 0008C          MOVL    R3, SEQ                             ; 4395
                           52     02    A3  3C 0008F          MOVZWL  2(R3), FILE_NUMBER                  ; 4396
   52        08           10     05    A3  F0 00093          INSV    5(R3), #16, #8, FILE_NUMBER         ; 4397
             53           52           55  C1 00099          ADDL3   R5, FILE_NUMBER, R3                 ; 4398
                           55     FF    A2  9E 0009D          MOVAB   -1(R2), N                           ;
                                        5A  11 000A1          BRB     7$                                  ;
                           50           6A  D0 000A3  3$:     MOVL    CURRENT_VCB, R0                     ; 4400
                      1C   A0           55  D1 000A6          CMPL    N, 28(R0)                           ;
                                        0D  1B 000AA          BLEQU   4$                                  ;
                           00000000G    8F  DD 000AC          PUSHL   #BACKUP$_INVATTVAL                  ;
                00000000G  00           01  FB 000B2          CALLS   #1, LIB$SIGNAL                      ;
                           6E           55  B0 000B9  4$:     MOVW    N, FILE_ID                          ; 4401
   50        55           08           10  EF 000BC          EXTZV   #16, #8, N, R0                      ; 4402
                      05   AE           50  90 000C1          MOVB    R0, FILE_ID+5                       ;
                      02   AE     08    A4  B0 000C5          MOVW    8(SEQ), FILE_ID+2                   ; 4403
                      04   AE           56  90 000CA          MOVB    R6, FILE_ID+4                       ; 4404
                           51     FF    A5  9E 000CE          MOVAB   -1(R5), R1                          ; 4407
                           0F           51  D1 000D2          CMPL    R1, #15                             ;
                                        14  1A 000D5          BGTRU   5$                                  ;
                           50           6A  D0 000D7          MOVL    CURRENT_VCB, R0                     ; 4409
             0C       18   A0           51  E1 000DA          BBC     R1, 24(R0), 5$                      ;
                                        58  DD 000DF          PUSHL   HDR                                 ; 4418
                                  04    AE  9F 000E1          PUSHAB  FILE_ID                             ;
                    F10B   CF           02  FB 000E4          CALLS   #2, READ_HEADER                     ;
                                        0A  11 000E9          BRB     6$                                  ; 4405
                                        58  DD 000EB  5$:     PUSHL   HDR                                 ; 4426
                                  04    AE  9F 000ED          PUSHAB  FILE_ID                             ;
                    F281   CF           02  FB 000F0          CALLS   #2, CREATE_DELHDR                   ;
                           58   0200    C8  9E 000F5  6$:     MOVAB   512(R8), HDR                        ; 4428
                           54           02  C0 000FA          ADDL2   #2, SEQ                             ; 4429
             A2            55           53  F2 000FD  7$:     AOBLSS  R3, N, 3$                           ; 4398
                                        56  DD 00101          PUSHL   R6                                  ; 4435
                    EF7D   CF           01  FB 00103          CALLS   #1, SWITCH_VOLUME                   ;
                           50           6A  D0 00108          MOVL    CURRENT_VCB, R0                     ; 4436
                      04   AA           60  D0 0010B          MOVL    (R0), CURRENT_WCB                   ;
                           50     1A    A0  3C 0010F          MOVZWL  26(R0), R0                          ; 4446
                                      6042  9F 00113          PUSHAB  (R0)[FILE_NUMBER]                   ;
                                        57  DD 00116          PUSHL   R7                                  ; 4445
                                        59  DD 00118          PUSHL   AREA                                ; 4444
                                        7E  7C 0011A          CLRQ    -(SP)                               ; 4437
                                  1C    AE  9F 0011C          PUSHAB  IOSB                                ;
                                        30  DD 0011F          PUSHL   #48                                 ;
                                        7E  7C 00121          CLRQ    -(SP)                               ;
                    F908   CF           09  FB 00123          CALLS   #9, R_W_VIRTUAL                     ;
                           52           50  D0 00128          MOVL    R0, STATUS                          ;
                                        7E  D4 0012B          CLRL    -(SP)                               ; 4447
                00000000G  00           01  FB 0012D          CALLS   #1, SYS$WAITFR                      ;
                           07           52  E9 00134          BLBC    STATUS, 8$                          ; 4448
                           52     08    AE  3C 00137          MOVZWL  IOSB, STATUS                        ;
                           13           52  E8 0013B          BLBS    STATUS, 9$                          ; 4449
                                        52  DD 0013E  8$:     PUSHL   STATUS                              ; 4451
                                        5B  DD 00140          PUSHL   R11                                 ;
                                        01  DD 00142          PUSHL   #1                                  ;
```

```
                        00000000G  8F  DD 00144          PUSHL   #BACKUP$_WRITEERR+2                    ;
          00000000G  00            04  FB 0014A          CALLS   #4, LIB$SIGNAL                         ;
                            0280   8F  BB 00151 9$:      PUSHR   #^M<R7,R9>                             ; 4456
          00000000G  00            02  FB 00155          CALLS   #2, FREE_VM                            ;
                                      04 0015C          RET                                            ; 4457

; Routine Size:  349 bytes,    Routine Base:  CODE + 10BC
```

```
; 2931          4458  1 %SBTTL 'STA_WRITEBOOT - write volume boot block'
; 2932          4459  1 GLOBAL ROUTINE STA_WRITEBOOT : NOVALUE=
; 2933          4460  1
; 2934          4461  1 !++
; 2935          4462  1 !
; 2936          4463  1 ! FUNCTIONAL DESCRIPTION:
; 2937          4464  1 !       This routine is called to initialize the boot block.
; 2938          4465  1 !
; 2939          4466  1 ! INPUT PARAMETERS:
; 2940          4467  1 !       NONE
; 2941          4468  1 !
; 2942          4469  1 ! IMPLICIT INPUTS:
; 2943          4470  1 !       OUTPUT_ATTBUF   - Contains file attributes.
; 2944          4471  1 !       OUTPUT_MTL      - Pointer to MTL for output volume set.
; 2945          4472  1 !                         Boot file is accessed.
; 2946          4473  1 !
; 2947          4474  1 ! OUTPUT PARAMETERS:
; 2948          4475  1 !       NONE
; 2949          4476  1 !
; 2950          4477  1 ! IMPLICIT OUTPUTS:
; 2951          4478  1 !       NONE
; 2952          4479  1 !
; 2953          4480  1 ! ROUTINE VALUE:
; 2954          4481  1 !       NONE
; 2955          4482  1 !
; 2956          4483  1 ! SIDE EFFECTS:
; 2957          4484  1 !       Boot block rewritten.
; 2958          4485  1 !
; 2959          4486  1 !--
; 2960          4487  1
; 2961          4488  2 BEGIN
; 2962          4489  2 LOCAL
; 2963          4490  2         RSA:            VECTOR[NAM$C_MAXRSS,BYTE],      ! Resultant string area
; 2964          4491  2         BUFFER:         BBLOCK[512],    ! Buffer for boot block
; 2965          4492  2         STATUS,                         ! Status variable
; 2966          4493  2         IOSB:           VECTOR[4,WORD]; ! I/O status block
; 2967          4494  2
; 2968          4495  2
; 2969          4496  2 ! Read the boot block from the relative volume on which the presently accessed
; 2970          4497  2 ! file is located.
; 2971          4498  2 !
; 2972          4499  2 CURRENT_MTL = .OUTPUT_MTL;
; 2973          4500  2 CURRENT_VCB = .CURRENT_MTL[MTL_VCB(.CURRENT_MTL[MTL_FID_RVN]-.CURRENT_MTL[MTL_RVN_BASE])];
; 2974          4501  2 CURRENT_WCB = .CURRENT_VCB[VCB_INDEXF];
; 2975          4502  2 RSA_DESC[0] = NAM$C_MAXRSS;
; 2976          4503  2 RSA_DESC[1] = RSA;
; 2977        P 4504  2 $FAO(
; 2978        P 4505  2     $DESCRIPTOR('!AS[000000]INDEXF.SYS;1'),
; 2979        P 4506  2     RSA_DESC,
; 2980        P 4507  2     RSA_DESC,
; 2981          4508  2     CURRENT_VCB[VCB_DEVICE]);
; 2982          4509  2 STATUS = R_W_VIRTUAL(
; 2983          4510  2     0,
; 2984          4511  2     0,
; 2985          4512  2     IO$_READVBLK,
; 2986          4513  2     IOSB,
; 2987          4514  2     0,
```

```
2     0,
2     BUFFER,
2     512,
2     1);
2 $WAITFR(EFN=0);
2 IF .STATUS THEN STATUS = .IOSB[0];
2 IF NOT .STATUS
2 THEN
3     BEGIN
3     SIGNAL(BACKUP$_READERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
3     RETURN;
2     END;
2
2
2 ! Update the boot LBN in the second longword of the boot block to point to
2 ! the VBN given by OUTPUT_ATTBUF[FAR_BOOTVBN] of the presently accessed file.
2 ! The file is assumed to be contiguous.
2 !
2 BUFFER[4,0,32,0] =
2     ROT(
2         .BBLOCK[BBLOCK[.CURRENT_MTL[MTL_WINDOW], WCB_S_HEADER,0,0,0], WCB_LBN] +
2         .OUTPUT_ATTBUF[FAR_BOOTVBN] - 1,
2     16);
2
2
2 ! Rewrite the boot block.
2 !
2 STATUS = R_W_VIRTUAL(
2     0,
2     0,
2     IO$_WRITEVBLK,
2     IOSB,
2     0,
2     0,
2     BUFFER,
2     512,
2     1);
2 $WAITFR(EFN=0);
2 IF .STATUS THEN STATUS = .IOSB[0];
2 IF NOT .STATUS
2 THEN
2     SIGNAL(BACKUP$_WRITEERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
1 END;


45 44 4E 49 5D 30 30 30 30 30 30 5B 53 41 21  01219 P.AAF:  .ASCII  \!AS[000000]INDEXF.SYS;1\                  ;
                     31 3B 53 59 53 2E 46 58  01228                                                            ;
                                  00000017  01230 P.AAE:  .LONG   23                                           ;
                                  00000000'  01234        .ADDRESS P.AAF                                        ;


                                  007C 00000        .ENTRY  STA_WRITEBOOT, Save R2,R3,R4,R5,R6          ; 4459
                 56      F8AE   CF  9E 00002        MOVAB   R_W_VIRTUAL, R6                              ;
                 55 00000000G   00  9E 00007        MOVAB   SYS$WAITFR, R5                               ;
                 54 00000000'   EF  9E 0000E        MOVAB   RSA_DESC, R4                                 ;
```

```
                    53 00000000'  EF  9E 00015          MOVAB   CURRENT_MTL, R3                          ;
                    5E      FCF8  CE  9E 0001C          MOVAB   -776(SP), SP                            ;
                    63        FC  A3  D0 00021          MOVL    OUTPUT_MTL, CURRENT_MTL                 ; 4499
                    51            63  D0 00025          MOVL    CURRENT_MTL, R1                         ; 4500
                    50        1C  A1  9A 00028          MOVZBL  28(R1), R0                              ;
                    52        30  A1  9A 0002C          MOVZBL  48(R1), R2                              ;
                    50            52  C2 00030          SUBL2   R2, R0                                  ;
                 04 A3        34 A140  D0 00033          MOVL    52(R1)[R0], CURRENT_VCB                 ;
                 08 A3        04  B3  D0 00039          MOVL    @CURRENT_VCB, CURRENT_WCB               ; 4501
                    64        FF  8F  9A 0003E          MOVZBL  #255, RSA_DESC                          ; 4502
                 04 A4      FF00  CD  9E 00042          MOVAB   RSA, RSA_DESC+4                         ; 4503
             7E  04 A3            20  C1 00048          ADDL3   #32, CURRENT_VCB, -(SP)                 ; 4508
                                  54  DD 0004D          PUSHL   R4                                      ;
                                  54  DD 0004F          PUSHL   R4                                      ;
                        A4        AF  9F 00051          PUSHAB  P.AAE                                   ;
          00000000G  00           04  FB 00054          CALLS   #4, SYS$FAO                             ;
                                  01  DD 0005B          PUSHL   #1                                      ; 4509
                    7E      0200  8F  3C 0005D          MOVZWL  #512, -(SP)                             ;
                        10        AE  9F 00062          PUSHAB  BUFFER                                  ;
                                  7E  7C 00065          CLRQ    -(SP)                                   ;
                        14        AE  9F 00067          PUSHAB  IOSB                                    ;
                                  31  DD 0006A          PUSHL   #49                                     ;
                                  7E  7C 0006C          CLRQ    -(SP)                                   ;
                    66            09  FB 0006E          CALLS   #9, R_W_VIRTUAL                         ;
                    52            50  D0 00071          MOVL    R0, STATUS                              ;
                                  7E  D4 00074          CLRL    -(SP)                                   ; 4519
                    65            01  FB 00076          CALLS   #1, SYS$WAITFR                          ;
                    06            52  E9 00079          BLBC    STATUS, 1$                              ; 4520
                    52            6E  3C 0007C          MOVZWL  IOSB, STATUS                            ;
                    0E            52  E8 0007F          BLBS    STATUS, 2$                              ; 4521
                                  52  DD 00082 1$:      PUSHL   STATUS                                  ; 4524
                                  54  DD 00084          PUSHL   R4                                      ;
                                  01  DD 00086          PUSHL   #1                                      ;
                       00000000G  8F  DD 00088          PUSHL   #BACKUP$_READERR+2                      ;
                                  48  11 0008E          BRB     4$                                      ;
                    50            63  D0 00090 2$:      MOVL    CURRENT_MTL, R0                         ; 4535
                    50        08  A0  D0 00093          MOVL    8(R0), R0                               ;
             50  18 A0      FB78  C3  C1 00097          ADDL3   OUTPUT_ATTBUF+104, 24(R0), R0           ; 4536
                                  50  D7 0009E          DECL    R0                                      ;
         0C  AE     50            10  9C 000A0          ROTL    #16, R0, BUFFER+4                       ; 4534
                                  01  DD 000A5          PUSHL   #1                                      ; 4542
                    7E      0200  8F  3C 000A7          MOVZWL  #512, -(SP)                             ;
                        10        AE  9F 000AC          PUSHAB  BUFFER                                  ;
                                  7E  7C 000AF          CLRQ    -(SP)                                   ;
                        14        AE  9F 000B1          PUSHAB  IOSB                                    ;
                                  30  DD 000B4          PUSHL   #48                                     ;
                                  7E  7C 000B6          CLRQ    -(SP)                                   ;
                    66            09  FB 000B8          CALLS   #9, R_W_VIRTUAL                         ;
                    52            50  D0 000BB          MOVL    R0, STATUS                              ;
                                  7E  D4 000BE          CLRL    -(SP)                                   ; 4552
                    65            01  FB 000C0          CALLS   #1, SYS$WAITFR                          ;
                    06            52  E9 000C3          BLBC    STATUS, 3$                              ; 4553
                    52            6E  3C 000C6          MOVZWL  IOSB, STATUS                            ;
                    13            52  E8 000C9          BLBS    STATUS, 5$                              ; 4554
                                  52  DD 000CC 3$:      PUSHL   STATUS                                  ; 4556
                                  54  DD 000CE          PUSHL   R4                                      ;
                                  01  DD 000D0          PUSHL   #1                                      ;
```

```
                        00000000G  8F  DD 000D2          PUSHL   #BACKUP$_WRITEERR+2                    ;
                00000000G  00          04  FB 000D8 4$:     CALLS   #4, LIB$SIGNAL                        ;
                                           04 000DF 5$:     RET                                           ; 4557

; Routine Size:  224 bytes,    Routine Base:  CODE + 1238
```

```
; 3032    4558  1 %SBTTL 'STA_MOUNT - mount volume for stand-alone use'
; 3033    4559  1 GLOBAL ROUTINE STA_MOUNT (MODE, P_RVN): NOVALUE=
; 3034    4560  1
; 3035    4561  1 !++
; 3036    4562  1 !
; 3037    4563  1 ! FUNCTIONAL DESCRIPTION:
; 3038    4564  1 !       This routine mounts a volume set.
; 3039    4565  1 !
; 3040    4566  1 ! INPUT PARAMETERS:
; 3041    4567  1 !       MODE                - 0: input volume to be read
; 3042    4568  1 !                             1: output volume to be initialized
; 3043    4569  1 !                             3: output volume to be updated
; 3044    4570  1 !       P_RVN (optional): if absent, completely mount entire volume set
; 3045    4571  1 !                         if n, mount RVN n of sequential save set
; 3046    4572  1 !
; 3047    4573  1 ! IMPLICIT INPUTS:
; 3048    4574  1 !       NONE
; 3049    4575  1 !
; 3050    4576  1 ! OUTPUT PARAMETERS:
; 3051    4577  1 !       NONE
; 3052    4578  1 !
; 3053    4579  1 ! IMPLICIT OUTPUTS:
; 3054    4580  1 !       INPUT_MTL           - Pointer to MTL for input volume set.
; 3055    4581  1 !       OUTPUT_MTL          - Pointer to MTL for output volume set.
; 3056    4582  1 !
; 3057    4583  1 ! ROUTINE VALUE:
; 3058    4584  1 !       NONE
; 3059    4585  1 !
; 3060    4586  1 ! SIDE EFFECTS:
; 3061    4587  1 !       NONE
; 3062    4588  1 !
; 3063    4589  1 !--
; 3064    4590  1
; 3065    4591  2 BEGIN
; 3066    4592  2
; 3067    4593  2 LINKAGE
; 3068    4594  2         L_MAP_POINTER=  JSB:
; 3069    4595  2                         GLOBAL(COUNT=6, LBN=7, MAP_POINTER=8);
; 3070    4596  2 LOCAL
; 3071    4597  2         Q:              REF BBLOCK,     ! Pointer to qualifier block
; 3072    4598  2         MTL:            REF BBLOCK,     ! Pointer to MTL block
; 3073    4599  2         VCB:            REF BBLOCK,     ! Pointer to VCB block
; 3074    4600  2         SETCOUNT,                       ! Count of volumes in set
; 3075    4601  2         CHANNEL,                        ! Channel number
; 3076    4602  2         STATUS,                         ! System service status
; 3077    4603  2         IOSB:           VECTOR[4,WORD], ! I/O status block
; 3078    4604  2         DEVICE_CHAR:    BBLOCK[DIB$C_LENGTH],   ! Device characteristics
; 3079    4605  2         DESC:           VECTOR[2],      ! Descriptor
; 3080    4606  2         HOME_BLOCK:     BBLOCK[512],    ! Home block buffer
; 3081    4607  2         HEADER:         BBLOCK[512];    ! Index file header buffer
; 3082    4608  2 BIND
; 3083    4609  2         INDEX_FILE_ID = UPLIT WORD (FID$C_INDEXF, FID$C_INDEXF, 0),
; 3084    4610  2         BITMAP_FILE_ID = UPLIT WORD (FID$C_BITMAP, FID$C_BITMAP, 0);
; 3085    4611  2 SWITCHES
; 3086    4612  2         NOSAFE;
; 3087    4613  2 BUILTIN
; 3088    4614  2         ACTUALCOUNT;
```

```
; 3089    4615  2 EXTERNAL ROUTINE
; 3090    4616  2         GET_MAP_POINTER: L_MAP_POINTER; ! Get value of QDS-2 file map pointer
; 3091    4617  2
; 3092    4618  2
; 3093    4619  2 ! Count the list of devices.
; 3094    4620  2 !
; 3095    4621  3 IF (IF .MODE THEN .OUTPUT_MTL EQL 0 ELSE .INPUT_MTL EQL 0)
; 3096    4622  2 THEN
; 3097    4623  3     BEGIN
; 3098    4624  3     Q = (IF .MODE THEN .QUAL[QUAL_OUTP_LIST] ELSE .QUAL[QUAL_INPU_LIST]);
; 3099    4625  3     SETCOUNT = 0;
; 3100    4626  3     WHILE .Q NEQ 0 DO
; 3101    4627  4         BEGIN
; 3102    4628  4         SETCOUNT = .SETCOUNT + 1;
; 3103    4629  4         Q = .Q[QUAL_NEXT];
; 3104    4630  3         END;
; 3105    4631  3
; 3106    4632  3
; 3107    4633  3 ! Allocate the MTL and the VCB's.
; 3108    4634  3 !
; 3109    4635  3     MTL = GET_ZERO_VM(MTL_S_ENTRY + .SETCOUNT * %UPVAL);
; 3110    4636  3     CURRENT_MTL = .MTL;
; 3111    4637  3     IF .MODE
; 3112    4638  3     THEN
; 3113    4639  4         BEGIN
; 3114    4640  4         OUTPUT_MTL = .MTL;
; 3115    4641  4         IF ACTUALCOUNT () GEQ 2 THEN MTL[MTL_SEQ_DISK] = 1;
; 3116    4642  4         END
; 3117    4643  3     ELSE
; 3118    4644  3         INPUT_MTL = .MTL;
; 3119    4645  3     MTL[MTL_SETCOUNT] = .SETCOUNT;
; 3120    4646  3     MTL[MTL_RVN_BASE] = 1;
; 3121    4647  3     MTL[MTL_HEADER] = GET_VM(512);
; 3122    4648  3
; 3123    4649  3 ! Set up the skeleton VCB's
; 3124    4650  3 !
; 3125    4651  3
; 3126    4652  3     Q = (IF .MODE THEN .QUAL[QUAL_OUTP_LIST] ELSE .QUAL[QUAL_INPU_LIST]);
; 3127    4653  3     INCR RVN FROM 1 TO .SETCOUNT DO
; 3128    4654  4         BEGIN
; 3129    4655  4         MTL[MTL_VCB(.RVN-1)] = VCB = GET_ZERO_VM(VCB_S_ENTRY);
; 3130    4656  4         VCB[VCB_RVN] = .RVN;
; 3131    4657  4         VCB[VCB_ACB_FLINK] = VCB[VCB_ACB_BLINK] = VCB[VCB_ACB_FLINK];
; 3132    4658  4         IF .MODE NEQ 0 THEN VCB[VCB_OUTPUT] = TRUE;
; 3133    4659  4         VCB[VCB_FAB] = .Q[QUAL_PARA_FC];
; 3134    4660  4         BBLOCK[VCB[VCB_DEVICE], DSC$W_LENGTH] =
; 3135    4661  4             .BBLOCK[Q[QUAL_DEV_DESC], DSC$W_LENGTH];
; 3136    4662  4         BBLOCK[VCB[VCB_DEVICE], DSC$A_POINTER] =
; 3137    4663  4             .BBLOCK[Q[QUAL_DEV_DESC], DSC$A_POINTER];
; 3138    4664  4         Q = .Q[QUAL_NEXT];
; 3139    4665  3         END;
; 3140    4666  2     END;
; 3141    4667  2
; 3142    4668  2 ! Now go back and do the actual mount for those volumes requested.
; 3143    4669  2 !
; 3144    4670  2
; 3145    4671  2 IF .MODE
```

```
; 3146    4672  2 THEN CURRENT_MTL = MTL = .OUTPUT_MTL
; 3147    4673  2 ELSE CURRENT_MTL = MTL = .INPUT_MTL;
; 3148    4674  2 SETCOUNT = .MTL[MTL_SETCOUNT];
; 3149    4675  2 IF ACTUALCOUNT () LSS 2
; 3150    4676  2 OR .P_RVN NEQ 0
; 3151    4677  2 THEN INCR RVN
; 3152    4678  3     FROM (IF ACTUALCOUNT () LSS 2 THEN 1 ELSE .P_RVN)
; 3153    4679  2     TO .SETCOUNT + .MTL[MTL_RVN_BASE] - 1
; 3154    4680  2 DO
; 3155    4681  3     BEGIN
; 3156    4682  3     CURRENT_VCB = VCB = .MTL[MTL_VCB(.RVN-.MTL[MTL_RVN_BASE])];
; 3157    4683  3     VCB[VCB_RVN] = .RVN;
; 3158    4684  3     CHANNEL = SWITCH_VOLUME (.RVN);
; 3159    4685  3
; 3160    4686  3     ! Get device characteristics of the device.
; 3161    4687  3     !
; 3162    4688  3     DESC[0] = DIB$C_LENGTH;
; 3163    4689  3     DESC[1] = DEVICE_CHAR;
; 3164    4690  3     STATUS = $GETCHN(CHAN=.CHANNEL, PRIBUF=DESC);
; 3165    4691  3     IF NOT .STATUS
; 3166    4692  3     THEN
; 3167    4693  3         SIGNAL(BACKUP$_GETCHN, 1, VCB[VCB_DEVICE], .STATUS);
; 3168    4694  3
; 3169    4695  3
; 3170    4696  3     IF .MODE NEQ 1 OR .QUAL[QUAL_COMP]
; 3171    4697  3     THEN
; 3172    4698  4         BEGIN
; 3173    4699  4         READ_HOMEBLOCK(.CHANNEL, DEVICE_CHAR, HOME_BLOCK);
; 3174    4700  4
; 3175    4701  4
; 3176    4702  4         ! Check the SETCOUNT and RVNs implied by the command against the
; 3177    4703  4         ! home block.
; 3178    4704  4         !
; 3179    4705  4         IF .RVN EQL 1
; 3180    4706  4         THEN
; 3181    4707  5             BEGIN
; 3182    4708  5             MTL[MTL_STRUCLEV] = .HOME_BLOCK[HM2$B_STRUCLEV];
; 3183    4709  5             IF .HOME_BLOCK[HM2$B_STRUCLEV] EQL 1
; 3184    4710  5             THEN
; 3185    4711  6                 BEGIN
; 3186    4712  6                 IF .SETCOUNT NEQ 1
; 3187    4713  6                 THEN
; 3188    4714  6                     SIGNAL(BACKUP$_INCSETCNT);
; 3189    4715  6                 END
; 3190    4716  5             ELSE
; 3191    4717  6                 BEGIN
; 3192    4718  6                 IF .MODE AND NOT .QUAL[QUAL_COMP]
; 3193    4719  6                 THEN
; 3194    4720  7                     BEGIN
; 3195    4721  7                     IF .HOME_BLOCK[HM2$W_SETCOUNT] NEQ 0
; 3196    4722  7                     THEN SIGNAL (BACKUP$_VOLINSET, 1, VCB[VCB_DEVICE]);
; 3197    4723  7                     END
; 3198    4724  6                 ELSE
; 3199    4725  7                     BEGIN
; 3200    4726  7                     IF .HOME_BLOCK[HM2$W_SETCOUNT] EQL 0
; 3201    4727  7                     AND .HOME_BLOCK[HM2$Q_RVN] NEQ 0
; 3202    4728  7                     THEN MTL[MTL_SEQ_DISK] = 1;
```

```
; 3203    4729  6                END;
; 3204    4730  6
; 3205    4731  6            IF ACTUALCOUNT () LSS 2
; 3206    4732  6            OR NOT .MTL[MTL_SEQ_DISK]
; 3207    4733  6            THEN
; 3208    4734  7                BEGIN
; 3209    4735  7                IF
; 3210    4736  8                    BEGIN
; 3211    4737  8                    IF .SETCOUNT EQL 1
; 3212    4738  8                    THEN
; 3213    4739  8                        .HOME_BLOCK[HM2$W_RVN] NEQ 0
; 3214    4740  8                        AND .HOME_BLOCK[HM2$W_RVN] NEQ 1
; 3215    4741  8                    ELSE
; 3216    4742  8                        .HOME_BLOCK[HM2$W_RVN] NEQ .RVN
; 3217    4743  8                    END
; 3218    4744  7                THEN
; 3219    4745  7                    SIGNAL(BACKUP$_INCRVN, 1, VCB[VCB_DEVICE]);
; 3220    4746  7
; 3221    4747  7
; 3222    4748  7                IF
; 3223    4749  8                    BEGIN
; 3224    4750  8                    IF .SETCOUNT EQL 1
; 3225    4751  8                    THEN
; 3226    4752  8                        .HOME_BLOCK[HM2$W_SETCOUNT] NEQ 0
; 3227    4753  8                        AND .HOME_BLOCK[HM2$W_SETCOUNT] NEQ 1
; 3228    4754  8                    ELSE
; 3229    4755  8                        .HOME_BLOCK[HM2$W_SETCOUNT] NEQ .SETCOUNT
; 3230    4756  8                    END
; 3231    4757  7                THEN
; 3232    4758  7                    SIGNAL(BACKUP$_INCSETCNT);
; 3233    4759  7                END
; 3234    4760  7
; 3235    4761  6            ELSE
; 3236    4762  7                BEGIN
; 3237    4763  7                IF .HOME_BLOCK[HM2$W_RVN] NEQ 0
; 3238    4764  7                THEN
; 3239    4765  8                    BEGIN
; 3240    4766  8                    RVN = .HOME_BLOCK[HM2$W_RVN];
; 3241    4767  8                    VCB[VCB_RVN] = .RVN;
; 3242    4768  8                    MTL[MTL_RVN_BASE] = .RVN;
; 3243    4769  8                    END
; 3244    4770  7                ELSE
; 3245    4771  8                    BEGIN
; 3246    4772  8                    VCB[VCB_NOTVOLSET] = 1;
; 3247    4773  7                    END;
; 3248    4774  6                END;
; 3249    4775  6
; 3250    4776  6            CH$MOVE(
; 3251    4777  6                HM2$S_STRUCNAME,
; 3252    4778  6                HOME_BLOCK[HM2$T_STRUCNAME],
; 3253    4779  6                MTL[MTL_STRUCNAME]);
; 3254    4780  5            END;
; 3255    4781  5        END
; 3256    4782  4    ELSE
; 3257    4783  5        BEGIN
; 3258    4784  5        IF
; 3259    4785  5            .HOME_BLOCK[HM2$W_RVN] NEQ .RVN OR
```

```
; 3260    4786  5                CH$NEQ(
; 3261    4787  5                    HM2$S_STRUCNAME, HOME_BLOCK[HM2$T_STRUCNAME],
; 3262    4788  5                    HM2$S_STRUCNAME, MTL[MTL_STRUCNAME])
; 3263    4789  5            THEN
; 3264    4790  5                SIGNAL(BACKUP$_INCRVN, 1, VCB[VCB_DEVICE]);
; 3265    4791  4            END;
; 3266    4792  4
; 3267    4793  4
; 3268    4794  4        ! Finish initializing the VCB.
; 3269    4795  4        !
; 3270    4796  4        CH$MOVE (HM2$S_VOLNAME, HOME_BLOCK[HM2$T_VOLNAME], VCB[VCB_VOLNAME]);
; 3271    4797  4        IF .HOME_BLOCK[HM2$B_STRUCLEV] EQL 2
; 3272    4798  4        THEN
; 3273    4799  5            BEGIN
; 3274    4800  5            VCB[VCB_ODS_2] = TRUE;
; 3275    4801  5            IF .HOME_BLOCK[HM2$V_NOHIGHWATER] THEN MTL[MTL_NOHWM] = TRUE;
; 3276    4802  5            VCB[VCB_CLUSTER] = .HOME_BLOCK[HM2$W_CLUSTER];
; 3277    4803  5            VCB[VCB_HDR_OFFSET] = .HOME_BLOCK[HM2$W_CLUSTER] * 4 + .HOME_BLOCK[HM2$W_IBMAPSIZE];
; 3278    4804  5            VCB[VCB_MAXFILIDX] = .HOME_BLOCK[HM2$W_IBMAPSIZE] * 4096;
; 3279    4805  5            VCB[VCB_IMAP_LBN] = .HOME_BLOCK[HM2$L_IBMAPLBN];
; 3280  P 4806  5            STATUS = $QIOW(
; 3281  P 4807  5                FUNC=IO$_READLBLK,
; 3282  P 4808  5                CHAN=.CHANNEL,
; 3283  P 4809  5                IOSB=IOSB,
; 3284  P 4810  5                P1=HEADER,
; 3285  P 4811  5                P2=512,
; 3286    4812  5                P3=.HOME_BLOCK[HM2$L_IBMAPLBN] + .HOME_BLOCK[HM2$W_IBMAPSIZE]);
; 3287    4813  5            IF .STATUS THEN STATUS = .IOSB[0];
; 3288    4814  5            IF .STATUS THEN STATUS = VERIFY_HEADER(HEADER, INDEX_FILE_ID);
; 3289    4815  5            IF NOT .STATUS
; 3290    4816  5            THEN
; 3291    4817  6                BEGIN
; 3292  P 4818  6                STATUS = $QIOW(
; 3293  P 4819  6                    FUNC=IO$_READLBLK,
; 3294  P 4820  6                    CHAN=.CHANNEL,
; 3295  P 4821  6                    IOSB=IOSB,
; 3296  P 4822  6                    P1=HEADER,
; 3297  P 4823  6                    P2=512,
; 3298    4824  6                    P3=.HOME_BLOCK[HM2$L_ALTIDXLBN]);
; 3299    4825  6                IF .STATUS THEN STATUS = .IOSB[0];
; 3300    4826  6                IF .STATUS
; 3301    4827  6                THEN
; 3302    4828  7                    BEGIN
; 3303    4829  7                    STATUS = VERIFY_HEADER(HEADER, INDEX_FILE_ID);
; 3304    4830  7                    IF NOT .STATUS THEN STATUS = SS$_BADFILEHDR;
; 3305    4831  6                    END;
; 3306    4832  5                END;
; 3307    4833  5            IF NOT .STATUS
; 3308    4834  5            THEN
; 3309    4835  5                SIGNAL(BACKUP$_NOINDEXF, 1, VCB[VCB_DEVICE], .STATUS);
; 3310    4836  5            CREATE_WINDOW(HEADER, .RVN, VCB[VCB_INDEXF], 1, 0);
; 3311    4837  5
; 3312    4838  5            ! If we are going to write on this disk, also read in the
; 3313    4839  5            ! index file bitmap, and scan the storage map to build the
; 3314    4840  5            ! allocation table.
; 3315    4841  5            !
; 3316    4842  5            IF .MODE AND NOT .QUAL[QUAL_COMP]
```

```
5                THEN
6                    BEGIN
6                    LOCAL
6                        BITS_SET,                    ! flag meaning ones seen
6                        EXTENT_COUNT,                ! count of extents found in bitmap
6                        FIRST_SET,                   ! starting LBN of extent
6                        LAST_SET;                    ! ending LBN of extent
6                    GLOBAL REGISTER
6                        COUNT=                6,     ! Retrieval pointer count
6                        LBN=                  7,     ! Retrieval pointer LBN
6                        MAP_POINTER=          8: REF BBLOCK; ! Pointer to scan map area
6                    BIND
6                        BUFFER = HEADER : VECTOR;    ! buffer to read bitmap
6
6                    VCB[VCB_OUTPUT] = TRUE;
6                    VCB[VCB_SAVESET] = TRUE;
6                    VCB[VCB_INIT_DONE] = TRUE;
6                    VCB[VCB_IMAP] = GET_VM(.VCB[VCB_MAXFILIDX]/8);
6                    STATUS = $QIOW(
6                        FUNC=IO$_READLBLK,
6                        CHAN=.CHANNEL,
6                        IOSB=IOSB,
6                        P1=.VCB[VCB_IMAP],
6                        P2=.VCB[VCB_MAXFILIDX]/8,
6                        P3=.VCB[VCB_IMAP_LBN]);
6                    IF .STATUS THEN STATUS = .IOSB[0];
6                    IF NOT .STATUS
6                    THEN
6                        SIGNAL(BACKUP$_READIMAP, 1, VCB[VCB_DEVICE], .STATUS);
6
6                    STATUS = $QIOW(
6                        FUNC=IO$_READLBLK,
6                        CHAN=.CHANNEL,
6                        IOSB=IOSB,
6                        P1=HEADER,
6                        P2=512,
6                        P3=.VCB[VCB_IMAP_LBN] + .VCB[VCB_MAXFILIDX]/4096 + 1);
6                    IF .STATUS THEN STATUS = .IOSB[0];
6                    IF .STATUS
6                    THEN
7                        BEGIN
7                        STATUS = VERIFY_HEADER(HEADER, BITMAP_FILE_ID);
7                        IF NOT .STATUS THEN STATUS = SS$_BADFILEHDR;
6                        END;
6                    IF NOT .STATUS
6                    THEN
6                        SIGNAL(BACKUP$_NOBITMAP, 1, VCB[VCB_DEVICE], .STATUS);
6
6                    MAP_POINTER = HEADER + .HEADER[FH2$B_MPOFFSET]*2;
6                    GET_MAP_POINTER ();
6                    COUNT = .COUNT - 1;
9                    IF .COUNT NEQ (((.DEVICE_CHAR[DIB$L_MAXBLOCK]+.VCB[VCB_CLUSTER]-1)
7                                    / .VCB[VCB_CLUSTER] + 4095) / 4096)
6                    THEN SIGNAL (BACKUP$_NOBITMAP, 1, VCB[VCB_DEVICE]);
6                    VCB[VCB_BITMAP_LBN] = .LBN + 1;
6                    VCB[VCB_BITMAP_SIZE] = .COUNT;
6
```

```
                    EXTENT_COUNT = 0;
                    BITS_SET = FALSE;
                    INCR VBN FROM 0 TO .COUNT-1
                    DO
                        BEGIN
                        STATUS = $QIOW(
                            FUNC=IO$_READLBLK,
                            CHAN=.CHANNEL,
                            IOSB=IOSB,
                            P1=BUFFER,
                            P2=512,
                            P3=.VCB[VCB_BITMAP_LBN] + .VBN);
                        IF .STATUS THEN STATUS = .IOSB[0];
                        IF NOT .STATUS
                        THEN
                            SIGNAL(BACKUP$_READBMAP, 1, VCB[VCB_DEVICE], .STATUS);
                        INCR J FROM 0 TO 127
                        DO
                            BEGIN
                            INCR K FROM 0 TO 31
                            DO
                                BEGIN
                                IF NOT .BITS_SET
                                THEN
                                    BEGIN
                                    IF .BUFFER[.J] EQL 0 THEN EXITLOOP;
                                    IF .BITVECTOR [BUFFER[.J], .K]
                                    THEN
                                        BEGIN
                                        BITS_SET = TRUE;
                                        FIRST_SET = (.VBN*4096 + .J*32 + .K) * .VCB[VCB_CLUSTER];
                                        END;
                                    END
                                ELSE
                                    BEGIN
                                    IF .BUFFER[.J] EQL -1 THEN EXITLOOP;
                                    IF NOT .BITVECTOR [BUFFER[.J], .K]
                                    THEN
                                        BEGIN
                                        BITS_SET = FALSE;
                                        LAST_SET = (.VBN*4096 + .J*32 + .K) * .VCB[VCB_CLUSTER];
                                        FREE_BLOCKS (.LAST_SET-.FIRST_SET, .FIRST_SET);
                                        EXTENT_COUNT = .EXTENT_COUNT + 1;
                                        IF .EXTENT_COUNT GTR 100
                                        THEN SIGNAL (BACKUP$_DISKFRAG, 1, VCB[VCB_DEVICE]);
                                        END;
                                    END;
                                END;
                            END;
                        END;
                    IF .BITS_SET
                    THEN FREE_BLOCKS (.COUNT*4096*.VCB[VCB_CLUSTER]-.FIRST_SET, .FIRST_SET);
                    END;
                END

            ! Finish setup of ODS-1 disk. Save set processing is not supported.
            !
```

```
; 3431        4957  4          ELSE
; 3432        4958  5              BEGIN
; 3433        4959  5              IF .MODE
; 3434        4960  5              THEN SIGNAL (BACKUP$_ODS2SAVE, 1, VCB[VCB_DEVICE]);
; 3435        4961  5              VCB[VCB_CLUSTER] = 1;
; 3436        4962  5              VCB[VCB_HDR_OFFSET] = 2 + .HOME_BLOCK[HM1$W_IBMAPSIZE];
; 3437        4963  5              VCB[VCB_MAXFILIDX] = .HOME_BLOCK[HM1$W_IBMAPSIZE] * 4096;
; 3438      P 4964  5              STATUS = $QIOW(
; 3439      P 4965  5                  FUNC=IO$_READLBLK,
; 3440      P 4966  5                  CHAN=.CHANNEL,
; 3441      P 4967  5                  IOSB=IOSB,
; 3442      P 4968  5                  P1=HEADER,
; 3443      P 4969  5                  P2=512,
; 3444        4970  5                  P3=ROT(.HOME_BLOCK[HM1$L_IBMAPLBN], 16) + .HOME_BLOCK[HM1$W_IBMAPSIZE]);
; 3445        4971  5              IF .STATUS THEN STATUS = .IOSB[0];
; 3446        4972  5              IF .STATUS
; 3447        4973  5              THEN
; 3448        4974  6                  BEGIN
; 3449        4975  6                  STATUS = VERIFY_HEADER(HEADER, INDEX_FILE_ID);
; 3450        4976  6                  IF NOT .STATUS THEN STATUS = SS$_BADFILEHDR;
; 3451        4977  5                  END;
; 3452        4978  5              IF NOT .STATUS
; 3453        4979  5              THEN
; 3454        4980  5                  SIGNAL(BACKUP$_NOINDEXF, 1, VCB[VCB_DEVICE], .STATUS);
; 3455        4981  5              CREATE_WINDOW(HEADER, 1, VCB[VCB_INDEXF], 1, 0);
; 3456        4982  4              END;
; 3457        4983  3          END;
; 3458        4984  3      IF ACTUALCOUNT () GEQ 2
; 3459        4985  3      AND .MTL[MTL_SEQ_DISK] THEN EXITLOOP;
; 3460        4986  2      END;
; 3461        4987  1 END;


                  0000  0001  0001  01318 P.AAG:  .WORD   1, 1, 0                                  ;
                  0000  0002  0002  0131E P.AAH:  .WORD   2, 2, 0                                  ;

                                          INDEX_FILE_ID=      P.AAG
                                          BITMAP_FILE_ID=     P.AAH


                                 0FFC 00000         .ENTRY  STA_MOUNT, Save R2,R3,R4,R5,R6,R7,R8,R9,-  ; 4559
                                                            R10,R11                                  ;
              5E      FB68   CE  9E 00002           MOVAB   -1176(SP), SP                            ;
              08        04   AC  E9 00007           BLBC    MODE, 1$                                 ; 4621
                 00000000'   EF  D5 0000B           TSTL    OUTPUT_MTL                               ;
                             06  11 00011           BRB     2$                                       ;
                 00000000'   EF  D5 00013 1$:       TSTL    INPUT_MTL                                ;
                             03  13 00019 2$:       BEQL    3$                                       ;
                           00DA  31 0001B           BRW     15$                                      ;
              09        04   AC  E9 0001E 3$:       BLBC    MODE, 4$                                 ; 4624
              52 00000000'   EF  D0 00022           MOVL    QUAL+4, Q                                ;
                             07  11 00029           BRB     5$                                       ;
              52 00000000'   EF  D0 0002B 4$:       MOVL    QUAL, Q                                  ;
                             59  D4 00032 5$:       CLRL    SETCOUNT                                 ; 4625
                             52  D5 00034 6$:       TSTL    Q                                        ; 4626
                             07  13 00036           BEQL    7$                                       ;
```

```
                                  59  D6 00038          INCL    SETCOUNT                          ; 4628
                    52            62  D0 0003A          MOVL    (Q), Q                            ; 4629
                                  F5  11 0003D          BRB     6$                                ; 4626
        7E          59            02  78 0003F  7$:     ASHL    #2, SETCOUNT, -(SP)               ; 4635
                    6E            34  C0 00043          ADDL2   #52, (SP)                         ;
        00000000G   00            01  FB 00046          CALLS   #1, GET_ZERO_VM                   ;
                    6E            50  D0 0004D          MOVL    R0, MTL                           ;
        00000000'   EF            6E  D0 00050          MOVL    MTL, CURRENT_MTL                  ; 4636
                    15      04    AC  E9 00057          BLBC    MODE, 8$                          ; 4637
        00000000'   EF            6E  D0 0005B          MOVL    MTL, OUTPUT_MTL                   ; 4640
                    02            6C  91 00062          CMPB    (AP), #2                          ; 4641
                                  10  1F 00065          BLSSU   9$                                ;
        50          6E            31  C1 00067          ADDL3   #49, MTL, R0                      ;
                    60            01  88 0006B          BISB2   #1, (R0)                          ;
                                  07  11 0006E          BRB     9$                                ; 4637
        00000000'   EF            6E  D0 00070  8$:     MOVL    MTL, INPUT_MTL                    ; 4644
        50          6E            1F  C1 00077  9$:     ADDL3   #31, MTL, R0                      ; 4645
                    60            59  90 0007B          MOVB    SETCOUNT, (R0)                    ;
        50          6E            30  C1 0007E          ADDL3   #48, MTL, R0                      ; 4646
                    60            01  90 00082          MOVB    #1, (R0)                          ;
                    7E    0200    8F  3C 00085          MOVZWL  #512, -(SP)                       ; 4647
        00000000G   00            01  FB 0008A          CALLS   #1, GET_VM                        ;
        53          6E            0C  C1 00091          ADDL3   #12, MTL, R3                      ;
                    63            50  D0 00095          MOVL    R0, (R3)                          ;
                    09      04    AC  E9 00098          BLBC    MODE, 10$                         ; 4652
                    52 00000000'  EF  D0 0009C          MOVL    QUAL+4, Q                         ;
                                  07  11 000A3          BRB     11$                               ;
                    52 00000000'  EF  D0 000A5  10$:    MOVL    QUAL, Q                           ;
                    54            59  D0 000AC  11$:    MOVL    SETCOUNT, R4                      ; 4653
                                  53  D4 000AF          CLRL    RVN                               ;
                                  41  11 000B1          BRB     14$                               ;
                    7E      44    8F  9A 000B3  12$:    MOVZBL  #68, -(SP)                        ; 4655
        00000000G   00            01  FB 000B7          CALLS   #1, GET_ZERO_VM                   ;
                    5B            50  D0 000BE          MOVL    R0, VCB                           ;
        55          6E            30  C1 000C1          ADDL3   #48, MTL, R5                      ;
                  6543            5B  D0 000C5          MOVL    VCB, (R5)[RVN]                    ;
              06    AB            53  90 000C9          MOVB    RVN, 6(VCB)                       ; 4656
                    50      28    AB  9E 000CD          MOVAB   40(VCB), R0                       ; 4657
              2C    AB            50  D0 000D1          MOVL    R0, 44(VCB)                       ;
              28    AB            50  D0 000D5          MOVL    R0, 40(VCB)                       ;
                            04    AC  D5 000D9          TSTL    MODE                              ; 4658
                                  04  13 000DC          BEQL    13$                               ;
              07    AB            01  88 000DE          BISB2   #1, 7(VCB)                        ;
              30    AB      04    A2  D0 000E2  13$:    MOVL    4(Q), 48(VCB)                     ; 4659
              20    AB      10    A2  B0 000E7          MOVW    16(Q), 32(VCB)                    ; 4661
              24    AB      14    A2  D0 000EC          MOVL    20(Q), 36(VCB)                    ; 4663
                    52            62  D0 000F1          MOVL    (Q), Q                            ; 4664
        BB          53            54  F3 000F4  14$:    AOBLEQ  R4, RVN, 12$                      ; 4653
                    09      04    AC  E9 000F8  15$:    BLBC    MODE, 16$                         ; 4671
                    6E 00000000'  EF  D0 000FC          MOVL    OUTPUT_MTL, MTL                   ; 4672
                                  07  11 00103          BRB     17$                               ;
                    6E 00000000'  EF  D0 00105  16$:    MOVL    INPUT_MTL, MTL                    ; 4673
        00000000'   EF            6E  D0 0010C  17$:    MOVL    MTL, CURRENT_MTL                  ;
        50          6E            1F  C1 00113          ADDL3   #31, MTL, R0                      ; 4674
                    59            60  9A 00117          MOVZBL  (R0), SETCOUNT                    ;
                    02            6C  91 0011A          CMPB    (AP), #2                          ; 4675
                                  06  1F 0011D          BLSSU   18$                               ;
```

```
                                  08   AC  D5 0011F          TSTL    P_RVN                                  ; 4676
                                       01  12 00122          BNEQ    18$                                    ;
                                           04 00124          RET                                            ;
                        02             6C  91 00125 18$:     CMPB    (AP), #2                               ; 4678
                                       05  1E 00128          BGEQU   19$                                    ;
                        5A             01  D0 0012A          MOVL    #1, R10                                ;
                                       04  11 0012D          BRB     20$                                    ;
                        5A       08    AC  D0 0012F 19$:     MOVL    P_RVN, R10                             ;
          51            6E             30  C1 00133 20$:     ADDL3   #48, MTL, R1                           ; 4679
                        50             61  9A 00137          MOVZBL  (R1), R0                               ;
     10   AE            59             50  C1 0013A          ADDL3   R0, SETCOUNT, 16(SP)                   ;
                                       5A  D7 0013F          DECL    RVN                                    ; 4677
                                     058C  31 00141          BRW     70$                                    ;
          51            6E             30  C1 00144 21$:     ADDL3   #48, MTL, R1                           ; 4682
                        50             61  9A 00148          MOVZBL  (R1), R0                               ;
          50            5A             50  C3 0014B          SUBL3   R0, RVN, R0                            ;
          52            6E             34  C1 0014F          ADDL3   #52, MTL, R2                           ;
                        5B           6240  D0 00153          MOVL    (R2)[R0], VCB                          ;
             00000000'  EF             5B  D0 00157          MOVL    VCB, CURRENT_VCB                       ;
                   06   AB             5A  90 0015E          MOVB    RVN, 6(VCB)                            ; 4683
                                       5A  DD 00162          PUSHL   RVN                                    ; 4684
                 ECB4   CF             01  FB 00164          CALLS   #1, SWITCH_VOLUME                      ;
                   08   AE             50  D0 00169          MOVL    R0, CHANNEL                            ;
                 FF7C   CD       74    8F  9A 0016D          MOVZBL  #116, DESC                             ; 4688
                   80   AD       84    AD  9E 00173          MOVAB   DEVICE_CHAR, DESC+4                    ; 4689
                                       7E  7C 00178          CLRQ    -(SP)                                  ; 4690
                                 FF7C  CD  9F 0017A          PUSHAB  DESC                                   ;
                                       7E  D4 0017E          CLRL    -(SP)                                  ;
                                  18   AE  DD 00180          PUSHL   CHANNEL                                ;
             00000000G  00             05  FB 00183          CALLS   #5, SYS$GETCHN                         ;
                   04   AE             50  D0 0018A          MOVL    R0, STATUS                             ;
                        15       04    AE  E8 0018E          BLBS    STATUS, 22$                            ; 4691
                                  04   AE  DD 00192          PUSHL   STATUS                                 ; 4693
                                  20   AB  9F 00195          PUSHAB  32(VCB)                                ;
                                       01  DD 00198          PUSHL   #1                                     ;
                        00000000G      8F  DD 0019A          PUSHL   #BACKUP$_GETCHN                        ;
             00000000G  00             04  FB 001A0          CALLS   #4, LIB$SIGNAL                         ;
                        01       04    AC  D1 001A7 22$:     CMPL    MODE, #1                               ; 4696
                                       0B  12 001AB          BNEQ    23$                                    ;
                        00000000'      EF  95 001AD          TSTB    QUAL+8                                 ;
                                       03  19 001B3          BLSS    23$                                    ;
                                     050C  31 001B5          BRW     69$                                    ;
                                 0214  CE  9F 001B8 23$:     PUSHAB  HOME_BLOCK                             ; 4699
                                  84   AD  9F 001BC          PUSHAB  DEVICE_CHAR                            ;
                                  10   AE  DD 001BF          PUSHL   CHANNEL                                ;
                 F833   CF             03  FB 001C2          CALLS   #3, READ_HOMEBLOCK                     ;
                        01             5A  D1 001C7          CMPL    RVN, #1                                ; 4705
                                       03  13 001CA          BEQL    24$                                    ;
                                     00E0  31 001CC          BRW     38$                                    ;
          50            6E             1E  C1 001CF 24$:     ADDL3   #30, MTL, R0                           ; 4708
                        60     0221    CE  90 001D3          MOVB    HOME_BLOCK+13, (R0)                    ;
                        01     0221    CE  91 001D8          CMPB    HOME_BLOCK+13, #1                      ; 4709
                                       15  12 001DD          BNEQ    26$                                    ;
                        01             59  D1 001DF          CMPL    SETCOUNT, #1                           ; 4712
                                       0D  13 001E2          BEQL    25$                                    ;
                        00000000G      8F  DD 001E4          PUSHL   #BACKUP$_INCSETCNT                     ; 4714
             00000000G  00             01  FB 001EA          CALLS   #1, LIB$SIGNAL                         ;
```

```
                                  00E2  31 001F1 25$:    BRW     40$                                  ; 4709
                  50      023C    CE  3C 001F4 26$:    MOVZWL  HOME_BLOCK+40, R0                    ; 4721
                  20        04    AC  E9 001F9          BLBC    MODE, 27$                            ; 4718
                       00000000'  EF  95 001FD          TSTB    QUAL+8                               ;
                                  18  19 00203          BLSS    27$                                  ;
                                  50  D5 00205          TSTL    R0                                   ; 4721
                                  25  13 00207          BEQL    28$                                  ;
                            20    AB  9F 00209          PUSHAB  32(VCB)                              ; 4722
                                  01  DD 0020C          PUSHL   #1                                   ;
                       00000000G  8F  DD 0020E          PUSHL   #BACKUP$_VOLINSET                    ;
          00000000G  00           03  FB 00214          CALLS   #3, LIB$SIGNAL                       ;
                                  11  11 0021B          BRB     28$                                  ; 4718
                                  50  D5 0021D 27$:     TSTL    R0                                   ; 4726
                                  0D  12 0021F          BNEQ    28$                                  ;
                          023A    CE  B5 00221          TSTW    HOME_BLOCK+38                        ; 4727
                                  07  13 00225          BEQL    28$                                  ;
      50          6E              31  C1 00227          ADDL3   #49, MTL, R0                         ; 4728
                  60              01  88 0022B          BISB2   #1, (R0)                             ;
                  50      023A    CE  3C 0022E 28$:     MOVZWL  HOME_BLOCK+38, R0                    ; 4739
                  02              6C  91 00233          CMPB    (AP), #2                             ; 4731
                                  07  1F 00236          BLSSU   29$                                  ;
      51          6E              31  C1 00238          ADDL3   #49, MTL, R1                         ; 4732
                  4C              61  E8 0023C          BLBS    (R1), 35$                            ;
                  01              59  D1 0023F 29$:     CMPL    SETCOUNT, #1                         ; 4737
                                  09  12 00242          BNEQ    30$                                  ;
                                  50  D5 00244          TSTL    R0                                   ; 4739
                                  1C  13 00246          BEQL    32$                                  ;
                  01              50  B1 00248          CMPW    R0, #1                               ; 4740
                                  03  11 0024B          BRB     31$                                  ;
                  5A              50  D1 0024D 30$:     CMPL    R0, RVN                              ; 4742
                                  12  13 00250 31$:     BEQL    32$                                  ;
                            20    AB  9F 00252          PUSHAB  32(VCB)                              ; 4745
                                  01  DD 00255          PUSHL   #1                                   ;
                       00000000G  8F  DD 00257          PUSHL   #BACKUP$_INCRVN                      ;
          00000000G  00           03  FB 0025D          CALLS   #3, LIB$SIGNAL                       ;
                  50      023C    CE  3C 00264 32$:     MOVZWL  HOME_BLOCK+40, R0                    ; 4752
                  01              59  D1 00269          CMPL    SETCOUNT, #1                         ; 4750
                                  09  12 0026C          BNEQ    33$                                  ;
                                  50  D5 0026E          TSTL    R0                                   ; 4752
                                  31  13 00270          BEQL    37$                                  ;
                  01              50  B1 00272          CMPW    R0, #1                               ; 4753
                                  03  11 00275          BRB     34$                                  ;
                  59              50  D1 00277 33$:     CMPL    R0, SETCOUNT                         ; 4755
                                  27  13 0027A 34$:     BEQL    37$                                  ;
                       00000000G  8F  DD 0027C          PUSHL   #BACKUP$_INCSETCNT                   ; 4758
          00000000G  00           01  FB 00282          CALLS   #1, LIB$SIGNAL                       ;
                                  18  11 00289          BRB     37$                                  ; 4731
                                  50  D5 0028B 35$:     TSTL    R0                                   ; 4763
                                  10  13 0028D          BEQL    36$                                  ;
                  5A              50  D0 0028F          MOVL    R0, RVN                              ; 4766
            06    AB              5A  90 00292          MOVB    RVN, 6(VCB)                          ; 4767
      50          6E              30  C1 00296          ADDL3   #48, MTL, R0                         ; 4768
                  60              5A  90 0029A          MOVB    RVN, (R0)                            ;
                                  04  11 0029D          BRB     37$                                  ; 4763
            07    AB              10  88 0029F 36$:     BISB2   #16, 7(VCB)                          ; 4772
      56          6E              24  C1 002A3 37$:     ADDL3   #36, MTL, R6                         ; 4779
      66    FF48  CD              0C  28 002A7          MOVC3   #12, HOME_BLOCK+460, (R6)            ;
```

```
                                                27  11 002AD          BRB     40$                                  ; 4705
   5A    023A   CE          10                   00  ED 002AF 38$:    CMPZV   #0, #16, HOME_BLOCK+38, RVN           ; 4785
                                                0C  12 002B6          BNEQ    39$                                  ;
                54          6E                  24  C1 002B8          ADDL3   #36, MTL, R4                         ; 4788
                64     FF48 CD                  0C  29 002BC          CMPC3   #12, HOME_BLOCK+460, (R4)            ;
                                                12  13 002C2          BEQL    40$                                  ;
                                        20      AB  9F 002C4 39$:     PUSHAB  32(VCB)                              ; 4790
                                                01  DD 002C7          PUSHL   #1                                   ;
                                 00000000G      8F  DD 002C9          PUSHL   #BACKUP$_INCRVN                      ;
            00000000G  00                       03  FB 002CF          CALLS   #3, LIB$SIGNAL                       ;
        38  AB     FF54 CD                      0C  28 002D6 40$:     MOVC3   #12, HOME_BLOCK+472, 56(VCB)         ; 4796
                        02          0221        CE  91 002DD          CMPB    HOME_BLOCK+13, #2                    ; 4797
                                                03  13 002E2          BEQL    41$                                  ;
                                            0332  31 002E4          BRW     65$                                  ;
                     07 AB                      02  88 002E7 41$:     BISB2   #2, 7(VCB)                           ; 4800
                07   023E CE                    03  E1 002EB          BBC     #3, HOME_BLOCK+42, 42$               ; 4801
                50      6E                      31  C1 002F1          ADDL3   #49, MTL, R0                         ;
                        60                      04  88 002F5          BISB2   #4, (R0)                             ;
                     04 AB          0222        CE  B0 002F8 42$:     MOVW    HOME_BLOCK+14, 4(VCB)                ; 4802
                        50          0222        CE  3C 002FE          MOVZWL  HOME_BLOCK+14, R0                    ; 4803
                        51          0234        CE  3C 00303          MOVZWL  HOME_BLOCK+32, R1                    ;
                        52                    6140  DE 00308          MOVAL   (R1)[R0], R2                         ;
                     1A AB                      52  B0 0030C          MOVW    R2, 26(VCB)                          ;
                        50          0234        CE  3C 00310          MOVZWL  HOME_BLOCK+32, R0                    ; 4804
        1C  AB          50                      0C  78 00315          ASHL    #12, R0, 28(VCB)                     ;
                     14 AB          022C        CE  D0 0031A          MOVL    HOME_BLOCK+24, 20(VCB)               ; 4805
                                                7E  7C 00320          CLRQ    -(SP)                                ; 4812
                                                7E  D4 00322          CLRL    -(SP)                                ;
                        50          0240        CE  3C 00324          MOVZWL  HOME_BLOCK+32, R0                    ;
                                    0238      DE40  9F 00329          PUSHAB  @HOME_BLOCK+24[R0]                   ;
                        7E          0200        8F  3C 0032E          MOVZWL  #512, -(SP)                          ;
                                      28        AE  9F 00333          PUSHAB  HEADER                               ;
                                                7E  7C 00336          CLRQ    -(SP)                                ;
                                      F8        AD  9F 00338          PUSHAB  IOSB                                 ;
                                                21  DD 0033B          PUSHL   #33                                  ;
                                      30        AE  DD 0033D          PUSHL   CHANNEL                              ;
                                                7E  D4 00340          CLRL    -(SP)                                ;
            00000000G  00                       0C  FB 00342          CALLS   #12, SYS$QIOW                        ;
                    04 AE                       50  D0 00349          MOVL    R0, STATUS                           ;
                       1D                       04  AE E9 0034D       BLBC    STATUS, 43$                          ; 4813
                    04 AE                       F8  AD 3C 00351       MOVZWL  IOSB, STATUS                         ;
                       14                       04  AE E9 00356       BLBC    STATUS, 43$                          ; 4814
                                              FC96  CF 9F 0035A       PUSHAB  INDEX_FILE_ID                        ;
                                                18  AE 9F 0035E       PUSHAB  HEADER                               ;
                  EB50 CF                       02  FB 00361          CALLS   #2, VERIFY_HEADER                    ;
                    04 AE                       50  D0 00366          MOVL    R0, STATUS                           ;
                       67                       04  AE E8 0036A       BLBS    STATUS, 45$                          ; 4815
                                                7E  7C 0036E 43$:     CLRQ    -(SP)                                ; 4824
                                                7E  D4 00370          CLRL    -(SP)                                ;
                                              0228  CE  DD 00372      PUSHL   HOME_BLOCK+8                         ;
                       7E                     0200  8F  3C 00376      MOVZWL  #512, -(SP)                          ;
                                                28  AE  9F 0037B      PUSHAB  HEADER                               ;
                                                7E  7C 0037E          CLRQ    -(SP)                                ;
                                                F8  AD  9F 00380      PUSHAB  IOSB                                 ;
                                                21  DD 00383          PUSHL   #33                                  ;
                                                30  AE  DD 00385      PUSHL   CHANNEL                              ;
                                                7E  D4 00388          CLRL    -(SP)                                ;
```

```
        00000000G  00          0C  FB 0038A        CALLS   #12, SYS$QIOW                  ;
              04   AE          50  D0 00391        MOVL    R0, STATUS                     ;
                   27     04   AE  E9 00395        BLBC    STATUS, 44$                    ; 4825
              04   AE     F8   AD  3C 00399        MOVZWL  IOSB, STATUS                   ;
                   1E     04   AE  E9 0039E        BLBC    STATUS, 44$                    ; 4826
                        FC4E   CF  9F 003A2        PUSHAB  INDEX_FILE_ID                  ; 4829
                          18   AE  9F 003A6        PUSHAB  HEADER                         ;
            EB08   CF          02  FB 003A9        CALLS   #2, VERIFY_HEADER              ;
              04   AE          50  D0 003AE        MOVL    R0, STATUS                     ;
                   1F     04   AE  E8 003B2        BLBS    STATUS, 45$                    ; 4830
              04   AE   0810   8F  3C 003B6        MOVZWL  #2064, STATUS                  ;
                   15     04   AE  E8 003BC        BLBS    STATUS, 45$                    ; 4833
                          04   AE  DD 003C0 44$:   PUSHL   STATUS                         ; 4835
                          20   AB  9F 003C3        PUSHAB  32(VCB)                        ;
                               01  DD 003C6        PUSHL   #1                             ;
                    00000000G  8F  DD 003C8        PUSHL   #BACKUP$_NOINDEXF              ;
        00000000G  00          04  FB 003CE        CALLS   #4, LIB$SIGNAL                 ;
                   7E          01  7D 003D5 45$:   MOVQ    #1, -(SP)                      ; 4836
                   7E          5A  7D 003D8        MOVQ    RVN, -(SP)                     ;
                          24   AE  9F 003DB        PUSHAB  HEADER                         ;
            F0C7   CF          05  FB 003DE        CALLS   #5, CREATE_WINDOW              ;
                   03     04   AC  E8 003E3        BLBS    MODE, 47$                      ; 4842
                            02DA  31 003E7 46$:   BRW     69$                            ;
                    00000000'  EF  95 003EA 47$:   TSTB    QUAL+8                         ;
                               F5  19 003F0        BLSS    46$                            ;
              07   AB          0D  88 003F2        BISB2   #13, 7(VCB)                    ; 4859
      7E      1C   AB          08  C7 003F6        DIVL3   #8, 28(VCB), -(SP)             ; 4860
        00000000G  00          01  FB 003FB        CALLS   #1, GET_VM                     ;
              10   AB          50  D0 00402        MOVL    R0, 16(VCB)                    ;
                               7E  7C 00406        CLRQ    -(SP)                          ; 4867
                               7E  D4 00408        CLRL    -(SP)                          ;
                          14   AB  DD 0040A        PUSHL   20(VCB)                        ;
      7E      1C   AB          08  C7 0040D        DIVL3   #8, 28(VCB), -(SP)             ;
                          10   AB  DD 00412        PUSHL   16(VCB)                        ;
                               7E  7C 00415        CLRQ    -(SP)                          ;
                          F8   AD  9F 00417        PUSHAB  IOSB                           ;
                               21  DD 0041A        PUSHL   #33                            ;
                          30   AE  DD 0041C        PUSHL   CHANNEL                        ;
                               7E  D4 0041F        CLRL    -(SP)                          ;
        00000000G  00          0C  FB 00421        CALLS   #12, SYS$QIOW                  ;
              04   AE          50  D0 00428        MOVL    R0, STATUS                     ;
                   09     04   AE  E9 0042C        BLBC    STATUS, 48$                    ; 4868
              04   AE     F8   AD  3C 00430        MOVZWL  IOSB, STATUS                   ;
                   15     04   AE  E8 00435        BLBS    STATUS, 49$                    ; 4869
                          04   AE  DD 00439 48$:   PUSHL   STATUS                         ; 4871
                          20   AB  9F 0043C        PUSHAB  32(VCB)                        ;
                               01  DD 0043F        PUSHL   #1                             ;
                    00000000G  8F  DD 00441        PUSHL   #BACKUP$_READIMAP              ;
        00000000G  00          04  FB 00447        CALLS   #4, LIB$SIGNAL                 ;
                               7E  7C 0044E 49$:   CLRQ    -(SP)                          ; 4879
                               7E  D4 00450        CLRL    -(SP)                          ;
      50      1C   AB 00001000 8F  C7 00452        DIVL3   #4096, 28(VCB), R0             ;
                   50     14   AB  C0 0045B        ADDL2   20(VCB), R0                    ;
                          01   A0  9F 0045F        PUSHAB  1(R0)                          ;
                   7E   0200   8F  3C 00462        MOVZWL  #512, -(SP)                    ;
                          28   AE  9F 00467        PUSHAB  HEADER                         ;
                               7E  7C 0046A        CLRQ    -(SP)                          ;
```

```
                        F8   AD  9F 0046C        PUSHAB  IOSB                                  ;
                             21  DD 0046F        PUSHL   #33                                   ;
                        30   AE  DD 00471        PUSHL   CHANNEL                               ;
                             7E  D4 00474        CLRL    -(SP)                                 ;
00000000G  00                0C  FB 00476        CALLS   #12, SYS$QIOW                         ;
      04   AE                50  D0 0047D        MOVL    R0, STATUS                            ;
           27        04      AE  E9 00481        BLBC    STATUS, 50$                           ; 4880
      04   AE        F8      AD  3C 00485        MOVZWL  IOSB, STATUS                          ;
           1E        04      AE  E9 0048A        BLBC    STATUS, 50$                           ; 4881
                    FB68     CF  9F 0048E        PUSHAB  BITMAP_FILE_ID                        ; 4884
                        18   AE  9F 00492        PUSHAB  HEADER                                ;
    EA1C   CF                02  FB 00495        CALLS   #2, VERIFY_HEADER                     ;
      04   AE                50  D0 0049A        MOVL    R0, STATUS                            ;
           1F        04      AE  E8 0049E        BLBS    STATUS, 51$                           ; 4885
      04   AE      0810      8F  3C 004A2        MOVZWL  #2064, STATUS                         ;
           15        04      AE  E8 004A8        BLBS    STATUS, 51$                           ; 4887
                        04   AE  DD 004AC 50$:   PUSHL   STATUS                                ; 4889
                        20   AB  9F 004AF        PUSHAB  32(VCB)                               ;
                             01  DD 004B2        PUSHL   #1                                    ;
                00000000G    8F  DD 004B4        PUSHL   #BACKUP$_NOBITMAP                     ;
00000000G  00                04  FB 004BA        CALLS   #4, LIB$SIGNAL                        ;
           50        15      AE  9A 004C1 51$:   MOVZBL  HEADER+1, R0                          ; 4891
           58        14 AE40     3E 004C5        MOVAW   HEADER[R0], MAP_POINTER               ;
                00000000G    00  16 004CA        JSB     GET_MAP_POINTER                       ; 4892
                             56  D7 004D0        DECL    COUNT                                 ; 4893
           50        04      AB  3C 004D2        MOVZWL  4(VCB), R0                            ; 4894
           50        F4      AD  C0 004D6        ADDL2   DEVICE_CHAR+112, R0                   ;
                             50  D7 004DA        DECL    R0                                    ;
           51        04      AB  3C 004DC        MOVZWL  4(VCB), R1                            ; 4895
           50                51  C6 004E0        DIVL2   R1, R0                                ;
           50      0FFF      C0  9E 004E3        MOVAB   4095(R0), R0                          ; 4894
           50 00001000       8F  C6 004E8        DIVL2   #4096, R0                             ; 4895
           50                56  D1 004EF        CMPL    COUNT, R0                             ; 4894
                             12  13 004F2        BEQL    52$                                   ;
                        20   AB  9F 004F4        PUSHAB  32(VCB)                               ; 4896
                             01  DD 004F7        PUSHL   #1                                    ;
                00000000G    8F  DD 004F9        PUSHL   #BACKUP$_NOBITMAP                     ;
00000000G  00                03  FB 004FF        CALLS   #3, LIB$SIGNAL                        ;
      0C   AB        01      A7  9E 00506 52$:   MOVAB   1(R7), 12(VCB)                        ; 4897
      34   AB                56  B0 0050B        MOVW    COUNT, 52(VCB)                        ; 4898
                             57  7C 0050F        CLRQ    BITS_SET                              ; 4901
           53                01  CE 00511        MNEGL   #1, VBN                               ; 4902
                          00DD  31 00514        BRW     61$                                   ;
                             7E  7C 00517 53$:   CLRQ    -(SP)                                 ; 4911
                             7E  D4 00519        CLRL    -(SP)                                 ;
                        0C BB43  9F 0051B        PUSHAB  @12(VCB)[VBN]                         ;
           7E      0200      8F  3C 0051F        MOVZWL  #512, -(SP)                           ;
                        28   AE  9F 00524        PUSHAB  BUFFER                                ;
                             7E  7C 00527        CLRQ    -(SP)                                 ;
                        F8   AD  9F 00529        PUSHAB  IOSB                                  ;
                             21  DD 0052C        PUSHL   #33                                   ;
                        30   AE  DD 0052E        PUSHL   CHANNEL                               ;
                             7E  D4 00531        CLRL    -(SP)                                 ;
00000000G  00                0C  FB 00533        CALLS   #12, SYS$QIOW                         ;
      04   AE                50  D0 0053A        MOVL    R0, STATUS                            ;
           09        04      AE  E9 0053E        BLBC    STATUS, 54$                           ; 4912
      04   AE        F8      AD  3C 00542        MOVZWL  IOSB, STATUS                          ;
```

```
                                15      04   AE  E8 00547          BLBS    STATUS, 55$                                  ; 4913
                                        04   AE  DD 0054B 54$:     PUSHL   STATUS                                       ; 4915
                                        20   AB  9F 0054E          PUSHAB  32(VCB)                                      ;
                                            01  DD 00551          PUSHL   #1                                           ;
                            00000000G   8F      DD 00553          PUSHL   #BACKUP$_READBMAP                            ;
                 00000000G  00              04  FB 00559          CALLS   #4, LIB$SIGNAL                               ;
                                            52  D4 00560 55$:     CLRL    J                                            ; 4916
                                            54  D4 00562 56$:     CLRL    K                                            ; 4919
                                15      14 AE42 D0 00564 57$:     MOVL    BUFFER[J], R0                                ; 4925
                                        14 AE42 DF 00569          PUSHAL  BUFFER[J]                                    ; 4926
51          9E                  01          54  EF 0056D          EXTZV   K, #1, @(SP)+, R1                            ;
                                21          57  E8 00572          BLBS    BITS_SET, 58$                                ; 4922
                                            50  D5 00575          TSTL    R0                                           ; 4925
                                            71  13 00577          BEQL    60$                                          ;
                                68          51  E9 00579          BLBC    R1, 59$                                      ; 4926
                                57          01  D0 0057C          MOVL    #1, BITS_SET                                 ; 4929
            50                  53          0C  78 0057F          ASHL    #12, VBN, R0                                 ; 4930
            51                  52          05  78 00583          ASHL    #5, J, R1                                    ;
                                50          51  C0 00587          ADDL2   R1, R0                                       ;
                                50          54  C0 0058A          ADDL2   K, R0                                        ;
                                55      04  AB  3C 0058D          MOVZWL  4(VCB), FIRST_SET                            ;
                                55          50  C4 00591          MULL2   R0, FIRST_SET                                ;
                                            4E  11 00594          BRB     59$                                          ; 4922
                 FFFFFFFF       8F          50  D1 00596 58$:     CMPL    R0, #-1                                      ; 4935
                                            4B  13 0059D          BEQL    60$                                          ;
                                42          51  E8 0059F          BLBS    R1, 59$                                      ; 4936
                                            57  D4 005A2          CLRL    BITS_SET                                     ; 4939
            50                  53          0C  78 005A4          ASHL    #12, VBN, R0                                 ; 4940
            51                  52          05  78 005A8          ASHL    #5, J, R1                                    ;
                                50          51  C0 005AC          ADDL2   R1, R0                                       ;
                                50          54  C0 005AF          ADDL2   K, R0                                        ;
                                51      04  AB  3C 005B2          MOVZWL  4(VCB), R1                                   ;
        0C  AE                  50          51  C5 005B6          MULL3   R1, R0, LAST_SET                             ;
                                            55  DD 005BB          PUSHL   FIRST_SET                                    ; 4941
            7E          10      AE          55  C3 005BD          SUBL3   FIRST_SET, LAST_SET, -(SP)                   ;
                      ECFE      CF          02  FB 005C2          CALLS   #2, FREE_BLOCKS                              ;
                                            58  D6 005C7          INCL    EXTENT_COUNT                                 ; 4942
                 00000064       8F          58  D1 005C9          CMPL    EXTENT_COUNT, #100                           ; 4943
                                            12  15 005D0          BLEQ    59$                                          ;
                                        20  AB  9F 005D2          PUSHAB  32(VCB)                                      ; 4944
                                            01  DD 005D5          PUSHL   #1                                           ;
                            00000000G   8F      DD 005D7          PUSHL   #BACKUP$_DISKFRAG                            ;
                 00000000G  00              03  FB 005DD          CALLS   #3, LIB$SIGNAL                               ;
FF7A        54                  01          1F  F1 005E4 59$:     ACBL    #31, #1, K, 57$                              ; 4919
FF6E        52                  01 0000007F 8F  F1 005EA 60$:     ACBL    #127, #1, J, 56$                             ; 4916
            02                  53          56  F2 005F4 61$:     AOBLSS  COUNT, VBN, 62$                              ; 4902
                                            03  11 005F8          BRB     63$                                          ;
                                        FF1A    31 005FA 62$:     BRW     53$                                          ;
                                16          57  E9 005FD 63$:     BLBC    BITS_SET, 64$                                ; 4950
                                            55  DD 00600          PUSHL   FIRST_SET                                    ; 4951
                                50      04  AB  3C 00602          MOVZWL  4(VCB), R0                                   ;
                                56          50  C4 00606          MULL2   R0, R6                                       ;
            56                  56          0C  78 00609          ASHL    #12, R6, R6                                  ;
            7E                  56          55  C3 0060D          SUBL3   FIRST_SET, R6, -(SP)                         ;
                      ECAF      CF          02  FB 00611          CALLS   #2, FREE_BLOCKS                              ;
                                        00AB    31 00616 64$:     BRW     69$                                          ; 4797
                                12      04  AC  E9 00619 65$:     BLBC    MODE, 66$                                    ; 4959
```

```
                                  20   AB  9F 0061D          PUSHAB  32(VCB)                          ; 4960
                                       01  DD 00620          PUSHL   #1                               ;
                          00000000G    8F  DD 00622          PUSHL   #BACKUP$_ODS2SAVE                ;
          00000000G  00                03  FB 00628          CALLS   #3, LIB$SIGNAL                   ;
                  04  AB               01  B0 0062F  66$:    MOVW    #1, 4(VCB)                       ; 4961
   1A   AB     0214  CE               02  A1 00633          ADDW3   #2, HOME_BLOCK, 26(VCB)          ; 4962
                     50      0214      CE  3C 0063A          MOVZWL  HOME_BLOCK, R0                   ; 4963
   1C   AB           50               0C  78 0063F          ASHL    #12, R0, 28(VCB)                 ;
                                       7E  7C 00644          CLRQ    -(SP)                            ; 4970
                                       7E  D4 00646          CLRL    -(SP)                            ;
        50     0222  CE               10  9C 00648          ROTL    #16, HOME_BLOCK+2, R0            ;
                     51      0220      CE  3C 0064E          MOVZWL  HOME_BLOCK, R1                   ;
                                    6140  9F 00653          PUSHAB  (R1)[R0]                         ;
                     7E      0200      8F  3C 00656          MOVZWL  #512, -(SP)                      ;
                                  28   AE  9F 0065B          PUSHAB  HEADER                           ;
                                       7E  7C 0065E          CLRQ    -(SP)                            ;
                                  F8   AD  9F 00660          PUSHAB  IOSB                             ;
                                       21  DD 00663          PUSHL   #33                              ;
                                  30   AE  DD 00665          PUSHL   CHANNEL                          ;
                                       7E  D4 00668          CLRL    -(SP)                            ;
          00000000G  00                0C  FB 0066A          CALLS   #12, SYS$QIOW                    ;
                  04  AE               50  D0 00671          MOVL    R0, STATUS                       ;
                     27        04      AE  E9 00675          BLBC    STATUS, 67$                      ; 4971
                  04  AE        F8      AD  3C 00679          MOVZWL  IOSB, STATUS                     ;
                     1E        04      AE  E9 0067E          BLBC    STATUS, 67$                      ; 4972
                             F96E      CF  9F 00682          PUSHAB  INDEX_FILE_ID                    ; 4975
                                  18   AE  9F 00686          PUSHAB  HEADER                           ;
                E828  CF               02  FB 00689          CALLS   #2, VERIFY_HEADER                ;
                  04  AE               50  D0 0068E          MOVL    R0, STATUS                       ;
                     1F        04      AE  E8 00692          BLBS    STATUS, 68$                      ; 4976
                  04  AE      0810      8F  3C 00696          MOVZWL  #2064, STATUS                    ;
                     15        04      AE  E8 0069C          BLBS    STATUS, 68$                      ; 4978
                                  04   AE  DD 006A0  67$:    PUSHL   STATUS                           ; 4980
                                  20   AB  9F 006A3          PUSHAB  32(VCB)                          ;
                                       01  DD 006A6          PUSHL   #1                               ;
                          00000000G    8F  DD 006A8          PUSHL   #BACKUP$_NOINDEXF                ;
          00000000G  00                04  FB 006AE          CALLS   #4, LIB$SIGNAL                   ;
                     7E                01  7D 006B5  68$:    MOVQ    #1, -(SP)                        ; 4981
                                       5B  DD 006B8          PUSHL   VCB                              ;
                                       01  DD 006BA          PUSHL   #1                               ;
                                  24   AE  9F 006BC          PUSHAB  HEADER                           ;
                EDE6  CF               05  FB 006BF          CALLS   #5, CREATE_WINDOW                ;
                     02                6C  91 006C4  69$:    CMPB    (AP), #2                         ; 4984
                                       07  1F 006C7          BLSSU   70$                              ;
        50           6E                31  C1 006C9          ADDL3   #49, MTL, R0                     ; 4985
                     05                60  E8 006CD          BLBS    (R0), 71$                        ;
        01           5A        10      AE  F2 006D0  70$:    AOBLSS  16(SP), RVN, 72$                 ; 4677
                                       04  006D5  71$:    RET                                      ; 4987
                                    FA6B  31 006D6  72$:    BRW     21$                              ; 4677

; Routine Size:  1753 bytes,    Routine Base:  CODE + 1324
```

```
%SBTTL 'STA_DISMOUNT_OUTPUT - dismount output volume'
GLOBAL ROUTINE STA_DISMOUNT_OUTPUT (P_RVN, CONTINUE) : NOVALUE=

!++
!
! FUNCTIONAL DESCRIPTION:
!       This routine is called at the completion of an image restore operation
!       and at the completion of each sequential disk output volume
!       to finish certain parts of the file structure:  index file bitmaps,
!       storage bitmaps, the quota file, and the VOLSET.SYS file.
!
! INPUT PARAMETERS:
!       P_RVN (optional): if present, specifies RVN to dismount
!                         if absent, dismount entire set
!       CONTINUE (optional): 1 indicating save set volume will be continued
!                            0 indicating last volume in set
!
! IMPLICIT INPUTS:
!       OUTPUT_MTL      - Pointer to MTL for output volume set.
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       NONE
!
! SIDE EFFECTS:
!       NONE
!
!--

BEGIN
LOCAL
        RSA:            VECTOR[NAM$C_MAXRSS,BYTE],      ! Resultant string area
        VCB:            REF BBLOCK,                     ! Pointer to VCB for volume
        SAVE_WCB,                                       ! Saved window from MTL
        BUFFER:         BITVECTOR[4096],                ! Block buffer
        FIB:            BBLOCK[FIB$C_LENGTH],           ! FIB
        FIB_DESC:       VECTOR[2],                      ! Descriptor for FIB
        STATUS,                                         ! Status variable
        IOSB:           VECTOR[4,WORD];                 ! I/O status block
BUILTIN
        ACTUALCOUNT;

! First scan the VCB's to make sure that all the volumes were
! actually initialized. If we're dealing with a degenerate save set,
! some may have been missed.
!
CURRENT_MTL = .OUTPUT_MTL;
INCR RVN
FROM (IF ACTUALCOUNT() EQL 0
    THEN .CURRENT_MTL[MTL_RVN_BASE]
    ELSE .P_RVN)
```

```
: 3520          5045  3 TO (IF ACTUALCOUNT() EQL 0
: 3521          5046  3     THEN .CURRENT_MTL[MTL_RVN_BASE]+.CURRENT_MTL[MTL_SETCOUNT]-1
: 3522          5047  3     ELSE .P_RVN)
: 3523          5048  2 DO
: 3524          5049  3     BEGIN
: 3525          5050  3     VCB = .CURRENT_MTL[MTL_VCB(.RVN-.CURRENT_MTL[MTL_RVN_BASE])];
: 3526          5051  3     IF NOT .VCB[VCB_INIT_DONE]
: 3527          5052  3     THEN SIGNAL (BACKUP$_NOVOLDATA, 1, VCB[VCB_DEVICE]);
: 3528          5053  2     END;
: 3529          5054  2
: 3530          5055  2 ! Save the accessed file, if any, and do other initialization.
: 3531          5056  2 !
: 3532          5057  2 SAVE_WCB = .CURRENT_MTL[MTL_WINDOW];
: 3533          5058  2 CURRENT_MTL[MTL_WINDOW] = 0;
: 3534          5059  2 RSA_DESC[1] = RSA;
: 3535          5060  2 FIB_DESC[0] = FIB$C_LENGTH;
: 3536          5061  2 FIB_DESC[1] = FIB;
: 3537          5062  2 CH$FILL (0, FIB$C_LENGTH, FIB);
: 3538          5063  2
: 3539          5064  2
: 3540          5065  2 ! Rebuild the quota file.
: 3541          5066  2 !
: 3542          5067  2 IF
: 3543          5068  2     .QUAL[QUAL_OF11] AND NOT .QUAL[QUAL_VOLU] AND
: 3544          5069  2     .DQF_QUOTA_FID[FID$W_NUM] NEQ 0
: 3545          5070  2 THEN
: 3546          5071  3     BEGIN
: 3547          5072  3     MAP
: 3548          5073  3         BUFFER:         BBLOCK[512];            ! Block buffer
: 3549          5074  3     LOCAL
: 3550          5075  3         FAT:            BBLOCK[FAT$C_LENGTH],   ! Quota file attributes
: 3551          5076  3         ATR_DESC:       BBLOCK[12];             ! ACP attributes list
: 3552          5077  3     GLOBAL REGISTER
: 3553          5078  3         DQF_BUFFER=             11,
: 3554          5079  3         DQF_RECORD=             10:     REF BBLOCK,
: 3555          5080  3         DQF_VBN=                9,
: 3556          5081  3         DQF_DEFAULT_PERM=       8,
: 3557          5082  3         DQF_DEFAULT_OVER=       7;
: 3558          5083  3
: 3559          5084  3
: 3560          5085  3     ! Access the quota file.
: 3561          5086  3     !
: 3562          5087  3     CURRENT_VCB = .CURRENT_MTL[MTL_VCB(0)];
: 3563          5088  3     RSA_DESC[0] = NAM$C_MAXRSS;
: 3564        P 5089  3     $FAO(
: 3565        P 5090  3         $DESCRIPTOR('!AS[000000]QUOTA.SYS;1'),
: 3566        P 5091  3         RSA_DESC,
: 3567        P 5092  3         RSA_DESC,
: 3568          5093  3         CURRENT_VCB[VCB_DEVICE]);
: 3569          5094  3     FIB[FIB$L_ACCTL] = FIB$M_WRITE OR FIB$M_NOWRITE;
: 3570          5095  3     FIB[FIB$W_FID_NUM] = .DQF_QUOTA_FID[FID$W_NUM];
: 3571          5096  3     FIB[FIB$W_FID_SEQ] = .DQF_QUOTA_FID[FID$W_SEQ];
: 3572          5097  3     FIB[FIB$W_FID_RVN] = .DQF_QUOTA_FID[FID$W_RVN];
: 3573          5098  3     ATR_DESC[0,0,16,0] = ATR$S_RECATTR;
: 3574          5099  3     ATR_DESC[2,0,16,0] = ATR$C_RECATTR;
: 3575          5100  3     ATR_DESC[4,0,32,0] = FAT;
: 3576          5101  3     ATR_DESC[8,0,32,0] = 0;
```

```
P 5102  3      STATUS = $$QIOW(
P 5103  3          FUNC=IO$_ACCESS OR IO$M_ACCESS,
P 5104  3          CHAN=STA_OUT_CHAN,
P 5105  3          IOSB=IOSB,
P 5106  3          P1=FIB_DESC,
  5107  3          P5=ATR_DESC);
  5108  3      IF .STATUS THEN STATUS = .IOSB[0];
  5109  3      IF NOT .STATUS
  5110  3      THEN
  5111  4          BEGIN
  5112  4          SIGNAL(BACKUP$_OPENOUT + STS$K_ERROR, 1, RSA_DESC, .STATUS);
  5113  4          RETURN;
  5114  3          END;
  5115  3
  5116  3
  5117  3      ! Scan the quota file to record the quotas in the quota table.
  5118  3      !
  5119  3      DQF_DEFAULT_PERM = 0;
  5120  3      DQF_DEFAULT_OVER = 0;
  5121  3      INCR VBN FROM 1 TO ROT(.FAT[FAT$L_EFBLK], 16) - 1 DO
  5122  4          BEGIN
  5123  4
  5124  4          ! Read a block of the quota file.
  5125  4          !
P 5126  4          STATUS = $$QIOW(
P 5127  4              FUNC=IO$_READVBLK,
P 5128  4              CHAN=STA_OUT_CHAN,
P 5129  4              IOSB=IOSB,
P 5130  4              P1=BUFFER,
P 5131  4              P2=512,
  5132  4              P3=.VBN);
  5133  4          IF .STATUS THEN STATUS = .IOSB[0];
  5134  4          IF NOT .STATUS
  5135  4          THEN
  5136  4              SIGNAL(BACKUP$_READERR + STS$K_ERROR, 1, RSA_DESC, .STATUS)
  5137  4          ELSE
  5138  4              INCRA P FROM BUFFER TO BUFFER+512-DQF$C_LENGTH BY DQF$C_LENGTH DO
  5139  5                  BEGIN
  5140  5                  MAP
  5141  5                      P:          REF BBLOCK;     ! Pointer to quota file entry
  5142  5                  LOCAL
  5143  5                      Q:          REF BBLOCK;     ! Pointer to quota table entry
  5144  5
  5145  5
  5146  5                  ! Scan the quota entries in the block to extract the quotas.
  5147  5                  !
  5148  5                  IF .P[DQF$V_ACTIVE]
  5149  5                  THEN
  5150  6                      BEGIN
  5151  6                      IF .P[DQF$L_UIC] EQL 0
  5152  6                      THEN
  5153  7                          BEGIN
  5154  7                          DQF_DEFAULT_PERM = .P[DQF$L_PERMQUOTA];
  5155  7                          DQF_DEFAULT_OVER = .P[DQF$L_OVERDRAFT];
  5156  6                          END;
  5157  6                      Q = DQF_FIND_UIC(.P[DQF$L_UIC]);
  5158  6                      Q[DQF_PERMQUOTA] = .P[DQF$L_PERMQUOTA];
```

```
                    Q[DQF_OVERDRAFT] = .P[DQF$L_OVERDRAFT];
                    END;
                END;
            END;


        ! Ensure that the allocated size of the quota file is sufficient for the
        ! records to be written into it.
        !
        IF ROT(.FAT[FAT$L_HIBLK], 16) LSSU .DQF_COUNT / (512/DQF$C_LENGTH)
        THEN
            BEGIN
            SIGNAL(BACKUP$_QUOTAFILE);
            S$QIOW(
                FUNC=IO$_DEACCESS,
                CHAN=STA_OUT_CHAN);
            RETURN;
            END;


        ! Rewrite the quota file.
        !
        CH$FILL(0, 512, BUFFER);
        DQF_BUFFER = DQF_RECORD = BUFFER;
        DQF_VBN = 1;
        IF .DQF_ROOT NEQ 0 THEN DQF_WRITE_ENTRY(.DQF_ROOT);


        ! Flush out the last block.
        !
        IF .DQF_RECORD NEQ .DQF_BUFFER
        THEN
            BEGIN
            STATUS = S$QIOW(
                FUNC=IO$_WRITEVBLK,
                CHAN=STA_OUT_CHAN,
                IOSB=IOSB,
                P1=.DQF_BUFFER,
                P2=512,
                P3=.DQF_VBN);
            DQF_VBN = .DQF_VBN + 1;
            IF .STATUS THEN STATUS = .IOSB[0];
            IF NOT .STATUS
            THEN
                SIGNAL(BACKUP$_WRITEERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
            END;


        ! Deaccess the quota file and rewrite the end of file pointer.
        !
        FAT[FAT$L_EFBLK] = ROT(.DQF_VBN, 16);
        STATUS = S$QIOW(
            FUNC=IO$_DEACCESS,
            CHAN=STA_OUT_CHAN,
            IOSB=IOSB,
            P5=ATR_DESC);
        IF .STATUS THEN STATUS = .IOSB[0];
```

```
; 3691          5216  3      IF NOT .STATUS
; 3692          5217  3      THEN
; 3693          5218  3          SIGNAL(BACKUP$_CLOSEOUT + STS$K_ERROR, 1, RSA_DESC, .STATUS);
; 3694          5219  3      END;
; 3695          5220  3
; 3696          5221  3
; 3697          5222  2  ! Finish the VOLSET.SYS file.  It may be incorrect if any volume labels were
; 3698          5223  2  ! changed by /NOINITIALIZE.
; 3699          5224  2  !
; 3700          5225  2  IF
; 3701          5226  2      .CURRENT_MTL[MTL_SETCOUNT] GTRU 1 AND
; 3702          5227  2      ACTUALCOUNT() EQL 0
; 3703          5228  2  THEN
; 3704          5229  3      BEGIN
; 3705          5230  3      LOCAL
; 3706          5231  3          VBN,
; 3707          5232  3          P;
; 3708          5233  3      MAP
; 3709          5234  3          BUFFER:         VECTOR[,BYTE];
; 3710          5235  3
; 3711          5236  3
; 3712          5237  3      ! Access VOLSET.SYS file on RVN 1.
; 3713          5238  3      !
; 3714          5239  3      CURRENT_VCB = .CURRENT_MTL[MTL_VCB(0)];
; 3715          5240  3      RSA_DESC[0] = NAM$C_MAXRSS;
; 3716        P 5241  3      $FAO(
; 3717        P 5242  3          $DESCRIPTOR('!AS[000000]VOLSET.SYS;1'),
; 3718        P 5243  3          RSA_DESC,
; 3719        P 5244  3          RSA_DESC,
; 3720          5245  3          CURRENT_VCB[VCB_DEVICE]);
; 3721          5246  3      FIB[FIB$L_ACCTL] = FIB$M_WRITE OR FIB$M_NOWRITE;
; 3722          5247  3      FIB[FIB$W_FID_NUM] = FID$C_VOLSET;
; 3723          5248  3      FIB[FIB$W_FID_SEQ] = FID$C_VOLSET;
; 3724          5249  3      FIB[FIB$W_FID_RVN] = 1;
; 3725        P 5250  3      STATUS = $$QIOW(
; 3726        P 5251  3          FUNC=IO$_ACCESS OR IO$M_ACCESS,
; 3727        P 5252  3          CHAN=STA_OUT_CHAN,
; 3728        P 5253  3          IOSB=IOSB,
; 3729          5254  3          P1=FIB_DESC);
; 3730          5255  3      IF .STATUS THEN STATUS = .IOSB[0];
; 3731          5256  3      IF NOT .STATUS
; 3732          5257  3      THEN
; 3733          5258  3          SIGNAL(BACKUP$_OPENOUT + STS$K_ERROR, 1, RSA_DESC, .STATUS);
; 3734          5259  3
; 3735          5260  3
; 3736          5261  3      ! Initialize volume set name.
; 3737          5262  3      !
; 3738          5263  3      CH$COPY(VSL$S_NAME, COM_O_STRUCNAME, 0, 512, BUFFER);
; 3739          5264  3      P = VSL$C_LENGTH;
; 3740          5265  3      VBN = 1;
; 3741          5266  3
; 3742          5267  3
; 3743          5268  3      INCR RVN FROM 1 TO .CURRENT_MTL[MTL_SETCOUNT] DO
; 3744          5269  4          BEGIN
; 3745          5270  4
; 3746          5271  4          ! If block is full, write it and reinitialize.
; 3747          5272  4          !
```

```
; 3748          5273  4          IF .P GEQU 512
; 3749          5274  4          THEN
; 3750          5275  5              BEGIN
; 3751        P 5276  5              STATUS = S$QIOW(
; 3752        P 5277  5                  FUNC=IO$_WRITEVBLK,
; 3753        P 5278  5                  CHAN=STA_OUT_CHAN,
; 3754        P 5279  5                  IOSB=IOSB,
; 3755        P 5280  5                  P1=BUFFER,
; 3756        P 5281  5                  P2=512,
; 3757          5282  5                  P3=.VBN);
; 3758          5283  5              IF .STATUS THEN STATUS = .IOSB[0];
; 3759          5284  5              IF NOT .STATUS
; 3760          5285  5              THEN
; 3761          5286  5                  SIGNAL(BACKUP$_WRITEERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
; 3762          5287  5
; 3763          5288  5
; 3764          5289  5              ! Reinitialize buffer, pointer, counts.
; 3765          5290  5              !
; 3766          5291  5              CH$FILL(0, 512, BUFFER);
; 3767          5292  5              P = 0;
; 3768          5293  5              VBN = .VBN + 1;
; 3769          5294  4              END;
; 3770          5295  4
; 3771          5296  4
; 3772          5297  4          ! Initialize VSL entry.
; 3773          5298  4          !
; 3774          5299  4          CH$MOVE(
; 3775          5300  4              VSL$S_NAME,
; 3776          5301  4              BBLOCK[.CURRENT_MTL[MTL_VCB(.RVN-.CURRENT_MTL[MTL_RVN_BASE])], VCB_VOLNAME],
; 3777          5302  4              BBLOCK[BUFFER[.P], VSL$T_NAME]);
; 3778          5303  4
; 3779          5304  4
; 3780          5305  4          P = .P + VSL$C_LENGTH;
; 3781          5306  3          END;
; 3782          5307  3
; 3783          5308  3
; 3784          5309  3      ! Write last block.
; 3785          5310  3      !
; 3786        P 5311  3      STATUS = S$QIOW(
; 3787        P 5312  3          FUNC=IO$_WRITEVBLK,
; 3788        P 5313  3          CHAN=STA_OUT_CHAN,
; 3789        P 5314  3          IOSB=IOSB,
; 3790        P 5315  3          P1=BUFFER,
; 3791        P 5316  3          P2=512,
; 3792          5317  3          P3=.VBN);
; 3793          5318  3      IF .STATUS THEN STATUS = .IOSB[0];
; 3794          5319  3      IF NOT .STATUS
; 3795          5320  3      THEN
; 3796          5321  3          SIGNAL(BACKUP$_WRITEERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
; 3797          5322  3
; 3798          5323  3
; 3799          5324  3      ! Deaccess the file.
; 3800          5325  3      !
; 3801        P 5326  3      $$QIOW(
; 3802        P 5327  3          FUNC=IO$_DEACCESS,
; 3803          5328  3          CHAN=STA_OUT_CHAN);
; 3804          5329  2      END;
```

```
; 3805          5330  2
; 3806          5331  2
; 3807          5332  2 ! If this is RVN 1 of a save set, it may be an externally initialized
; 3808          5333  2 ! volume.  If it is being continued, we want to mark it as RVN 1 of a
; 3809          5334  2 ! loosely coupled volume set.  Loop through the home blocks to do this.
; 3810          5335  2 !
; 3811          5336  2 CURRENT_VCB = .CURRENT_MTL[MTL_VCB(0)];
; 3812          5337  2 IF ACTUALCOUNT () GEQ 2
; 3813          5338  2 AND .P_RVN EQL 1
; 3814          5339  2 AND .CONTINUE
; 3815          5340  2 AND .CURRENT_VCB[VCB_NOTVOLSET]
; 3816          5341  2 THEN
; 3817          5342  3     BEGIN
; 3818          5343  3     MAP
; 3819          5344  3         BUFFER:         BBLOCK;                 ! Block buffer
; 3820          5345  3
; 3821          5346  3
; 3822          5347  3     ! Access the index file on RVN 1.
; 3823          5348  3     !
; 3824          5349  3     CURRENT_MTL[MTL_WINDOW] = .CURRENT_VCB[VCB_INDEXF];
; 3825          5350  3     RSA_DESC[0] = NAM$C_MAXRSS;
; 3826        P 5351  3     $FAO(
; 3827        P 5352  3         $DESCRIPTOR('!AS[000000]INDEXF.SYS;1'),
; 3828        P 5353  3         RSA_DESC,
; 3829        P 5354  3         RSA_DESC,
; 3830          5355  3         CURRENT_VCB[VCB_DEVICE]);
; 3831          5356  3     CURRENT_WCB = .CURRENT_MTL[MTL_WINDOW];
; 3832          5357  3
; 3833          5358  3
; 3834          5359  3 ! Loop, reading home blocks from the index file.
; 3835          5360  3 !
; 3836          5361  3
; 3837          5362  3     INCR VBN FROM 2 TO .CURRENT_VCB[VCB_CLUSTER]*3
; 3838          5363  3         DO
; 3839          5364  4         BEGIN
; 3840          5365  4         STATUS = R_W_VIRTUAL(
; 3841          5366  4             0,
; 3842          5367  4             0,
; 3843          5368  4             IO$_READVBLK,
; 3844          5369  4             IOSB,
; 3845          5370  4             0,
; 3846          5371  4             0,
; 3847          5372  4             BUFFER,
; 3848          5373  4             512,
; 3849          5374  4             .VBN);
; 3850          5375  4         $WAITFR(EFN=0);
; 3851          5376  4         IF .STATUS THEN STATUS = .IOSB[0];
; 3852          5377  4         IF NOT .STATUS
; 3853          5378  4         THEN
; 3854          5379  4             SIGNAL(BACKUP$_READERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
; 3855          5380  4
; 3856          5381  4
; 3857          5382  4         IF NOT CHECKSUM2 (BUFFER, $BYTEOFFSET (HM2$W_CHECKSUM1))
; 3858          5383  4         OR NOT CHECKSUM2 (BUFFER, $BYTEOFFSET (HM2$W_CHECKSUM2))
; 3859          5384  4         THEN SIGNAL(BACKUP$_INVHOMBLK, 1, RSA_DESC);
; 3860          5385  4
; 3861          5386  4
```

```
; 3862          5387  4 ! Write RVN and volume set name into home block and re-checksum.
; 3863          5388  4 !
; 3864          5389  4
; 3865          5390  4         BUFFER[HM2$W_RVN] = 1;
; 3866          5391  4         CH$MOVE (HM2$S_STRUCNAME, CURRENT_MTL[MTL_STRUCNAME], BUFFER[HM2$T_STRUCNAME]);
; 3867          5392  4         CHECKSUM2 (BUFFER, $BYTEOFFSET (HM2$W_CHECKSUM1));
; 3868          5393  4         CHECKSUM2 (BUFFER, $BYTEOFFSET (HM2$W_CHECKSUM2));
; 3869          5394  4
; 3870          5395  4 ! Write back the updated home block.
; 3871          5396  4 !
; 3872          5397  4
; 3873          5398  4         STATUS = R_W_VIRTUAL(
; 3874          5399  4             0,
; 3875          5400  4             0,
; 3876          5401  4             IO$_WRITEVBLK,
; 3877          5402  4             IOSB,
; 3878          5403  4             0,
; 3879          5404  4             0,
; 3880          5405  4             BUFFER,
; 3881          5406  4             512,
; 3882          5407  4             .VBN);
; 3883          5408  4         $WAITFR(EFN=0);
; 3884          5409  4         IF .STATUS THEN STATUS = .IOSB[0];
; 3885          5410  4         IF NOT .STATUS
; 3886          5411  4         THEN
; 3887          5412  4             SIGNAL(BACKUP$_WRITEERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
; 3888          5413  3         END;
; 3889          5414  3
; 3890          5415  3
; 3891          5416  3     CURRENT_MTL[MTL_WINDOW] = 0;
; 3892          5417  2     END;
; 3893          5418  2
; 3894          5419  2
; 3895          5420  2 ! Do each volume in the volume set.
; 3896          5421  2 !
; 3897          5422  2 INCR RVN
; 3898          5423  3 FROM (IF ACTUALCOUNT() EQL 0
; 3899          5424  3     THEN .CURRENT_MTL[MTL_RVN_BASE]
; 3900          5425  3     ELSE .P_RVN)
; 3901          5426  3 TO (IF ACTUALCOUNT() EQL 0
; 3902          5427  3     THEN .CURRENT_MTL[MTL_RVN_BASE]+.CURRENT_MTL[MTL_SETCOUNT]-1
; 3903          5428  3     ELSE .P_RVN)
; 3904          5429  2 DO
; 3905          5430  3     BEGIN
; 3906          5431  3     LOCAL
; 3907          5432  3         VCB:            REF BBLOCK,             ! Pointer to VCB
; 3908          5433  3         CHANNEL,                                ! Channel assigned to volume
; 3909          5434  3         OFFSET,                                 ! Offset to bitmap block
; 3910          5435  3         ACB:            REF BBLOCK;             ! Pointer to ACB
; 3911          5436  3
; 3912          5437  3
; 3913          5438  3     CURRENT_VCB = VCB = .CURRENT_MTL[MTL_VCB(.RVN-.CURRENT_MTL[MTL_RVN_BASE])];
; 3914          5439  3     RSA_DESC[0] = NAM$C_MAXRSS;
; 3915        P 5440  3     $FAO(
; 3916        P 5441  3         $DESCRIPTOR('!AS[000000]INDEXF.SYS;1'),
; 3917        P 5442  3         RSA_DESC,
; 3918        P 5443  3         RSA_DESC,
```

```
; 3919          5444  3          VCB[VCB_DEVICE]);
; 3920          5445  3      CHANNEL = SWITCH_VOLUME(.RVN);
; 3921          5446  3
; 3922          5447  3
; 3923          5448  3      ! Write the index file bitmap.
; 3924          5449  3      !
; 3925        P 5450  3      STATUS = $QIOW(
; 3926        P 5451  3          FUNC=IO$_WRITELBLK,
; 3927        P 5452  3          CHAN=.CHANNEL,
; 3928        P 5453  3          IOSB=IOSB,
; 3929        P 5454  3          P1=.VCB[VCB_IMAP],
; 3930        P 5455  3          P2=.VCB[VCB_MAXFILIDX] / 8,
; 3931          5456  3          P3=.VCB[VCB_IMAP_LBN]);
; 3932          5457  3      IF .STATUS THEN STATUS = .IOSB[0];
; 3933          5458  3      IF NOT .STATUS
; 3934          5459  3      THEN
; 3935          5460  3          SIGNAL(BACKUP$_WRITEERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
; 3936          5461  3
; 3937          5462  3
; 3938          5463  3      ! Initialize for writing storage bitmap.
; 3939          5464  3      !
; 3940          5465  3      OFFSET = -1;
; 3941          5466  3      ACB = .VCB[VCB_ACB_FLINK];
; 3942          5467  3      RSA_DESC[0] = NAM$C_MAXRSS;
; 3943        P 5468  3      $FAO(
; 3944        P 5469  3          $DESCRIPTOR('!AS[000000]BITMAP.SYS;1'),
; 3945        P 5470  3          RSA_DESC,
; 3946        P 5471  3          RSA_DESC,
; 3947          5472  3          VCB[VCB_DEVICE]);
; 3948          5473  3
; 3949          5474  3
; 3950          5475  3      ! Loop for each ACB in the queue.
; 3951          5476  3      !
; 3952          5477  3      UNTIL REMQUE(.VCB[VCB_ACB_FLINK], ACB) DO
; 3953          5478  4          BEGIN
; 3954          5479  4
; 3955          5480  4          ! Loop for each affected bit in the bitmap.  During the loop, N is the
; 3956          5481  4          ! offset within the storage bitmap of the affected bit.
; 3957          5482  4          !
; 3958          5483  4          INCRU N
; 3959          5484  4          FROM .ACB[ACB_LBN] / .VCB[VCB_CLUSTER]
; 3960          5485  4          TO .ACB[ACB_LBN] / .VCB[VCB_CLUSTER] + .ACB[ACB_COUNT] / .VCB[VCB_CLUSTER] - 1
; 3961          5486  4          DO
; 3962          5487  5              BEGIN
; 3963          5488  5
; 3964          5489  5              ! If the current bit is not within the current bitmap block,
; 3965          5490  5              ! write out the completed block, if any, initialize a new one,
; 3966          5491  5              ! and pass zero blocks until we reach the right one.
; 3967          5492  5              !
; 3968          5493  5              UNTIL .N<12,20> LEQ .OFFSET
; 3969          5494  5              DO
; 3970          5495  6                  BEGIN
; 3971          5496  6                  IF .OFFSET NEQ -1
; 3972          5497  6                  THEN
; 3973          5498  7                      BEGIN
; 3974        P 5499  7                      STATUS = $QIOW(
; 3975        P 5500  7                          FUNC=IO$_WRITELBLK,
```

```
P 5501  7                       CHAN=.CHANNEL,
P 5502  7                       IOSB=IOSB,
P 5503  7                       P1=BUFFER,
P 5504  7                       P2=512,
  5505  7                       P3=.VCB[VCB_BITMAP_LBN] + .OFFSET);
  5506  7                   IF .STATUS THEN STATUS = .IOSB[0];
  5507  7                   IF NOT .STATUS
  5508  7                   THEN
  5509  7                       SIGNAL(BACKUP$_WRITEERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
  5510  6                   END;
  5511  6               CH$FILL(0, 512, BUFFER);
  5512  6               OFFSET = .OFFSET + 1;
  5513  5               END;
  5514  5
  5515  5
  5516  5           ! Set the appropriate bit to record the free cluster.
  5517  5           !
  5518  5           BUFFER[.N<0,12>] = TRUE;
  5519  4           END;
  5520  4
  5521  4
  5522  4       ! Free the ACB.
  5523  4       !
  5524  4       FREE_VM(ACB_S_ENTRY, .ACB);
  5525  3       END;
  5526  3
  5527  3
  5528  3   ! Flush the last block, if any.
  5529  3   !
  5530  3   UNTIL .OFFSET GEQ .VCB[VCB_BITMAP_SIZE]
  5531  3   DO
  5532  4       BEGIN
  5533  4       IF .OFFSET NEQ -1
  5534  4       THEN
  5535  5           BEGIN
P 5536  5           STATUS = $QIOW(
P 5537  5               FUNC=IO$_WRITELBLK,
P 5538  5               CHAN=.CHANNEL,
P 5539  5               IOSB=IOSB,
P 5540  5               P1=BUFFER,
P 5541  5               P2=512,
  5542  5               P3=.VCB[VCB_BITMAP_LBN] + .OFFSET);
  5543  5           IF .STATUS THEN STATUS = .IOSB[0];
  5544  5           IF NOT .STATUS
  5545  5           THEN
  5546  5               SIGNAL(BACKUP$_WRITEERR + STS$K_ERROR, 1, RSA_DESC, .STATUS);
  5547  4           END;
  5548  4       CH$FILL (0, 512, BUFFER);
  5549  4       OFFSET = .OFFSET + 1;
  5550  3       END;
  5551  3
  5552  3
  5553  3   ! Free the index file bitmap buffers.
  5554  3   !
  5555  3   FREE_VM(.VCB[VCB_MAXFILIDX]/8, .VCB[VCB_IMAP]);
  5556  3   VCB[VCB_IMAP] = 0;
  5557  2   END;
```

```
; 4033          5558  2
; 4034          5559  2
; 4035          5560  2 ! Restore the accessed file, if any.
; 4036          5561  2 !
; 4037          5562  2 CURRENT_MTL[MTL_WINDOW] = .SAVE_WCB;
; 4038          5563  1 END;


54  4F  55  51  5D  30  30  30  30  30  30  5B  53  41  21  019FD P.AAJ:  .ASCII  \!AS[000000]QUOTA.SYS;1\                  ;
                                31  3B  53  59  53  2E  41  01A0C                                                          ;
                                                            01A13         .BLKB   1
                                                  00000016  01A14 P.AAI:  .LONG   22                                        ;
                                                  00000000' 01A18         .ADDRESS P.AAJ                                    ;
53  4C  4F  56  5D  30  30  30  30  30  30  5B  53  41  21  01A1C P.AAL:  .ASCII  \!AS[000000]VOLSET.SYS;1\                 ;
                            31  3B  53  59  53  2E  54  45  01A2B                                                          ;
                                                            01A33         .BLKB   1
                                                  00000017  01A34 P.AAK:  .LONG   23                                        ;
                                                  00000000' 01A38         .ADDRESS P.AAL                                    ;
45  44  4E  49  5D  30  30  30  30  30  30  5B  53  41  21  01A3C P.AAN:  .ASCII  \!AS[000000]INDEXF.SYS;1\                 ;
                            31  3B  53  59  53  2E  46  58  01A4B                                                          ;
                                                            01A53         .BLKB   1
                                                  00000017  01A54 P.AAM:  .LONG   23                                        ;
                                                  00000000' 01A58         .ADDRESS P.AAN                                    ;
45  44  4E  49  5D  30  30  30  30  30  30  5B  53  41  21  01A5C P.AAP:  .ASCII  \!AS[000000]INDEXF.SYS;1\                 ;
                            31  3B  53  59  53  2E  46  58  01A6B                                                          ;
                                                            01A73         .BLKB   1
                                                  00000017  01A74 P.AAO:  .LONG   23                                        ;
                                                  00000000' 01A78         .ADDRESS P.AAP                                    ;
4D  54  49  42  5D  30  30  30  30  30  30  5B  53  41  21  01A7C P.AAR:  .ASCII  \!AS[000000]BITMAP.SYS;1\                 ;
                            31  3B  53  59  53  2E  50  41  01A8B                                                          ;
                                                            01A93         .BLKB   1
                                                  00000017  01A94 P.AAQ:  .LONG   23                                        ;
                                                  00000000' 01A98         .ADDRESS P.AAR                                    ;


                                                  0FFC 00000         .ENTRY  STA_DISMOUNT_OUTPUT, Save R2,R3,R4,R5,R6,-  ; 4989
                                                                             R7,R8,R9,R10,R11                                ;
                                  5E      FC74  CE  9E 00002         MOVAB   -908(SP), SP                                    ;
                        00000000' EF 00000000'  EF  D0 00007         MOVL    OUTPUT_MTL, CURRENT_MTL                         ; 5040
                                                6C  95 00012         TSTB    (AP)                                            ; 5042
                                                0D  12 00014         BNEQ    1$                                              ;
                                  50 00000000'  EF  D0 00016         MOVL    CURRENT_MTL, R0                                 ; 5043
                                  52        30  A0  9A 0001D         MOVZBL  48(R0), R2                                      ;
                                                04  11 00021         BRB     2$                                              ;
                                  52        04  AC  D0 00023 1$:     MOVL    P_RVN, R2                                       ; 5044
                                                6C  95 00027 2$:     TSTB    (AP)                                            ; 5045
                                                17  12 00029         BNEQ    3$                                              ;
                                  50 00000000'  EF  D0 0002B         MOVL    CURRENT_MTL, R0                                 ; 5046
                                  51        30  A0  9A 00032         MOVZBL  48(R0), R1                                      ;
                                  50        1F  A0  9A 00036         MOVZBL  31(R0), R0                                      ;
                                  50            51  C0 0003A         ADDL2   R1, R0                                          ;
                                  54            70  9E 0003D         MOVAB   -(R0), R4                                       ;
                                                04  11 00040         BRB     4$                                              ;
                                  54        04  AC  D0 00042 3$:     MOVL    P_RVN, R4                                       ; 5047
                                                52  D7 00046 4$:     DECL    RVN                                             ; 5041
```

```
                                  2B  11 00048          BRB     6$                                  ;
                     51 00000000'  EF  D0 0004A 5$:     MOVL    CURRENT_MTL, R1                     ; 5050
                     50       30   A1  9A 00051         MOVZBL  48(R1), R0                          ;
           50        52            50  C3 00055         SUBL3   R0, RVN, R0                         ;
                     53       34 A140  D0 00059         MOVL    52(R1)[R0], VCB                     ;
           12    07  A3            02  E0 0005E         BBS     #2, 7(VCB), 6$                      ; 5051
                              20   A3  9F 00063         PUSHAB  32(VCB)                             ; 5052
                                   01  DD 00066         PUSHL   #1                                  ;
                          00000000G 8F  DD 00068         PUSHL   #BACKUP$_NOVOLDATA                  ;
        00000000G  00              03  FB 0006E         CALLS   #3, LIB$SIGNAL                      ;
           D1      52              54  F3 00075 6$:     AOBLEQ  R4, RVN, 5$                         ; 5041
                     57 00000000'  EF  D0 00079         MOVL    CURRENT_MTL, R7                     ; 5057
                 0C  AE       08   A7  D0 00080         MOVL    8(R7), SAVE_WCB                     ;
                              08   A7  D4 00085         CLRL    8(R7)                               ; 5058
        00000000'  EF     FF00   CD  9E 00088         MOVAB   RSA, RSA_DESC+4                     ; 5059
                 44  AE       40   8F  9A 00091         MOVZBL  #64, FIB_DESC                       ; 5060
                 48  AE       4C   AE  9E 00096         MOVAB   FIB, FIB_DESC+4                     ; 5061
0040  8F    00       6E            00  2C 0009B         MOVC5   #0, (SP), #0, #64, FIB              ; 5062
                              4C   AE     000A2                                                     ;
           03 00000000'  EF        06  E0 000A4         BBS     #6, QUAL+15, 8$                     ; 5068
                              022D  31  000AC 7$:       BRW     24$                                 ;
                     F6 00000000'  EF  E8 000AF 8$:     BLBS    QUAL+14, 7$                         ;
                        00000000'  EF  B5 000B6         TSTW    DQF_QUOTA_FID                       ; 5069
                                   EE  13 000BC         BEQL    7$                                  ;
        00000000'  EF       34   A7  D0 000BE         MOVL    52(R7), CURRENT_VCB                 ; 5087
        00000000'  EF       FF   8F  9A 000C6         MOVZBL  #255, RSA_DESC                      ; 5088
           7E 00000000'  EF        20  C1 000CE         ADDL3   #32, CURRENT_VCB, -(SP)             ; 5093
                        00000000'  EF  9F 000D6         PUSHAB  RSA_DESC                            ;
                        00000000'  EF  9F 000DC         PUSHAB  RSA_DESC                            ;
                            FE92   CF  9F 000E2         PUSHAB  P.AAI                               ;
        00000000G  00              04  FB 000E6         CALLS   #4, SYS$FAO                         ;
                 4C  AE     0101   8F  3C 000ED         MOVZWL  #257, FIB                           ; 5094
                 50  AE 00000000'  EF  D0 000F3         MOVL    DQF_QUOTA_FID, FIB+4                ; 5095
                 54  AE 00000000'  EF  B0 000FB         MOVW    DQF_QUOTA_FID+4, FIB+8              ; 5097
                 10  AE 00040020   8F  D0 00103         MOVL    #262176, ATR_DESC                   ; 5098
                 14  AE       1C   AE  9E 0010B         MOVAB   FAT, ATR_DESC+4                     ; 5100
                              18   AE  D4 00110         CLRL    ATR_DESC+8                          ; 5101
                                   7E  D4 00113         CLRL    -(SP)                               ; 5107
                              14   AE  9F 00115         PUSHAB  ATR_DESC                            ;
                                   7E  7C 00118         CLRQ    -(SP)                               ;
                                   7E  D4 0011A         CLRL    -(SP)                               ;
                              58   AE  9F 0011C         PUSHAB  FIB_DESC                            ;
                                   7E  7C 0011F         CLRQ    -(SP)                               ;
                              5C   AE  9F 00121         PUSHAB  IOSB                                ;
                     7E       72   8F  9A 00124         MOVZBL  #114, -(SP)                         ;
                        0002FFFF   8F  DD 00128         PUSHL   #196607                             ;
                                   7E  D4 0012E         CLRL    -(SP)                               ;
        00000000G  00              0C  FB 00130         CALLS   #12, STA_QIOW                       ;
                     56            50  D0 00137         MOVL    R0, STATUS                          ;
                     07            56  E9 0013A         BLBC    STATUS, 9$                          ; 5108
                     56       3C   AE  3C 0013D         MOVZWL  IOSB, STATUS                        ;
                     18            56  E8 00141         BLBS    STATUS, 10$                         ; 5109
                                   56  DD 00144 9$:     PUSHL   STATUS                              ; 5112
                        00000000'  EF  9F 00146         PUSHAB  RSA_DESC                            ;
                                   01  DD 0014C         PUSHL   #1                                  ;
                        00000000G  8F  DD 0014E         PUSHL   #BACKUP$_OPENOUT+2                  ;
        00000000G  00              04  FB 00154         CALLS   #4, LIB$SIGNAL                      ;
```

```
                                        04 0015B          RET                                          ; 5111
                                    57  7C 0015C 10$:     CLRQ    DQF_DEFAULT_OVER                     ; 5120
        55        24   AE           10  9C 0015E          ROTL    #16, FAT+8, R5                       ; 5121
                                    53  D4 00163          CLRL    VBN                                  ;
                                    7C  11 00165          BRB     18$                                  ;
                                    7E  7C 00167 11$:     CLRQ    -(SP)                                ; 5132
                                    7E  D4 00169          CLRL    -(SP)                                ;
                                    53  DD 0016B          PUSHL   VBN                                  ;
                    7E      0200    8F  3C 0016D          MOVZWL  #512, -(SP)                          ;
                            00A0    CE  9F 00172          PUSHAB  BUFFER                               ;
                                    7E  7C 00176          CLRQ    -(SP)                                ;
                                5C  AE  9F 00178          PUSHAB  IOSB                                 ;
                                    31  DD 0017B          PUSHL   #49                                  ;
                        0002FFFF    8F  DD 0017D          PUSHL   #196607                              ;
                                    7E  D4 00183          CLRL    -(SP)                                ;
          00000000G  00             0C  FB 00185          CALLS   #12, STA_QIOW                        ;
                     56             50  D0 0018C          MOVL    R0, STATUS                           ;
                     07             56  E9 0018F          BLBC    STATUS, 12$                          ; 5133
                     56       3C    AE  3C 00192          MOVZWL  IOSB, STATUS                         ;
                     19             56  E8 00196          BLBS    STATUS, 13$                          ; 5134
                                    56  DD 00199 12$:     PUSHL   STATUS                               ; 5136
                        00000000'   EF  9F 0019B          PUSHAB  RSA_DESC                             ;
                                    01  DD 001A1          PUSHL   #1                                   ;
                        00000000G   8F  DD 001A3          PUSHL   #BACKUP$_READERR+2                   ;
          00000000G  00             04  FB 001A9          CALLS   #4, LIB$SIGNAL                       ;
                                    31  11 001B0          BRB     18$                                  ;
                     52      008C   CE  9E 001B2 13$:     MOVAB   BUFFER, R2                           ; 5138
                     54      FEE0   CD  9E 001B7          MOVAB   BUFFER+480, R4                       ;
                                    20  11 001BC          BRB     17$                                  ;
                     1A             62  E9 001BE 14$:     BLBC    (P), 16$                             ; 5148
                                04  A2  D5 001C1          TSTL    4(P)                                 ; 5151
                                    08  12 001C4          BNEQ    15$                                  ;
                     58       0C    A2  D0 001C6          MOVL    12(P), DQF_DEFAULT_PERM              ; 5154
                     57       10    A2  D0 001CA          MOVL    16(P), DQF_DEFAULT_OVER              ; 5155
                                04  A2  DD 001CE 15$:     PUSHL   4(P)                                 ; 5157
                E38E  CF            01  FB 001D1          CALLS   #1, DQF_FIND_UIC                     ;
                  10  A0       0C    A2  7D 001D6          MOVQ    12(P), T6(Q)                         ; 5158
                     52             20  C0 001DB 16$:     ADDL2   #32, P                               ; 5138
                     54             52  D1 001DE 17$:     CMPL    P, R4                                ;
                                    DB  1B 001E1          BLEQU   14$                                  ;
        80           53             55  F2 001E3 18$:     AOBLSS  R5, VBN, 11$                         ; 5121
        51        20   AE           10  9C 001E7          ROTL    #16, FAT+4, R1                       ; 5168
        50 00000000'   EF           10  C7 001EC          DIVL3   #16, DQF_COUNT, R0                   ;
                     50             51  D1 001F4          CMPL    R1, R0                               ;
                                    28  1E 001F7          BGEQU   19$                                  ;
                        00000000G   8F  DD 001F9          PUSHL   #BACKUP$_QUOTAFILE                   ; 5171
          00000000G  00             01  FB 001FF          CALLS   #1, LIB$SIGNAL                       ;
                                    7E  7C 00206          CLRQ    -(SP)                                ; 5174
                                    7E  7C 00208          CLRQ    -(SP)                                ;
                                    7E  7C 0020A          CLRQ    -(SP)                                ;
                                    7E  7C 0020C          CLRQ    -(SP)                                ;
                     7E             34  7D 0020E          MOVQ    #52, -(SP)                           ;
                        0002FFFF    8F  DD 00211          PUSHL   #196607                              ;
                                    7E  D4 00217          CLRL    -(SP)                                ;
          00000000G  00             0C  FB 00219          CALLS   #12, STA_QIOW                        ;
                                        04 00220          RET                                          ; 5170
0200   8F        00   6E            00  2C 00221 19$:     MOVC5   #0, (SP), #0, #512, BUFFER           ; 5181
```

```
                    008C  CE     00228
                 5A 008C  CE  9E 0022B          MOVAB   BUFFER, DQF_RECORD                    ; 5182
                 5B       5A  D0 00230          MOVL    DQF_RECORD, DQF_BUFFER                ;
                 59       01  D0 00233          MOVL    #1, DQF_VBN                           ; 5183
                 50 00000000' EF  D0 00236      MOVL    DQF_ROOT, R0                          ; 5184
                          07  13 0023D          BEQL    20$                                   ;
                          50  DD 0023F          PUSHL   R0                                    ;
            E37A  CF      01  FB 00241          CALLS   #1, DQF_WRITE_ENTRY                   ;
                 5B       5A  D1 00246 20$:     CMPL    DQF_RECORD, DQF_BUFFER                ; 5189
                          49  13 00249          BEQL    22$                                   ;
                          7E  7C 0024B          CLRQ    -(SP)                                 ; 5198
                          7E  D4 0024D          CLRL    -(SP)                                 ;
                          59  DD 0024F          PUSHL   DQF_VBN                               ;
                 7E     0200  8F  3C 00251      MOVZWL  #512, -(SP)                           ;
                          5B  DD 00256          PUSHL   DQF_BUFFER                            ;
                          7E  7C 00258          CLRQ    -(SP)                                 ;
                       5C     AE  9F 0025A      PUSHAB  IOSB                                  ;
                          30  DD 0025D          PUSHL   #48                                   ;
                 0002FFFF     8F  DD 0025F      PUSHL   #196607                               ;
                          7E  D4 00265          CLRL    -(SP)                                 ;
        00000000G 00      0C  FB 00267          CALLS   #12, STA_QIOW                         ;
                 56       50  D0 0026E          MOVL    R0, STATUS                            ;
                          59  D6 00271          INCL    DQF_VBN                               ; 5199
                 07       56  E9 00273          BLBC    STATUS, 21$                           ; 5200
                 56       3C  AE  3C 00276      MOVZWL  IOSB, STATUS                          ;
                 17       56  E8 0027A          BLBS    STATUS, 22$                           ; 5201
                          56  DD 0027D 21$:     PUSHL   STATUS                                ; 5203
                 00000000' EF  9F 0027F         PUSHAB  RSA_DESC                              ;
                          01  DD 00285          PUSHL   #1                                    ;
                 00000000G 8F  DD 00287         PUSHL   #BACKUP$_WRITEERR+2                   ;
        00000000G 00      04  FB 0028D          CALLS   #4, LIB$SIGNAL                        ;
     24    AE    59       10  9C 00294 22$:     ROTL    #16, DQF_VBN, FAT+8                   ; 5209
                          7E  D4 00299          CLRL    -(SP)                                 ; 5214
                       14     AE  9F 0029B      PUSHAB  ATR_DESC                              ;
                          7E  7C 0029E          CLRQ    -(SP)                                 ;
                          7E  7C 002A0          CLRQ    -(SP)                                 ;
                          7E  7C 002A2          CLRQ    -(SP)                                 ;
                       5C     AE  9F 002A4      PUSHAB  IOSB                                  ;
                          34  DD 002A7          PUSHL   #52                                   ;
                 0002FFFF     8F  DD 002A9      PUSHL   #196607                               ;
                          7E  D4 002AF          CLRL    -(SP)                                 ;
        00000000G 00      0C  FB 002B1          CALLS   #12, STA_QIOW                         ;
                 56       50  D0 002B8          MOVL    R0, STATUS                            ;
                 07       56  E9 002BB          BLBC    STATUS, 23$                           ; 5215
                 56       3C  AE  3C 002BE      MOVZWL  IOSB, STATUS                          ;
                 17       56  E8 002C2          BLBS    STATUS, 24$                           ; 5216
                          56  DD 002C5 23$:     PUSHL   STATUS                                ; 5218
                 00000000' EF  9F 002C7         PUSHAB  RSA_DESC                              ;
                          01  DD 002CD          PUSHL   #1                                    ;
                 00000000G 8F  DD 002CF         PUSHL   #BACKUP$_CLOSEOUT+2                   ;
        00000000G 00      04  FB 002D5          CALLS   #4, LIB$SIGNAL                        ;
                 50 00000000' EF  D0 002DC 24$:     MOVL    CURRENT_MTL, R0                   ; 5226
                 01       1F  A0  91 002E3      CMPB    31(R0), #1                            ;
                          03  1A 002E7          BGTRU   26$                                   ;
                        0198  31 002E9 25$:     BRW     36$                                   ;
                          6C  95 002EC 26$:     TSTB    (AP)                                  ; 5227
                          F9  12 002EE          BNEQ    25$                                   ;
```

```
                    00000000'  EF        34   A0  D0 002F0          MOVL    52(R0), CURRENT_VCB                          ; 5239
                    00000000'  EF        FF   8F  9A 002F8          MOVZBL  #255, RSA_DESC                               ; 5240
                 7E 00000000'  EF             20  C1 00300          ADDL3   #32, CURRENT_VCB, -(SP)                      ; 5245
                                 00000000'    EF  9F 00308          PUSHAB  RSA_DESC                                     ;
                                 00000000'    EF  9F 0030E          PUSHAB  RSA_DESC                                     ;
                                      FC80    CF  9F 00314          PUSHAB  P.AAK                                        ;
                    00000000G  00             04  FB 00318          CALLS   #4, SYS$FAO                                  ;
                           4C  AE      0101   8F  3C 0031F          MOVZWL  #257, FIB                                    ; 5246
                           50  AE  00060006   8F  D0 00325          MOVL    #393222, FIB+4                               ; 5247
                           54  AE             01  B0 0032D          MOVW    #1, FIB+8                                    ; 5249
                                              7E  7C 00331          CLRQ    -(SP)                                        ; 5254
                                              7E  7C 00333          CLRQ    -(SP)                                        ;
                                              7E  D4 00335          CLRL    -(SP)                                        ;
                                        58    AE  9F 00337          PUSHAB  FIB_DESC                                     ;
                                              7E  7C 0033A          CLRQ    -(SP)                                        ;
                                        5C    AE  9F 0033C          PUSHAB  IOSB                                         ;
                                 7E       72   8F  9A 0033F          MOVZBL  #114, -(SP)                                  ;
                                 0002FFFF     8F  DD 00343          PUSHL   #196607                                      ;
                                              7E  D4 00349          CLRL    -(SP)                                        ;
                    00000000G  00             0C  FB 0034B          CALLS   #12, STA_QIOW                                ;
                                 56           50  D0 00352          MOVL    R0, STATUS                                   ;
                                 07           56  E9 00355          BLBC    STATUS, 27$                                  ; 5255
                                 56       3C  AE  3C 00358          MOVZWL  IOSB, STATUS                                 ;
                                 17           56  E8 0035C          BLBS    STATUS, 28$                                  ; 5256
                                              56  DD 0035F  27$:    PUSHL   STATUS                                       ; 5258
                                 00000000'    EF  9F 00361          PUSHAB  RSA_DESC                                     ;
                                              01  DD 00367          PUSHL   #1                                           ;
                                 00000000G    8F  DD 00369          PUSHL   #BACKUP$_OPENOUT+2                           ;
                    00000000G  00             04  FB 0036F          CALLS   #4, LIB$SIGNAL                               ;
  0200   8F      00 00000000'  EF             0C  2C 00376  28$:    MOVC5   #12, COM_O_STRUCNAME, #0, #512, BUFFER       ; 5263
                                      008C    CE     00381                                                               ;
                                 58       40   8F  9A 00384          MOVZBL  #64, P                                       ; 5264
                                 59           01  D0 00388          MOVL    #1, VBN                                      ; 5265
                                 50 00000000' EF  D0 0038B          MOVL    CURRENT_MTL, R0                              ; 5268
                                 5A       1F   A0  9A 00392          MOVZBL  31(R0), R10                                  ;
                                              57  D4 00396          CLRL    RVN                                          ;
                                            0080  31 00398          BRW     33$                                          ;
                    00000200   8F             58  D1 0039B  29$:    CMPL    P, #512                                      ; 5273
                                              57  1F 003A2          BLSSU   32$                                          ;
                                              7E  7C 003A4          CLRQ    -(SP)                                        ; 5282
                                              7E  D4 003A6          CLRL    -(SP)                                        ;
                                              59  DD 003A8          PUSHL   VBN                                          ;
                                 7E      0200   8F  3C 003AA          MOVZWL  #512, -(SP)                                  ;
                                      00A0    CE  9F 003AF          PUSHAB  BUFFER                                       ;
                                              7E  7C 003B3          CLRQ    -(SP)                                        ;
                                        5C    AE  9F 003B5          PUSHAB  IOSB                                         ;
                                              30  DD 003B8          PUSHL   #48                                          ;
                                 0002FFFF     8F  DD 003BA          PUSHL   #196607                                      ;
                                              7E  D4 003C0          CLRL    -(SP)                                        ;
                    00000000G  00             0C  FB 003C2          CALLS   #12, STA_QIOW                                ;
                                 56           50  D0 003C9          MOVL    R0, STATUS                                   ;
                                 07           56  E9 003CC          BLBC    STATUS, 30$                                  ; 5283
                                 56       3C  AE  3C 003CF          MOVZWL  IOSB, STATUS                                 ;
                                 17           56  E8 003D3          BLBS    STATUS, 31$                                  ; 5284
                                              56  DD 003D6  30$:    PUSHL   STATUS                                       ; 5286
                                 00000000'    EF  9F 003D8          PUSHAB  RSA_DESC                                     ;
                                              01  DD 003DE          PUSHL   #1                                           ;
```

```
                                  00000000G  8F  DD 003E0          PUSHL   #BACKUP$_WRITEERR+2                          ;
                      00000000G  00          04  FB 003E6          CALLS   #4, LIB$SIGNAL                               ;
  0200   8F          00          6E          00  2C 003ED 31$:     MOVC5   #0, (SP), #0, #512, BUFFER                   ; 5291
                                      008C   CE     003F4                                                              ;
                                             58  D4 003F7          CLRL    P                                            ; 5292
                                             59  D6 003F9          INCL    VBN                                          ; 5293
                                  51 00000000'  EF  D0 003FB 32$:  MOVL    CURRENT_MTL, R1                              ; 5301
                                  50       30   A1  9A 00402        MOVZBL  48(R1), R0                                   ;
                      50          57          50  C3 00406          SUBL3   R0, RVN, R0                                  ;
                                  50       34 A140  D0 0040A        MOVL    52(R1)[R0], R0                               ;
              008C CE48       38  A0          0C  28 0040F          MOVC3   #12, 56(R0), BUFFER[P]                       ; 5302
                                  58       40   A8  9E 00417        MOVAB   64(R8), P                                    ; 5305
      FF7A          57          01          5A  F1 0041B 33$:     ACBL    R10, #1, RVN, 29$                            ; 5268
                                             7E  7C 00421          CLRQ    -(SP)                                        ; 5317
                                             7E  D4 00423          CLRL    -(SP)                                        ;
                                             59  DD 00425          PUSHL   VBN                                          ;
                                  7E     0200   8F  3C 00427        MOVZWL  #512, -(SP)                                  ;
                                      00A0   CE  9F 0042C          PUSHAB  BUFFER                                       ;
                                             7E  7C 00430          CLRQ    -(SP)                                        ;
                                        5C   AE  9F 00432          PUSHAB  IOSB                                         ;
                                             30  DD 00435          PUSHL   #48                                          ;
                                  0002FFFF   8F  DD 00437          PUSHL   #196607                                      ;
                                             7E  D4 0043D          CLRL    -(SP)                                        ;
                      00000000G  00          0C  FB 0043F          CALLS   #12, STA_QIOW                                ;
                                  56          50  D0 00446          MOVL    R0, STATUS                                   ;
                                  07          56  E9 00449          BLBC    STATUS, 34$                                  ; 5318
                                  56       3C   AE  3C 0044C        MOVZWL  IOSB, STATUS                                 ;
                                  17          56  E8 00450          BLBS    STATUS, 35$                                  ; 5319
                                             56  DD 00453 34$:     PUSHL   STATUS                                       ; 5321
                                  00000000'  EF  9F 00455          PUSHAB  RSA_DESC                                     ;
                                             01  DD 0045B          PUSHL   #1                                           ;
                                  00000000G  8F  DD 0045D          PUSHL   #BACKUP$_WRITEERR+2                          ;
                      00000000G  00          04  FB 00463          CALLS   #4, LIB$SIGNAL                               ;
                                             7E  7C 0046A 35$:     CLRQ    -(SP)                                        ; 5328
                                             7E  7C 0046C          CLRQ    -(SP)                                        ;
                                             7E  7C 0046E          CLRQ    -(SP)                                        ;
                                             7E  7C 00470          CLRQ    -(SP)                                        ;
                                  7E          34  7D 00472          MOVQ    #52, -(SP)                                   ;
                                  0002FFFF   8F  DD 00475          PUSHL   #196607                                      ;
                                             7E  D4 0047B          CLRL    -(SP)                                        ;
                      00000000G  00          0C  FB 0047D          CALLS   #12, STA_QIOW                                ;
                                  50 00000000'  EF  D0 00484 36$:  MOVL    CURRENT_MTL, R0                              ; 5336
                      00000000'  EF       34   A0  D0 0048B        MOVL    52(R0), CURRENT_VCB                          ;
                                  02          6C  91 00493          CMPB    (AP), #2                                     ; 5337
                                             03  1E 00496          BGEQU   38$                                          ;
                                          016C  31 00498 37$:      BRW     46$                                          ;
                                  01       04   AC  D1 0049B 38$:  CMPL    P_RVN, #1                                    ; 5338
                                             F7  12 0049F          BNEQ    37$                                          ;
                                  F3       08   AC  E9 004A1        BLBC    CONTINUE, 37$                                ; 5339
                                  51 00000000'  EF  D0 004A5        MOVL    CURRENT_VCB, R1                              ; 5340
                E7        07  A1          04  E1 004AC          BBC     #4, 7(R1), 37$                                ;
                          08  A0 00000000'  FF  D0 004B1          MOVL    @CURRENT_VCB, 8(R0)                          ; 5349
                      00000000'  EF       FF   8F  9A 004B9        MOVZBL  #255, RSA_DESC                               ; 5350
                7E 00000000'  EF          20  C1 004C1          ADDL3   #32, CURRENT_VCB, -(SP)                      ; 5355
                                  00000000'  EF  9F 004C9          PUSHAB  RSA_DESC                                     ;
                                  00000000'  EF  9F 004CF          PUSHAB  RSA_DESC                                     ;
                                      FADF   CF  9F 004D5          PUSHAB  P.AAM                                        ;
```

```
                00000000G  00          04  FB 004D9          CALLS   #4, SYS$FAO                          ;
                           50 00000000'  EF  D0 004E0          MOVL    CURRENT_MTL, R0                      ; 5356
                00000000'  EF       08  A0  D0 004E7          MOVL    8(R0), CURRENT_WCB                   ;
                           50 00000000'  EF  D0 004EF          MOVL    CURRENT_VCB, R0                      ; 5362
                           58       04  A0  3C 004F6          MOVZWL  4(R0), R8                            ;
                           58           03  C4 004FA          MULL2   #3, R8                               ;
                           57           01  D0 004FD          MOVL    #1, VBN                              ;
                                     00F4  31 00500          BRW     45$                                  ;
                                       57  DD 00503 39$:     PUSHL   VBN                                  ; 5374
                           7E     0200  8F  3C 00505          MOVZWL  #512, -(SP)                          ; 5365
                                 0094  CE  9F 0050A          PUSHAB  BUFFER                               ;
                                       7E  7C 0050E          CLRQ    -(SP)                                ;
                                   50  AE  9F 00510          PUSHAB  IOSB                                 ;
                                       31  DD 00513          PUSHL   #49                                  ;
                                       7E  7C 00515          CLRQ    -(SP)                                ;
                     EB34  CF          09  FB 00517          CALLS   #9, R_W_VIRTUAL                      ;
                           56          50  D0 0051C          MOVL    R0, STATUS                           ;
                                       7E  D4 0051F          CLRL    -(SP)                                ; 5375
                00000000G  00          01  FB 00521          CALLS   #1, SYS$WAITFR                       ;
                           07          56  E9 00528          BLBC    STATUS, 40$                          ; 5376
                           56       3C  AE  3C 0052B          MOVZWL  IOSB, STATUS                         ;
                           17          56  E8 0052F          BLBS    STATUS, 41$                          ; 5377
                                       56  DD 00532 40$:     PUSHL   STATUS                               ; 5379
                           00000000'  EF  9F 00534          PUSHAB  RSA_DESC                             ;
                                       01  DD 0053A          PUSHL   #1                                   ;
                           00000000G  8F  DD 0053C          PUSHL   #BACKUP$_READERR+2                   ;
                00000000G  00          04  FB 00542          CALLS   #4, LIB$SIGNAL                       ;
                                       3A  DD 00549 41$:     PUSHL   #58                                  ; 5382
                                 0090  CE  9F 0054B          PUSHAB  BUFFER                               ;
                00000000G  00          02  FB 0054F          CALLS   #2, CHECKSUM2                        ;
                           13          50  E9 00556          BLBC    R0, 42$                              ;
                           7E     01FE  8F  3C 00559          MOVZWL  #510, -(SP)                          ; 5383
                                 0090  CE  9F 0055E          PUSHAB  BUFFER                               ;
                00000000G  00          02  FB 00562          CALLS   #2, CHECKSUM2                        ;
                           15          50  E8 00569          BLBS    R0, 43$                              ;
                           00000000'  EF  9F 0056C 42$:     PUSHAB  RSA_DESC                             ; 5384
                                       01  DD 00572          PUSHL   #1                                   ;
                           00000000G  8F  DD 00574          PUSHL   #BACKUP$_INVHOMBLK                   ;
                00000000G  00          03  FB 0057A          CALLS   #3, LIB$SIGNAL                       ;
                     00B2  CE          01  B0 00581 43$:     MOVW    #1, BUFFER+38                        ; 5390
                           50 00000000'  EF  D0 00586          MOVL    CURRENT_MTL, R0                      ; 5391
          FECC   CD     24  A0          0C  28 0058D          MOVC3   #12, 36(R0), BUFFER+460              ;
                                       3A  DD 00594          PUSHL   #58                                  ; 5392
                                 0090  CE  9F 00596          PUSHAB  BUFFER                               ;
                00000000G  00          02  FB 0059A          CALLS   #2, CHECKSUM2                        ;
                           7E     01FE  8F  3C 005A1          MOVZWL  #510, -(SP)                          ; 5393
                                 0090  CE  9F 005A6          PUSHAB  BUFFER                               ;
                00000000G  00          02  FB 005AA          CALLS   #2, CHECKSUM2                        ;
                                       57  DD 005B1          PUSHL   VBN                                  ; 5407
                           7E     0200  8F  3C 005B3          MOVZWL  #512, -(SP)                          ; 5398
                                 0094  CE  9F 005B8          PUSHAB  BUFFER                               ;
                                       7E  7C 005BC          CLRQ    -(SP)                                ;
                                   50  AE  9F 005BE          PUSHAB  IOSB                                 ;
                                       30  DD 005C1          PUSHL   #48                                  ;
                                       7E  7C 005C3          CLRQ    -(SP)                                ;
                     EA86  CF          09  FB 005C5          CALLS   #9, R_W_VIRTUAL                      ;
                           56          50  D0 005CA          MOVL    R0, STATUS                           ;
```

```
                                        7E  D4 005CD          CLRL    -(SP)                                  ; 5408
                00000000G  00           01  FB 005CF          CALLS   #1, SYS$WAITFR                         ;
                           07           56  E9 005D6          BLBC    STATUS, 44$                            ; 5409
                           56      3C   AE  3C 005D9          MOVZWL  IOSB, STATUS                           ;
                           17           56  E8 005DD          BLBS    STATUS, 45$                            ; 5410
                                        56  DD 005E0 44$:     PUSHL   STATUS                                 ; 5412
                        00000000'       EF  9F 005E2          PUSHAB  RSA_DESC                               ;
                                        01  DD 005E8          PUSHL   #1                                     ;
                        00000000G       8F  DD 005EA          PUSHL   #BACKUP$_WRITEERR+2                    ;
                00000000G  00           04  FB 005F0          CALLS   #4, LIB$SIGNAL                         ;
    FF06        57         01           58  F1 005F7 45$:     ACBL    R8, #1, VBN, 39$                       ; 5362
                           50 00000000' EF  D0 005FD          MOVL    CURRENT_MTL, R0                        ; 5416
                                   08   A0  D4 00604          CLRL    8(R0)                                  ;
                                        6C  95 00607 46$:     TSTB    (AP)                                   ; 5423
                                        0D  12 00609          BNEQ    47$                                    ;
                           50 00000000' EF  D0 0060B          MOVL    CURRENT_MTL, R0                        ; 5424
                           59      30   A0  9A 00612          MOVZBL  48(R0), R9                             ;
                                        04  11 00616          BRB     48$                                    ;
                           59      04   AC  D0 00618 47$:     MOVL    P_RVN, R9                              ; 5425
                                        6C  95 0061C 48$:     TSTB    (AP)                                   ; 5426
                                        18  12 0061E          BNEQ    49$                                    ;
                           50 00000000' EF  D0 00620          MOVL    CURRENT_MTL, R0                        ; 5427
                           51      30   A0  9A 00627          MOVZBL  48(R0), R1                             ;
                           50      1F   A0  9A 0062B          MOVZBL  31(R0), R0                             ;
                           50           51  C0 0062F          ADDL2   R1, R0                                 ;
                     04    AE           70  9E 00632          MOVAB   -(R0), 4(SP)                           ;
                                        05  11 00636          BRB     50$                                    ;
                     04    AE      04   AC  D0 00638 49$:     MOVL    P_RVN, 4(SP)                           ; 5428
                                        59  D7 0063D 50$:     DECL    RVN                                    ; 5422
                                     01D8  31 0063F          BRW     66$                                    ;
                           51 00000000' EF  D0 00642 51$:     MOVL    CURRENT_MTL, R1                        ; 5438
                           50      30   A1  9A 00649          MOVZBL  48(R1), R0                             ;
                50         59           50  C3 0064D          SUBL3   R0, RVN, R0                            ;
                           5A      34 A140  D0 00651          MOVL    52(R1)[R0], VCB                        ;
                00000000'  EF           5A  D0 00656          MOVL    VCB, CURRENT_VCB                       ;
                00000000'  EF      FF   8F  9A 0065D          MOVZBL  #255, RSA_DESC                         ; 5439
                                   20   AA  9F 00665          PUSHAB  32(VCB)                                ; 5444
                        00000000'       EF  9F 00668          PUSHAB  RSA_DESC                               ;
                        00000000'       EF  9F 0066E          PUSHAB  RSA_DESC                               ;
                            F960        CF  9F 00674          PUSHAB  P.AAO                                  ;
                00000000G  00           04  FB 00678          CALLS   #4, SYS$FAO                            ;
                                        59  DD 0067F          PUSHL   RVN                                    ; 5445
                    E01F   CF           01  FB 00681          CALLS   #1, SWITCH_VOLUME                      ;
                      08   AE           50  D0 00686          MOVL    R0, CHANNEL                            ;
                                        7E  7C 0068A          CLRQ    -(SP)                                  ; 5456
                                        7E  D4 0068C          CLRL    -(SP)                                  ;
                                   14   AA  DD 0068E          PUSHL   20(VCB)                                ;
                7E      1C   AA           08  C7 00691          DIVL3   #8, 28(VCB), -(SP)                     ;
                                   10   AA  DD 00696          PUSHL   16(VCB)                                ;
                                        7E  7C 00699          CLRQ    -(SP)                                  ;
                                   5C   AE  9F 0069B          PUSHAB  IOSB                                   ;
                                        20  DD 0069E          PUSHL   #32                                    ;
                                   30   AE  DD 006A0          PUSHL   CHANNEL                                ;
                                        7E  D4 006A3          CLRL    -(SP)                                  ;
                00000000G  00           0C  FB 006A5          CALLS   #12, SYS$QIOW                          ;
                           56           50  D0 006AC          MOVL    R0, STATUS                             ;
                           07           56  E9 006AF          BLBC    STATUS, 52$                            ; 5457
```

```
                                56        3C   AE  3C 006B2          MOVZWL  IOSB, STATUS                          ;
                                17             56  E8 006B6          BLBS    STATUS, 53$                           ; 5458
                                               56  DD 006B9 52$:     PUSHL   STATUS                                ; 5460
                                   00000000'   EF  9F 006BB          PUSHAB  RSA_DESC                              ;
                                               01  DD 006C1          PUSHL   #1                                    ;
                                   00000000G   8F  DD 006C3          PUSHL   #BACKUP$_WRITEERR+2                   ;
                   00000000G    00             04  FB 006C9          CALLS   #4, LIB$SIGNAL                        ;
                                5B             01  CE 006D0 53$:     MNEGL   #1, OFFSET                            ; 5465
                                57        28   AA  D0 006D3          MOVL    40(VCB), ACB                          ; 5466
                   00000000'    EF        FF   8F  9A 006D7          MOVZBL  #255, RSA_DESC                        ; 5467
                                          20   AA  9F 006DF          PUSHAB  32(VCB)                               ; 5472
                                   00000000'   EF  9F 006E2          PUSHAB  RSA_DESC                              ;
                                   00000000'   EF  9F 006E8          PUSHAB  RSA_DESC                              ;
                                        F906   CF  9F 006EE          PUSHAB  P.AAQ                                 ;
                   00000000G    00             04  FB 006F2          CALLS   #4, SYS$FAO                           ;
                                57        28   BA  0F 006F9 54$:     REMQUE  @40(VCB), ACB                         ; 5477
                                               03  1C 006FD          BVC     55$                                   ;
                                             009F  31 006FF          BRW     62$                                   ;
                                58        04   AA  3C 00702 55$:     MOVZWL  4(VCB), R8                            ; 5484
                58        0C   A7             58  C7 00706          DIVL3   R8, 12(ACB), R8                       ;
                                50        04   AA  3C 0070B          MOVZWL  4(VCB), R0                            ; 5485
                50        08   A7             50  C7 0070F          DIVL3   R0, 8(ACB), R0                        ;
                                6E        FF A048  9E 00714          MOVAB   -1(R0)[R8], (SP)                      ;
                                               73  11 00719          BRB     61$                                   ; 5483
        5B      58             14             0C  ED 0071B 56$:     CMPZV   #12, #20, N, OFFSET                   ; 5493
                                               5F  15 00720          BLEQ    59$                                   ;
                   FFFFFFFF     8F             5B  D1 00722          CMPL    OFFSET, #-1                           ; 5496
                                               48  13 00729          BEQL    58$                                   ;
                                               7E  7C 0072B          CLRQ    -(SP)                                 ; 5505
                                               7E  D4 0072D          CLRL    -(SP)                                 ;
                                          0C BA4B  9F 0072F          PUSHAB  @12(VCB)[OFFSET]                      ;
                                7E      0200   8F  3C 00733          MOVZWL  #512, -(SP)                           ;
                                        00A0   CE  9F 00738          PUSHAB  BUFFER                                ;
                                               7E  7C 0073C          CLRQ    -(SP)                                 ;
                                          5C   AE  9F 0073E          PUSHAB  IOSB                                  ;
                                               20  DD 00741          PUSHL   #32                                   ;
                                          30   AE  DD 00743          PUSHL   CHANNEL                               ;
                                               7E  D4 00746          CLRL    -(SP)                                 ;
                   00000000G    00             0C  FB 00748          CALLS   #12, SYS$QIOW                         ;
                                56             50  D0 0074F          MOVL    R0, STATUS                            ;
                                07             56  E9 00752          BLBC    STATUS, 57$                           ; 5506
                                56        3C   AE  3C 00755          MOVZWL  IOSB, STATUS                          ;
                                17             56  E8 00759          BLBS    STATUS, 58$                           ; 5507
                                               56  DD 0075C 57$:     PUSHL   STATUS                                ; 5509
                                   00000000'   EF  9F 0075E          PUSHAB  RSA_DESC                              ;
                                               01  DD 00764          PUSHL   #1                                    ;
                                   00000000G   8F  DD 00766          PUSHL   #BACKUP$_WRITEERR+2                   ;
                   00000000G    00             04  FB 0076C          CALLS   #4, LIB$SIGNAL                        ;
0200    8F      00             6E             00  2C 00773 58$:     MOVC5   #0, (SP), #0, #512, BUFFER            ; 5511
                                        008C   CE     0077A                                                       ;
                                               5B  D6 0077D          INCL    OFFSET                                ; 5512
                                               9A  11 0077F          BRB     56$                                   ; 5493
        50      58             0C             00  EF 00781 59$:     EXTZV   #0, #12, N, R0                        ; 5518
                00      008C   CE             50  E2 00786          BBSS    R0, BUFFER, 60$                       ;
                                               58  D6 0078C 60$:     INCL    N                                     ; 5483
                                6E             58  D1 0078E 61$:     CMPL    N, (SP)                               ;
                                               88  1B 00791          BLEQU   56$                                   ;
```

```
                                                  57  DD 00793          PUSHL   ACB                                    ; 5524
                                                  10  DD 00795          PUSHL   #16                                    ;
                        00000000G  00             02  FB 00797          CALLS   #2, FREE_VM                            ;
                                                FF58  31 0079E          BRW     54$                                    ; 5477
        5B        34   AA          10             00  ED 007A1 62$:     CMPZV   #0, #16, 52(VCB), OFFSET               ; 5530
                                                  5F  15 007A7          BLEQ    65$                                    ;
                        FFFFFFFF   8F             5B  D1 007A9          CMPL    OFFSET, #-1                            ; 5533
                                                  48  13 007B0          BEQL    64$                                    ;
                                                  7E  7C 007B2          CLRQ    -(SP)                                  ; 5542
                                                  7E  D4 007B4          CLRL    -(SP)                                  ;
                                          0C   BA4B  9F 007B6          PUSHAB  @12(VCB)[OFFSET]                       ;
                                   7E     0200   8F  3C 007BA          MOVZWL  #512, -(SP)                            ;
                                          00A0   CE  9F 007BF          PUSHAB  BUFFER                                 ;
                                                  7E  7C 007C3          CLRQ    -(SP)                                  ;
                                             5C   AE  9F 007C5          PUSHAB  IOSB                                   ;
                                                  20  DD 007C8          PUSHL   #32                                    ;
                                             30   AE  DD 007CA          PUSHL   CHANNEL                                ;
                                                  7E  D4 007CD          CLRL    -(SP)                                  ;
                        00000000G  00             0C  FB 007CF          CALLS   #12, SYS$QIOW                          ;
                                   56             50  D0 007D6          MOVL    R0, STATUS                             ;
                                   07             56  E9 007D9          BLBC    STATUS, 63$                            ; 5543
                                   56       3C    AE  3C 007DC          MOVZWL  IOSB, STATUS                           ;
                                   17             56  E8 007E0          BLBS    STATUS, 64$                            ; 5544
                                                  56  DD 007E3 63$:     PUSHL   STATUS                                 ; 5546
                                      00000000'   EF  9F 007E5          PUSHAB  RSA_DESC                               ;
                                                  01  DD 007EB          PUSHL   #1                                     ;
                                      00000000G   8F  DD 007ED          PUSHL   #BACKUP$_WRITEERR+2                    ;
                        00000000G  00             04  FB 007F3          CALLS   #4, LIB$SIGNAL                         ;
   0200   8F          00          6E             00  2C 007FA 64$:     MOVC5   #0, (SP), #0, #512, BUFFER             ; 5548
                                          008C   CE     00801                                                          ;
                                                  5B  D6 00804          INCL    OFFSET                                 ; 5549
                                                  99  11 00806          BRB     62$                                    ; 5530
                                             10   AA  DD 00808 65$:     PUSHL   16(VCB)                                ; 5555
                   7E        1C   AA             08  C7 0080B          DIVL3   #8, 28(VCB), -(SP)                     ;
                        00000000G  00             02  FB 00810          CALLS   #2, FREE_VM                            ;
                                             10   AA  D4 00817          CLRL    16(VCB)                                ; 5556
        FE21       59          01          04   AE  F1 0081A 66$:     ACBL    4(SP), #1, RVN, 51$                    ; 5422
                                   50 00000000'   EF  D0 00821          MOVL    CURRENT_MTL, R0                        ; 5562
                             08   A0       0C    AE  D0 00828          MOVL    SAVE_WCB, 8(R0)                        ;
                                                     04 0082D          RET                                            ; 5563

; Routine Size:  2094 bytes,    Routine Base:  CODE + 1A9C
```

```
%SBTTL 'STA_DISMOUNT - dismount input volume'
GLOBAL ROUTINE STA_DISMOUNT (P_RVN) : NOVALUE=

!++
!
! FUNCTIONAL DESCRIPTION:
!       This routine is called after reading a volume of sequential
!       disk, to clean up the disk dependent data structures.
!
! INPUT PARAMETERS:
!       P_RVN (optional): if present, specifies RVN to dismount
!                         if absent, dismount entire set
!
! IMPLICIT INPUTS:
!       INPUT_MTL       - Pointer to MTL for input volume set.
!
! INPUT PARAMETERS:
!       NONE
!
! IMPLICIT INPUTS:
!       NONE
!
! ROUTINE VALUE:
!       NONE
!
! SIDE EFFECTS:
!       NONE
!
!--

BEGIN
LOCAL
        ACB             : REF BBLOCK;   ! allocation control block


! Free the index file window.
!
CURRENT_VCB = .CURRENT_MTL[MTL_VCB(.P_RVN-.CURRENT_MTL[MTL_RVN_BASE])];
DELETE_WINDOW (.CURRENT_VCB[VCB_INDEXF]);
CURRENT_VCB[VCB_INDEXF] = 0;

! Free the index file bitmap buffers.
!
IF .CURRENT_VCB[VCB_IMAP] NEQ 0
THEN
    BEGIN
    FREE_VM(.CURRENT_VCB[VCB_MAXFILIDX]/8, .CURRENT_VCB[VCB_IMAP]);
    CURRENT_VCB[VCB_IMAP] = 0;
    END;

! Free any ACB's lying around.
!

WHILE NOT REMQUE (.CURRENT_VCB[VCB_ACB_FLINK], ACB)
DO
    BEGIN
    FREE_VM(ACB_S_ENTRY, .ACB);
```

```
; 4097      5621  2     END;
; 4098      5622  2
; 4099      5623  2 ! Clean up the VCB and MTL.
; 4100      5624  2 !
; 4101      5625  2
; 4102      5626  2 CURRENT_VCB[VCB_ODS_2] = 0;
; 4103      5627  2 CURRENT_VCB[VCB_INIT_DONE] = 0;
; 4104      5628  2 CURRENT_VCB[VCB_SAVESET] = 0;
; 4105      5629  2 CURRENT_VCB[VCB_NOTVOLSET] = 0;
; 4106      5630  2
; 4107      5631  2 DELETE_WINDOW (.CURRENT_MTL[MTL_WINDOW]);
; 4108      5632  2 CURRENT_MTL[MTL_WINDOW] = 0;
; 4109      5633  2
; 4110      5634  1 END;


                                        001C 00000        .ENTRY  STA_DISMOUNT, Save R2,R3,R4                 ; 5565
                    54 00000000G  00    9E 00002        MOVAB   FREE_VM, R4                                 ;
                    53 00000000'  EF    9E 00009        MOVAB   CURRENT_VCB, R3                             ;
                    51        FC  A3    D0 00010        MOVL    CURRENT_MTL, R1                             ; 5601
                    50        30  A1    9A 00014        MOVZBL  48(R1), R0                                  ;
          50      04  AC          50    C3 00018        SUBL3   R0, P_RVN, R0                               ;
                    63        34 A140   D0 0001D        MOVL    52(R1)[R0], CURRENT_VCB                     ;
                              00  B3    DD 00022        PUSHL   @CURRENT_VCB                                ; 5602
                E6F8  CF          01    FB 00025        CALLS   #1, DELETE_WINDOW                           ;
                    50            63    D0 0002A        MOVL    CURRENT_VCB, R0                             ; 5603
                                  60    D4 0002D        CLRL    (R0)                                        ;
                              10  A0    D5 0002F        TSTL    16(R0)                                      ; 5607
                                  11    13 00032        BEQL    1$                                          ;
                              10  A0    DD 00034        PUSHL   16(R0)                                      ; 5610
          7E      1C  A0          08    C7 00037        DIVL3   #8, 28(R0), -(SP)                           ;
                    64            02    FB 0003C        CALLS   #2, FREE_VM                                 ;
                    50            63    D0 0003F        MOVL    CURRENT_VCB, R0                             ; 5611
                              10  A0    D4 00042        CLRL    16(R0)                                      ;
                    50            63    D0 00045 1$:    MOVL    CURRENT_VCB, R0                             ; 5617
                    52        28  B0    0F 00048        REMQUE  @40(R0), ACB                                ;
                                  09    1D 0004C        BVS     2$                                          ;
                                  52    DD 0004E        PUSHL   ACB                                         ; 5620
                                  10    DD 00050        PUSHL   #16                                         ;
                    64            02    FB 00052        CALLS   #2, FREE_VM                                 ;
                                  EE    11 00055        BRB     1$                                          ; 5617
                    50            63    D0 00057 2$:    MOVL    CURRENT_VCB, R0                             ; 5626
                07  A0            1E    8A 0005A        BICB2   #30, 7(R0)                                  ; 5629
                    50        FC  A3    D0 0005E        MOVL    CURRENT_MTL, R0                             ; 5631
                              08  A0    DD 00062        PUSHL   8(R0)                                       ;
                E6B8  CF          01    FB 00065        CALLS   #1, DELETE_WINDOW                           ;
                    50        FC  A3    D0 0006A        MOVL    CURRENT_MTL, R0                             ; 5632
                              08  A0    D4 0006E        CLRL    8(R0)                                       ;
                                        04 00071        RET                                                 ; 5634

; Routine Size:  114 bytes,    Routine Base:  CODE + 22CA
```

```
%SBTTL 'READY_DISK - make save set sequential disk ready'
GLOBAL ROUTINE READY_DISK (MOUNT_MODE) =

!++
!
! FUNCTIONAL DESCRIPTION:
!
!       This routine gets the disk ready as specified and returns the
!       address of the VCB.
!
! CALLING SEQUENCE:
!       READY_DISK (MOUNT_MODE)
!
! INPUT PARAMETERS:
!       MOUNT_MODE: mode disk is to be mounted in:
!                           0 = read
!                           1 = write, initialize
!                           3 = write, no initialize
!
! IMPLICIT INPUTS:
!       RWSV_VOL_NUMBER: RVN of disk to mount
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       VCB of mounted disk
!
! SIDE EFFECTS:
!       NONE
!
!--

BEGIN

LOCAL
        STATUS,                         ! system service status
        IO_STATUS       : VECTOR [4,WORD], ! I/O status block
        BUFFER          : BBLOCK [512], ! scratch I/O buffer
        VCB             : REF BBLOCK;   ! VCB of volume being mounted

EXTERNAL ROUTINE
        MOUNT_MESSAGE;                  ! issue mount request and get reply

! Get the skeleton MTL and VCB's set up if they aren't yet.
!

IF .MOUNT_MODE THEN CURRENT_MTL = .OUTPUT_MTL ELSE CURRENT_MTL = .INPUT_MTL;
IF .CURRENT_MTL EQL 0
THEN STA_MOUNT (.MOUNT_MODE, 0);

! Find the next VCB to use and set it up.
!
```

```
; 4169          5692  2
; 4170          5693  2 IF .RWSV_VOL_NUMBER - .CURRENT_MTL[MTL_RVN_BASE] GEQU .CURRENT_MTL[MTL_SETCOUNT]
; 4171          5694  2 THEN CURRENT_MTL[MTL_RVN_BASE] = .RWSV_VOL_NUMBER;
; 4172          5695  2
; 4173          5696  2 VCB = .CURRENT_MTL[MTL_VCB(.RWSV_VOL_NUMBER-.CURRENT_MTL[MTL_RVN_BASE])];
; 4174          5697  2 SWITCH_VOLUME (.RWSV_VOL_NUMBER);
; 4175          5698  2
; 4176          5699  2 ! Unless this is the first volume, start with operator assistance. Because
; 4177          5700  2 ! not all disks can be spun down, there is the chance that a previous
; 4178          5701  2 ! volume of the set is still in the drive.
; 4179          5702  2 !
; 4180          5703  2
; 4181          5704  2 IF .RWSV_SEG_NUMBER NEQ 0
; 4182          5705  2 THEN
; 4183          5706  3     BEGIN
; 4184          5707  3     IF .MOUNT_MODE
; 4185          5708  3     THEN MOUNT_MESSAGE (BACKUP$_READYWRITE)
; 4186          5709  3     ELSE MOUNT_MESSAGE (BACKUP$_READYREAD);
; 4187          5710  2     END;
; 4188          5711  2
; 4189          5712  2 ! Loop, checking for disk on line and write enabled if necessary,
; 4190          5713  2 ! prompting to the user until satisfied.
; 4191          5714  2 !
; 4192          5715  2
; 4193          5716  2 WHILE TRUE
; 4194          5717  2 DO
; 4195          5718  3     BEGIN
; 4196        P 5719  3     STATUS = $QIOW (CHAN = .VCB[VCB_CHAN],
; 4197        P 5720  3                     FUNC = IO$_PACKACK,
; 4198        P 5721  3                     IOSB = IO_STATUS
; 4199          5722  3                     );
; 4200          5723  3     IF .STATUS THEN STATUS = .IO_STATUS[0];
; 4201          5724  3     IF NOT .STATUS
; 4202          5725  3     AND .STATUS NEQ SS$_ILLIOFUNC
; 4203          5726  4     AND (.STATUS NEQ SS$_NOPRIV
; 4204          5727  4          OR .RWSV_SEG_NUMBER GEQU .CURRENT_MTL[MTL_SETCOUNT])
; 4205          5728  3     THEN FILE_ERROR (IF .MOUNT_MODE THEN BACKUP$_OPENOUT+STS$K_SEVERE
; 4206          5729  3                      ELSE BACKUP$_OPENIN+STS$K_SEVERE, .VCB[VCB_FAB], .STATUS);
; 4207          5730  3
; 4208        P 5731  3     STATUS = $QIOW (CHAN = .VCB[VCB_CHAN],
; 4209        P 5732  3                     FUNC = IO$_READLBLK,
; 4210        P 5733  3                     IOSB = IO_STATUS,
; 4211        P 5734  3                     P1   = BUFFER,
; 4212        P 5735  3                     P2   = 512,
; 4213        P 5736  3                     P3   = 0
; 4214          5737  3                     );
; 4215          5738  3     IF .STATUS THEN STATUS = .IO_STATUS[0];
; 4216          5739  3     IF .STATUS EQL SS$_MEDOFL
; 4217          5740  3     THEN
; 4218          5741  4         BEGIN
; 4219          5742  4         IF .MOUNT_MODE
; 4220          5743  4         THEN MOUNT_MESSAGE (BACKUP$_READYWRITE)
; 4221          5744  4         ELSE MOUNT_MESSAGE (BACKUP$_READYREAD);
; 4222          5745  4         END
; 4223          5746  4
; 4224          5747  3     ELSE IF NOT .STATUS
; 4225          5748  3     THEN FILE_ERROR (IF .MOUNT_MODE THEN BACKUP$_OPENOUT+STS$K_SEVERE
```

```
; 4226        5749  3                        ELSE BACKUP$_OPENIN+STS$K_SEVERE, .VCB[VCB_FAB], .STATUS)
; 4227        5750  3
; 4228        5751  3      ELSE IF .MOUNT_MODE
; 4229        5752  3      THEN
; 4230        5753  4          BEGIN
; 4231      P 5754  4          STATUS = $QIOW (CHAN = .VCB[VCB_CHAN],
; 4232      P 5755  4                          FUNC = IO$_WRITELBLK,
; 4233      P 5756  4                          IOSB = IO_STATUS,
; 4234      P 5757  4                          P1   = BUFFER,
; 4235      P 5758  4                          P2   = 512,
; 4236      P 5759  4                          P3   = 0
; 4237        5760  4                          );
; 4238        5761  4          IF .STATUS THEN STATUS = .IO_STATUS[0];
; 4239        5762  4          IF .STATUS EQL SS$_WRITLCK
; 4240        5763  4          THEN MOUNT_MESSAGE (BACKUP$_WRITENABLE)
; 4241        5764  4
; 4242        5765  4          ELSE IF NOT .STATUS
; 4243        5766  4          THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .VCB[VCB_FAB], .STATUS)
; 4244        5767  4
; 4245        5768  4          ELSE EXITLOOP;
; 4246        5769  4          END
; 4247        5770  4
; 4248        5771  3      ELSE EXITLOOP;
; 4249        5772  2      END;
; 4250        5773  2
; 4251        5774  2 STA_MOUNT (.MOUNT_MODE, .RWSV_VOL_NUMBER);
; 4252        5775  2
; 4253        5776  2 .VCB
; 4254        5777  1 END;                                        ! End of routine READY_DISK


                                                                  .EXTRN  MOUNT_MESSAGE

                                          03FC 00000              .ENTRY  READY_DISK, Save R2,R3,R4,R5,R6,R7,R8,R9    ; 5636
                          59 00000000G  00   9E 00002             MOVAB   FILE_ERROR, R9                              ;
                          58 00000000G  8F   D0 00009             MOVL    #BACKUP$_OPENIN+4, R8                       ;
                          57 00000000G  8F   D0 00010             MOVL    #BACKUP$_OPENOUT+4, R7                      ;
                          56 00000000G  00   9E 00017             MOVAB   SYS$QIOW, R6                                ;
                          55 00000000'  EF   9E 0001E             MOVAB   CURRENT_MTL, R5                             ;
                          5E     FDF8   CE   9E 00025             MOVAB   -520(SP), SP                                ;
                          54       04   AC   D0 0002A             MOVL    MOUNT_MODE, R4                              ; 5686
                          06            54   E9 0002E             BLBC    R4, 1$                                      ;
                          65       FC   A5   D0 00031             MOVL    OUTPUT_MTL, CURRENT_MTL                     ;
                                        04   11 00035             BRB     2$                                          ;
                          65       F8   A5   D0 00037 1$:         MOVL    INPUT_MTL, CURRENT_MTL                      ;
                                        09   12 0003B 2$:         BNEQ    3$                                          ; 5687
                                        7E   D4 0003D             CLRL    -(SP)                                       ; 5688
                                        54   DD 0003F             PUSHL   R4                                          ;
                    EFA2  CF            02   FB 00041             CALLS   #2, STA_MOUNT                               ;
                          53     F928   C5   3C 00046 3$:         MOVZWL  RWSV_VOL_NUMBER, R3                         ; 5693
                          50            65   D0 0004B             MOVL    CURRENT_MTL, R0                             ;
                          51       30   A0   9A 0004E             MOVZBL  48(R0), R1                                  ;
                51        53            51   C3 00052             SUBL3   R1, R3, R1                                  ;
  51      1F    A0        08            00   ED 00056             CMPZV   #0, #8, 31(R0), R1                          ;
                                        04   1A 0005C             BGTRU   4$                                          ;
                      30  A0            53   90 0005E             MOVB    R3, 48(R0)                                  ; 5694
```

```
                 51        30   A0  9A 00062 4$:     MOVZBL  48(R0), R1                          ; 5696
      51         53             51  C3 00066         SUBL3   R1, R3, R1                          ;
                 52        34 A041  D0 0006A         MOVL    52(R0)[R1], VCB                     ;
                                53  DD 0006F         PUSHL   R3                                  ; 5697
          DD8F   CF             01  FB 00071         CALLS   #1, SWITCH_VOLUME                   ;
                         F92A   C5  B5 00076         TSTW    RWSV_SEG_NUMBER                     ; 5704
                                10  13 0007A         BEQL    7$                                  ;
                             008C  31 0007C         BRW     14$                                 ; 5707
                     00000000G  8F  DD 0007F 5$:     PUSHL   #BACKUP$_READYREAD                  ; 5709
     00000000G   00             01  FB 00085 6$:     CALLS   #1, MOUNT_MESSAGE                   ;
                                7E  7C 0008C 7$:     CLRQ    -(SP)                               ; 5722
                                7E  7C 0008E         CLRQ    -(SP)                               ;
                                7E  7C 00090         CLRQ    -(SP)                               ;
                                7E  7C 00092         CLRQ    -(SP)                               ;
                         F8     AD  9F 00094         PUSHAB  IO_STATUS                           ;
                                08  DD 00097         PUSHL   #8                                  ;
                 7E        08   A2  3C 00099         MOVZWL  8(VCB), -(SP)                       ;
                                7E  D4 0009D         CLRL    -(SP)                               ;
                 66             0C  FB 0009F         CALLS   #12, SYS$QIOW                       ;
                 53             50  D0 000A2         MOVL    R0, STATUS                          ;
                 07             53  E9 000A5         BLBC    STATUS, 8$                          ; 5723
                 53        F8   AD  3C 000A8         MOVZWL  IO_STATUS, STATUS                   ;
                 2D             53  E8 000AC         BLBS    STATUS, 12$                         ; 5724
     000000F4    8F             53  D1 000AF 8$:     CMPL    STATUS, #244                        ; 5725
                                24  13 000B6         BEQL    12$                                 ;
                 24             53  D1 000B8         CMPL    STATUS, #36                         ; 5726
                                0E  12 000BB         BNEQ    9$                                  ;
                 50             65  D0 000BD         MOVL    CURRENT_MTL, R0                     ; 5727
                 51        1F   A0  9A 000C0         MOVZBL  31(R0), R1                          ;
          F92A   C5             51  B1 000C4         CMPW    R1, RWSV_SEG_NUMBER                 ;
                                11  1A 000C9         BGTRU   12$                                 ;
                                53  DD 000CB 9$:     PUSHL   STATUS                              ; 5729
                         30     A2  DD 000CD         PUSHL   48(VCB)                             ;
                 04             54  E9 000D0         BLBC    R4, 10$                             ;
                                57  DD 000D3         PUSHL   R7                                  ; 5728
                                02  11 000D5         BRB     11$                                 ;
                                58  DD 000D7 10$:    PUSHL   R8                                  ; 5729
                 69             03  FB 000D9 11$:    CALLS   #3, FILE_ERROR                      ; 5728
                                7E  7C 000DC 12$:    CLRQ    -(SP)                               ; 5737
                                7E  7C 000DE         CLRQ    -(SP)                               ;
                 7E      0200   8F  3C 000E0         MOVZWL  #512, -(SP)                         ;
                         14     AE  9F 000E5         PUSHAB  BUFFER                              ;
                                7E  7C 000E8         CLRQ    -(SP)                               ;
                         F8     AD  9F 000EA         PUSHAB  IO_STATUS                           ;
                                21  DD 000ED         PUSHL   #33                                 ;
                 7E        08   A2  3C 000EF         MOVZWL  8(VCB), -(SP)                       ;
                                7E  D4 000F3         CLRL    -(SP)                               ;
                 66             0C  FB 000F5         CALLS   #12, SYS$QIOW                       ;
                 53             50  D0 000F8         MOVL    R0, STATUS                          ;
                 04             53  E9 000FB         BLBC    STATUS, 13$                         ; 5738
                 53        F8   AD  3C 000FE         MOVZWL  IO_STATUS, STATUS                   ;
     000001A4    8F             53  D1 00102 13$:    CMPL    STATUS, #420                        ; 5739
                                0E  12 00109         BNEQ    16$                                 ;
                 03             54  E8 0010B 14$:    BLBS    R4, 15$                             ; 5742
                             FF6E  31 0010E         BRW     5$                                  ;
                     00000000G  8F  DD 00111 15$:    PUSHL   #BACKUP$_READYWRITE                 ; 5743
                                47  11 00117         BRB     19$                                 ;
```

```
                 0C          53  E8 00119 16$:   BLBS    STATUS, 17$                          ; 5747
                             53  DD 0011C       PUSHL   STATUS                               ; 5749
                        30   A2  DD 0011E       PUSHL   48(VCB)                              ;
                 47          54  E8 00121       BLBS    R4, 21$                              ;
                             58  DD 00124       PUSHL   R8                                   ;
                             45  11 00126       BRB     22$                                  ; 5748
                 48          54  E9 00128 17$:   BLBC    R4, 23$                              ; 5751
                             7E  7C 0012B       CLRQ    -(SP)                                ; 5760
                             7E  7C 0012D       CLRQ    -(SP)                                ;
                 7E    0200  8F  3C 0012F       MOVZWL  #512, -(SP)                          ;
                        14   AE  9F 00134       PUSHAB  BUFFER                               ;
                             7E  7C 00137       CLRQ    -(SP)                                ;
                        F8   AD  9F 00139       PUSHAB  IO_STATUS                            ;
                             20  DD 0013C       PUSHL   #32                                  ;
                 7E     08   A2  3C 0013E       MOVZWL  8(VCB), -(SP)                        ;
                             7E  D4 00142       CLRL    -(SP)                                ;
                 66          0C  FB 00144       CALLS   #12, SYS$QIOW                        ;
                 53          50  D0 00147       MOVL    R0, STATUS                           ;
                 04          53  E9 0014A       BLBC    STATUS, 18$                          ; 5761
                 53     F8   AD  3C 0014D       MOVZWL  IO_STATUS, STATUS                    ;
        0000025C 8F          53  D1 00151 18$:   CMPL    STATUS, #604                         ; 5762
                             09  12 00158       BNEQ    20$                                  ;
                 00000000G   8F  DD 0015A       PUSHL   #BACKUP$_WRITENABLE                  ; 5763
                           FF22  31 00160 19$:   BRW     6$                                   ;
                 0D          53  E8 00163 20$:   BLBS    STATUS, 23$                          ; 5765
                             53  DD 00166       PUSHL   STATUS                               ; 5766
                        30   A2  DD 00168       PUSHL   48(VCB)                              ;
                             57  DD 0016B 21$:   PUSHL   R7                                   ;
                 69          03  FB 0016D 22$:   CALLS   #3, FILE_ERROR                       ;
                           FF19  31 00170       BRW     7$                                   ;
                 7E    F928  C5  3C 00173 23$:   MOVZWL  RWSV_VOL_NUMBER, -(SP)               ; 5774
                             54  DD 00178       PUSHL   R4                                   ;
            EE69 CF          02  FB 0017A       CALLS   #2, STA_MOUNT                        ;
                 50          52  D0 0017F       MOVL    VCB, R0                              ; 5777
                             04  00182          RET                                          ;

; Routine Size:  387 bytes,    Routine Base:  CODE + 233C
```

```
; 4256          5778  1 %SBTTL 'Directory context vector'
; 4257          5779  1 ! Entries in directory processing context vector
; 4258          5780  1 !
; 4259          5781  1
; 4260          5782  1 LITERAL
; 4261          5783  1         CTX_CHANNEL     = 0,            ! channel to use for directory
; 4262          5784  1         CTX_COUNT       = 1,            ! count of name string
; 4263          5785  1         CTX_STRING      = 2,            ! address of name string
; 4264          5786  1         CTX_VERSION     = 3,            ! version number
; 4265          5787  1         CTX_VBN         = 4,            ! VBN of directory block
; 4266          5788  1         CTX_BUFFER      = 5,            ! buffer address of current directory block
; 4267          5789  1         CTX_ENTRY       = 6,            ! address of directory record
; 4268          5790  1         CTX_FILEVER     = 7,            ! address of directory version entry
; 4269          5791  1         CTX_FAB         = 8,            ! FAB for operation
; 4270          5792  1         CTX_EOF         = 9;            ! size of directory file
```

```
%SBTTL 'NEXT_REC - find next directory record'
ROUTINE NEXT_REC (ENTRY, DIR_CONTEXT) =

!++
!
! FUNCTIONAL DESCRIPTION:
!
!       This routine locates the next directory record and checks it for
!       consistency.
!
! CALLING SEQUENCE:
!       NEXT_REC (ENTRY, DIR_CONTEXT)
!
! INPUT PARAMETERS:
!       ENTRY: address of present record
!       DIR_CONTEXT: pointer to context block
!
! IMPLICIT INPUTS:
!       NONE
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       address of next directory record
!
! SIDE EFFECTS:
!       NONE
!
!--

BEGIN

MAP
        ENTRY           : REF BBLOCK,   ! current directory record
        DIR_CONTEXT     : REF VECTOR;   ! context block

LOCAL
        NEXT_ENTRY      : REF BBLOCK;   ! new directory record

BIND
        CHANNEL         = DIR_CONTEXT[CTX_CHANNEL],
        FND_COUNT       = DIR_CONTEXT[CTX_COUNT],
        FND_STRING      = DIR_CONTEXT[CTX_STRING],
        FND_VERSION     = DIR_CONTEXT[CTX_VERSION],
        DIR_VBN         = DIR_CONTEXT[CTX_VBN],
        DIR_BUFFER      = DIR_CONTEXT[CTX_BUFFER] : REF BBLOCK,
        DIR_ENTRY       = DIR_CONTEXT[CTX_ENTRY] : REF BBLOCK,
        DIR_VERSION     = DIR_CONTEXT[CTX_FILEVER] : REF BBLOCK,
        DIR_FAB         = DIR_CONTEXT[CTX_FAB],
        LAST_BLOCK      = DIR_CONTEXT[CTX_EOF];

! Find the next record by adding in the record size of the current entry.
```

```
; 4329      5850  2 ! The count field of the next entry must be either 65535 or be contained
; 4330      5851  2 ! within the block and even. Check the legality of the record type field.
; 4331      5852  2 !
; 4332      5853  2
; 4333      5854  2 IF .ENTRY[DIR$W_SIZE] LSSU DIR$C_LENGTH + DIR$C_VERSION
; 4334      5855  2 THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_BADIRECTORY);
; 4335      5856  2 NEXT_ENTRY = .ENTRY + .ENTRY[DIR$W_SIZE] + 2;
; 4336      5857  2 IF .NEXT_ENTRY GEQA .DIR_BUFFER + 512
; 4337      5858  2 THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_BADIRECTORY);
; 4338      5859  2
; 4339      5860  2 IF .NEXT_ENTRY[DIR$W_SIZE] NEQ 65535
; 4340      5861  2 THEN
; 4341      5862  2     IF .NEXT_ENTRY<0,1>
; 4342      5863  2     OR .(NEXT_ENTRY[DIR$W_SIZE])<0,1>
; 4343      5864  2     OR .NEXT_ENTRY[DIR$V_TYPE] NEQ DIR$C_FID
; 4344      5865  2     THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_BADIRECTORY);
; 4345      5866  2
; 4346      5867  2 RETURN .NEXT_ENTRY
; 4347      5868  2
; 4348      5869  1 END;                                    ! end of routine NEXT_REC



                                  003C 00000 NEXT_REC:
                                                  .WORD   Save R2,R3,R4,R5                        ; 5794
                 55 00000000G  8F  D0 00002       MOVL    #BACKUP$_OPENOUT+4, R5                  ;
                 54 00000000G  00  9E 00009       MOVAB   FILE_ERROR, R4                          ;
                 53        08  AC  D0 00010       MOVL    DIR_CONTEXT, R3                         ; 5837
                 0E        04  BC  B1 00014       CMPW    @ENTRY, #14                             ; 5854
                               0D  1E 00018       BGEQU   1$                                      ;
                 7E      0828  8F  3C 0001A       MOVZWL  #2088, -(SP)                            ; 5855
                           20  A3  DD 0001F       PUSHL   32(R3)                                  ;
                               55  DD 00022       PUSHL   R5                                      ;
                 64            03  FB 00024       CALLS   #3, FILE_ERROR                          ;
                 52        04  BC  3C 00027 1$:   MOVZWL  @ENTRY, R2                              ; 5856
                 52        04  AC  C0 0002B       ADDL2   ENTRY, R2                               ;
                 52            02  C0 0002F       ADDL2   #2, NEXT_ENTRY                          ;
      50      14  A3 00000200  8F  C1 00032       ADDL3   #512, 20(R3), R0                        ; 5857
                 50            52  D1 0003B       CMPL    NEXT_ENTRY, R0                          ;
                               0D  1F 0003E       BLSSU   2$                                      ;
                 7E      0828  8F  3C 00040       MOVZWL  #2088, -(SP)                            ; 5858
                           20  A3  DD 00045       PUSHL   32(R3)                                  ;
                               55  DD 00048       PUSHL   R5                                      ;
                 64            03  FB 0004A       CALLS   #3, FILE_ERROR                          ;
           FFFF  8F            62  B1 0004D 2$:   CMPW    (NEXT_ENTRY), #65535                    ; 5860
                               19  13 00052       BEQL    4$                                      ;
                 09            52  E8 00054       BLBS    NEXT_ENTRY, 3$                          ; 5862
                 06            62  E8 00057       BLBS    (NEXT_ENTRY), 3$                        ; 5863
                 07        04  A2  93 0005A       BITB    4(NEXT_ENTRY), #7                       ; 5864
                               0D  13 0005E       BEQL    4$                                      ;
                 7E      0828  8F  3C 00060 3$:   MOVZWL  #2088, -(SP)                            ; 5865
                           20  A3  DD 00065       PUSHL   32(R3)                                  ;
                               55  DD 00068       PUSHL   R5                                      ;
                 64            03  FB 0006A       CALLS   #3, FILE_ERROR                          ;
                 50            52  D0 0006D 4$:   MOVL    NEXT_ENTRY, R0                          ; 5867
```

```
                                        04 00070        RET                                          ; 5869

; Routine Size:  113 bytes,    Routine Base:  CODE + 24BF
```

```
%SBTTL 'DIR_SCAN - scan directory file'
ROUTINE DIR_SCAN (DIR_CONTEXT) =

!++
!
! FUNCTIONAL DESCRIPTION:
!
!       This routine scans a directory, searching for the given entry.
!
!
! CALLING SEQUENCE:
!       DIR_SCAN (DIR_CONTEXT)
!
! INPUT PARAMETERS:
!       DIR_CONTEXT: context block for directory
!
! IMPLICIT INPUTS:
!       NONE
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       1 if entry found
!       0 if no match, in which case:
!               DIR_ENTRY = next record in collating sequence
!                         = 0 if whole directory scanned (name belongs off the end)
!               DIR_VERSION = next version in collating sequence if name & type matched
!                           = 0 if name or type did not match
!
! SIDE EFFECTS:
!       directory blocks read
!
!--

BEGIN

MAP
        DIR_CONTEXT     : REF VECTOR;   ! name descriptor block arg

LABEL
        SEARCH_LOOP;                    ! body of search code

LOCAL
        STATUS,                         ! routine return status
        S_STATUS,                       ! system service status
        IO_STATUS       : VECTOR [4,WORD], ! I/O status block
        BLOCK,                          ! relative block number
        ENTRY           : REF BBLOCK,   ! pointer to current directory record
        P               : REF BBLOCK;   ! pointer to current directory version

BIND
        CHANNEL         = DIR_CONTEXT[CTX_CHANNEL],
        FND_COUNT       = DIR_CONTEXT[CTX_COUNT],
```

```
2          FND_STRING      = DIR_CONTEXT[CTX_STRING],
2          FND_VERSION     = DIR_CONTEXT[CTX_VERSION],
2          DIR_VBN         = DIR_CONTEXT[CTX_VBN],
2          DIR_BUFFER      = DIR_CONTEXT[CTX_BUFFER] : REF BBLOCK,
2          DIR_ENTRY       = DIR_CONTEXT[CTX_ENTRY] : REF BBLOCK,
2          DIR_VERSION     = DIR_CONTEXT[CTX_FILEVER] : REF BBLOCK,
2          DIR_FAB         = DIR_CONTEXT[CTX_FAB],
2          LAST_BLOCK      = DIR_CONTEXT[CTX_EOF];
2
2
2  ! Loop, scanning blocks of the directory until we hit EOF.
2  !
2
3  SEARCH_LOOP: BEGIN
3
3  STATUS = 0;
3  BLOCK = 1;
3  P = 0;
3  WHILE 1 DO
4      BEGIN
4
4      ENTRY = 0;
P 4    S_STATUS = S$QIOW (CHAN = .CHANNEL,
P 4                       IOSB = IO_STATUS,
P 4                       FUNC = IO$_READVBLK,
P 4                       P1   = .DIR_BUFFER,
P 4                       P2   = 512,
P 4                       P3   = .BLOCK
4                         );
4      IF .S_STATUS THEN S_STATUS = .IO_STATUS[0];
4      IF NOT .S_STATUS THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, .S_STATUS);
4      ENTRY = .DIR_BUFFER;
4
4  ! Loop, scanning the records of the directory. A record size of -1 indicates
4  ! the end of the block. We attempt to match name and type against the entry,
4  ! under control of the various name control flags.
4  !
4
4      UNTIL .ENTRY[DIR$W_SIZE] EQL 65535
4      DO
5          BEGIN
5          IF .ENTRY[DIR$W_SIZE] + .ENTRY + 2 GEQA .DIR_BUFFER + 512
5          THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_BADIRECTORY);
5
5          P = .ENTRY + DIR$C_LENGTH + .ENTRY[DIR$B_NAMECOUNT] + 1 AND NOT 1;
5          IF .P GEQA .DIR_BUFFER + 512 - DIR$C_VERSION
5          THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_BADIRECTORY);
5
6          IF (CASE CH$COMPARE (.ENTRY[DIR$B_NAMECOUNT],
6                               ENTRY[DIR$T_NAME],
6                              .FND_COUNT,
6                              .FND_STRING
6                              )
6              FROM -1 TO 1 OF
6                  SET
6
6                  [-1]:   0;      ! no match - dir entry precedes name
```

```
6
6                    [0]:    1;       ! match
6
7                    [1]:    BEGIN    ! no match - dir entry is past name
7                            P = 0;
7                            LEAVE SEARCH_LOOP;
6                            END;
6                    TES)
6
6 ! If the name and type match on a record, loop to process the versions of
6 ! the record.
6 !
6
5            THEN
6                BEGIN
6                UNTIL .P GEQA .ENTRY + .ENTRY[DIR$W_SIZE] + 2
6                DO
7                    BEGIN
7                    IF
8                        BEGIN
8
9                        IF (.FND_VERSION EQL 0
9                            AND NOT .ENTRY[DIR$V_PREVREC]
9                           )
8                        THEN 1
8
8                        ELSE IF .FND_VERSION GTR .P[DIR$W_VERSION]
8                        THEN LEAVE SEARCH_LOOP
8
8                        ELSE .FND_VERSION EQL .P[DIR$W_VERSION]
8
8                        END
8
7                    THEN
8                        BEGIN
8                        STATUS = 1;
8                        LEAVE SEARCH_LOOP;
7                        END;
7
7                    P = .P + DIR$C_VERSION;
6                    END;                        ! end of record scanning loop
6
6 ! We have gone through a directory record without finding a match.
6 ! If no continuation records are present, we can quit now.
6 !
6
6                IF NOT .ENTRY[DIR$V_NEXTREC]
6                THEN LEAVE SEARCH_LOOP;
6
5                END;                            ! end of record processing conditional
5
5            ENTRY = NEXT_REC (.ENTRY, .DIR_CONTEXT); ! get next record
4            END;                                ! end of block scanning loop
4
4        P = 0;
4        IF .BLOCK GEQU .LAST_BLOCK
4        THEN LEAVE SEARCH_LOOP;
```

```
; 4521      6041  4      BLOCK = .BLOCK + 1;
; 4522      6042  3      END;                                  ! end of block loop
; 4523      6043  3
; 4524      6044  2  END;                                      ! end of block SEARCH_LOOP
; 4525      6045  2
; 4526      6046  2  ! Return the record pointers in global storage and return status.
; 4527      6047  2  !
; 4528      6048  2
; 4529      6049  2  DIR_VBN = .BLOCK;
; 4530      6050  2  DIR_ENTRY = .ENTRY;
; 4531      6051  2  DIR_VERSION = .P;
; 4532      6052  2
; 4533      6053  2  RETURN .STATUS;
; 4534      6054  2
; 4535      6055  1  END;                                      ! end of routine DIR_SCAN


                                        0FFC 00000 DIR_SCAN:
                                                        .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10,R11        ; 5871
                  57 00000000G  8F  D0 00002            MOVL    #BACKUP$_OPENOUT+4, R7                      ;
                  5E            08  C2 00009            SUBL2   #8, SP                                      ;
                  55       04   AC  D0 0000C            MOVL    DIR_CONTEXT, R5                             ; 5925
                                5B  D4 00010            CLRL    STATUS                                      ; 5942
                  59            01  D0 00012            MOVL    #1, BLOCK                                   ; 5943
                                58  D4 00015            CLRL    P                                           ; 5944
                                54  D4 00017 1$:        CLRL    ENTRY                                       ; 5948
                                7E  7C 00019            CLRQ    -(SP)                                       ; 5955
                                7E  D4 0001B            CLRL    -(SP)                                       ;
                                59  DD 0001D            PUSHL   BLOCK                                       ;
                  7E     0200   8F  3C 0001F            MOVZWL  #512, -(SP)                                 ;
                           14   A5  DD 00024            PUSHL   20(R5)                                      ;
                                7E  7C 00027            CLRQ    -(SP)                                       ;
                           20   AE  9F 00029            PUSHAB  IO_STATUS                                   ;
                                31  DD 0002C            PUSHL   #49                                         ;
                                65  DD 0002E            PUSHL   (R5)                                        ;
                                7E  D4 00030            CLRL    -(SP)                                       ;
          00000000G  00         0C  FB 00032            CALLS   #12, STA_QIOW                               ;
                     5A         50  D0 00039            MOVL    R0, S_STATUS                                ;
                     06         5A  E9 0003C            BLBC    S_STATUS, 2$                                ; 5956
                     5A         6E  3C 0003F            MOVZWL  IO_STATUS, S_STATUS                         ;
                     0E         5A  E8 00042            BLBS    S_STATUS, 3$                                ; 5957
                                5A  DD 00045 2$:        PUSHL   S_STATUS                                    ;
                           20   A5  DD 00047            PUSHL   32(R5)                                      ;
                                57  DD 0004A            PUSHL   R7                                          ;
          00000000G  00         03  FB 0004C            CALLS   #3, FILE_ERROR                              ;
                     54     14   A5  D0 00053 3$:        MOVL    20(R5), ENTRY                               ; 5958
                     56         64  3C 00057 4$:        MOVZWL  (ENTRY), R6                                 ; 5965
              FFFF   8F         56  B1 0005A            CMPW    R6, #65535                                  ;
                                03  12 0005F            BNEQ    5$                                          ;
                              009D  31 00061            BRW     15$                                         ;
                     50     02 A446  9E 00064 5$:        MOVAB   2(ENTRY)[R6], R0                            ; 5968
       53       14   A5 00000200   8F  C1 00069        ADDL3   #512, 20(R5), R3                            ;
                     53         50  D1 00072            CMPL    R0, R3                                      ;
                                11  1F 00075            BLSSU   6$                                          ;
```

```
                                 7E     0828   8F  3C 00077          MOVZWL  #2088, -(SP)                          ; 5969
                                           20   A5  DD 0007C          PUSHL   32(R5)                                ;
                                                57  DD 0007F          PUSHL   R7                                    ;
                      00000000G  00            03  FB 00081          CALLS   #3, FILE_ERROR                        ;
                                 52       05   A4  9A 00088 6$:      MOVZBL  5(ENTRY), R2                          ; 5971
                                 50       07 A244  9E 0008C          MOVAB   7(R2)[ENTRY], R0                      ;
                  58             50            01  CB 00091          BICL3   #1, R0, P                             ;
                                 50       F8   A3  9E 00095          MOVAB   -8(R3), R0                            ; 5972
                                 50            58  D1 00099          CMPL    P, R0                                 ;
                                                11  1F 0009C          BLSSU   7$                                    ;
                                 7E     0828   8F  3C 0009E          MOVZWL  #2088, -(SP)                          ; 5973
                                           20   A5  DD 000A3          PUSHL   32(R5)                                ;
                                                57  DD 000A6          PUSHL   R7                                    ;
                      00000000G  00            03  FB 000A8          CALLS   #3, FILE_ERROR                        ;
  04   A5           00       06  A4            52  2D 000AF 7$:      CMPC5   R2, 6(ENTRY), #0, 4(R5), @8(R5)       ; 5976
                                           08   B5     000B6                                                        ;
                                                04  1A 000B8          BGTRU   8$                                    ;
                                                06  1E 000BA          BGEQU   9$                                    ;
                                                36  11 000BC          BRB     14$                                   ;
                                                58  D4 000BE 8$:      CLRL    P                                     ; 5988
                                                4C  11 000C0          BRB     16$                                   ; 5989
                                 50       02 A644  9E 000C2 9$:      MOVAB   2(R6)[ENTRY], R0                      ; 5999
                                 50            58  D1 000C7          CMPL    P, R0                                 ;
                                                23  1E 000CA          BGEQU   13$                                   ;
                                 50       0C   A5  D0 000CC          MOVL    12(R5), R0                            ; 6005
                                                05  12 000D0          BNEQ    10$                                   ;
                                           04   A4  95 000D2          TSTB    4(ENTRY)                              ; 6006
                                                0E  18 000D5          BGEQ    11$                                   ;
        50           68            10            00  EC 000D7 10$:     CMPV    #0, #16, (P), R0                      ; 6010
                                                30  19 000DC          BLSS    16$                                   ;
        50           68            10            00  EC 000DE          CMPV    #0, #16, (P), R0                      ; 6013
                                                05  12 000E3          BNEQ    12$                                   ;
                                 5B            01  D0 000E5 11$:     MOVL    #1, STATUS                            ; 6019
                                                24  11 000E8          BRB     16$                                   ; 6020
                                 58            08  C0 000EA 12$:     ADDL2   #8, P                                 ; 6023
                                                D3  11 000ED          BRB     9$                                    ; 5999
                  1A       04  A4            06  E1 000EF 13$:     BBC     #6, 4(ENTRY), 16$                     ; 6030
                                                30  BB 000F4 14$:     PUSHR   #^M<R4,R5>                            ; 6035
                         FE94  CF            02  FB 000F6          CALLS   #2, NEXT_REC                          ;
                                 54            50  D0 000FB          MOVL    R0, ENTRY                             ;
                                           FF56  31 000FE          BRW     4$                                    ; 5965
                                                58  D4 00101 15$:     CLRL    P                                     ; 6038
                           24  A5            59  D1 00103          CMPL    BLOCK, 36(R5)                         ; 6039
                                                05  1E 00107          BGEQU   16$                                   ;
                                                59  D6 00109          INCL    BLOCK                                 ; 6041
                                           FF09  31 0010B          BRW     1$                                    ; 5945
                           10  A5            59  D0 0010E 16$:     MOVL    BLOCK, 16(R5)                         ; 6049
                           18  A5            54  D0 00112          MOVL    ENTRY, 24(R5)                         ; 6050
                           1C  A5            58  D0 00116          MOVL    P, 28(R5)                             ; 6051
                                 50            5B  D0 0011A          MOVL    STATUS, R0                            ; 6053
                                                04 0011D          RET                                           ; 6055

; Routine Size:  286 bytes,    Routine Base:  CODE + 2530
```

```
; 4537          6056  1 %SBTTL 'STA_ENTER - make directory entry'
; 4538          6057  1 GLOBAL ROUTINE STA_ENTER (FAB) : NOVALUE =
; 4539          6058  1
; 4540          6059  1 !++
; 4541          6060  1 !
; 4542          6061  1 ! FUNCTIONAL DESCRIPTION:
; 4543          6062  1 !
; 4544          6063  1 !       This routine enters the given file name in the specified directory.
; 4545          6064  1 !
; 4546          6065  1 ! CALLING SEQUENCE:
; 4547          6066  1 !       STA_ENTER (FAB)
; 4548          6067  1 !
; 4549          6068  1 ! INPUT PARAMETERS:
; 4550          6069  1 !       FAB: address of FAB for file to be entered
; 4551          6070  1 !
; 4552          6071  1 ! IMPLICIT INPUTS:
; 4553          6072  1 !       NONE
; 4554          6073  1 !
; 4555          6074  1 ! OUTPUT PARAMETERS:
; 4556          6075  1 !       NONE
; 4557          6076  1 !
; 4558          6077  1 ! IMPLICIT OUTPUTS:
; 4559          6078  1 !       DIR_RECORD: record number of new directory entry
; 4560          6079  1 !       DIR_BUFFER: buffer address of current directory block
; 4561          6080  1 !       DIR_ENTRY: address of directory record
; 4562          6081  1 !       DIR_VERSION: address of directory version entry
; 4563          6082  1 !       DIR_END: end of directory data
; 4564          6083  1 !
; 4565          6084  1 ! ROUTINE VALUE:
; 4566          6085  1 !       NONE
; 4567          6086  1 !
; 4568          6087  1 ! SIDE EFFECTS:
; 4569          6088  1 !       directory altered
; 4570          6089  1 !
; 4571          6090  1 !--
; 4572          6091  1
; 4573          6092  2 BEGIN
; 4574          6093  2 MAP
; 4575          6094  2         FAB             : REF BBLOCK;   ! FAB argument
; 4576          6095  2
; 4577          6096  2 LOCAL
; 4578          6097  2         STATUS,                         ! result of directory search
; 4579          6098  2         NAM             : REF BBLOCK,   ! address of name block
; 4580          6099  2         IO_STATUS       : VECTOR [4,WORD], ! I/O status block
; 4581          6100  2         BUFFER          : BBLOCK [512], ! I/O buffer to read directory
; 4582          6101  2         FIB             : BBLOCK [FIB$C_LENGTH], ! FIB to access directory
; 4583          6102  2         FIB_DESC        : VECTOR [2],   ! descriptor for above
; 4584          6103  2         RECATTR         : BBLOCK [FAT$C_LENGTH], ! record attributes buffer
; 4585          6104  2         FILECHAR        : BBLOCK [4],   ! file characteristics longword
; 4586          6105  2         ATT_CONTROL     : BBLOCK [20],  ! attribute control list
; 4587          6106  2         DIR_CONTEXT     : VECTOR [10],  ! directory context block
; 4588          6107  2         DIR_END         : REF BBLOCK,   ! end of directory data
; 4589          6108  2         NAME_LENGTH,                    ! length of file name, rounded even
; 4590          6109  2         NEW_SIZE,                       ! size of new directory entry
; 4591          6110  2         VERSIONS,                       ! version limit for entry
; 4592          6111  2         FAO_DESC        : VECTOR [2];   ! string descriptor for FAO
; 4593          6112  2
```

```
; 4594          6113  2 BIND
; 4595          6114  2          ATT_CONTROL0     = ATT_CONTROL : BBLOCK,
; 4596          6115  2          ATT_CONTROL1     = ATT_CONTROL+8 : BBLOCK,
; 4597          6116  2          ATT_CONTROL2     = ATT_CONTROL+16 : BBLOCK;
; 4598          6117  2
; 4599          6118  2 BIND
; 4600          6119  2          CHANNEL          = DIR_CONTEXT[CTX_CHANNEL],
; 4601          6120  2          FND_COUNT        = DIR_CONTEXT[CTX_COUNT],
; 4602          6121  2          FND_STRING       = DIR_CONTEXT[CTX_STRING],
; 4603          6122  2          FND_VERSION      = DIR_CONTEXT[CTX_VERSION],
; 4604          6123  2          DIR_VBN          = DIR_CONTEXT[CTX_VBN],
; 4605          6124  2          DIR_BUFFER       = DIR_CONTEXT[CTX_BUFFER] : REF BBLOCK,
; 4606          6125  2          DIR_ENTRY        = DIR_CONTEXT[CTX_ENTRY] : REF BBLOCK,
; 4607          6126  2          DIR_VERSION      = DIR_CONTEXT[CTX_FILEVER] : REF BBLOCK,
; 4608          6127  2          DIR_FAB          = DIR_CONTEXT[CTX_FAB],
; 4609          6128  2          LAST_BLOCK       = DIR_CONTEXT[CTX_EOF];
; 4610          6129  2
; 4611          6130  2 EXTERNAL ROUTINE
; 4612          6131  2          LIB$CVT_DTB:     ADDRESSING_MODE(GENERAL),
; 4613          6132  2                                           ! convert decimal to binary
; 4614          6133  2          INIT_NAMEBLOCK;                  ! initialize extended name block fields
; 4615          6134  2
; 4616          6135  2
; 4617          6136  2
; 4618          6137  2 ! Access the directory.
; 4619          6138  2 !
; 4620          6139  2
; 4621          6140  2 DIR_FAB = .FAB;
; 4622          6141  2 DIR_BUFFER = BUFFER;
; 4623          6142  2 CHANNEL = .FAB[FAB$L_STV];
; 4624          6143  2 NAM = .FAB[FAB$L_NAM];
; 4625          6144  2
; 4626          6145  2 CH$FILL ( 0, FIB$C_LENGTH, FIB) ;
; 4627          6146  2 FIB_DESC[0] = FIB$C_LENGTH;
; 4628          6147  2 FIB_DESC[1] = FIB;
; 4629          6148  2 FIB[FIB$L_ACCTL] = 0;
; 4630          6149  2 FIB[FIB$W_FID_NUM] = .NAM[NAM$W_DID_NUM];
; 4631          6150  2 FIB[FIB$W_FID_SEQ] = .NAM[NAM$W_DID_SEQ];
; 4632          6151  2 FIB[FIB$W_FID_RVN] = .NAM[NAM$W_DID_RVN];
; 4633          6152  2
; 4634          6153  2 ATT_CONTROL0[ATR$W_SIZE] = ATR$S_RECATTR;
; 4635          6154  2 ATT_CONTROL0[ATR$W_TYPE] = ATR$C_RECATTR;
; 4636          6155  2 ATT_CONTROL0[ATR$L_ADDR] = RECATTR;
; 4637          6156  2 ATT_CONTROL1[ATR$W_SIZE] = ATR$S_UCHAR;
; 4638          6157  2 ATT_CONTROL1[ATR$W_TYPE] = ATR$C_UCHAR;
; 4639          6158  2 ATT_CONTROL1[ATR$L_ADDR] = FILECHAR;
; 4640          6159  2 ATT_CONTROL2[0,0,32,0] = 0;
; 4641          6160  2
; 4642        P 6161  2 STATUS = S$QIOW (CHAN = .CHANNEL,
; 4643        P 6162  2                  IOSB = IO_STATUS,
; 4644        P 6163  2                  FUNC = IO$_ACCESS OR IO$M_ACCESS,
; 4645        P 6164  2                  P1   = FIB_DESC,
; 4646        P 6165  2                  P5   = ATT_CONTROL
; 4647          6166  2                  );
; 4648          6167  2 IF .STATUS THEN STATUS = .IO_STATUS[0];
; 4649          6168  2 IF NOT .STATUS THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, .STATUS);
; 4650          6169  2
```

```
; 4651    6170  2 LAST_BLOCK = ROT (.RECATTR[FAT$L_EFBLK], 16);
; 4652    6171  2 IF .RECATTR[FAT$W_FFBYTE] EQL 0
; 4653    6172  2 AND .LAST_BLOCK NEQ 0
; 4654    6173  2 THEN LAST_BLOCK = .LAST_BLOCK - 1;
; 4655    6174  2
; 4656    6175  2 IF NOT .FILECHAR[FCH$V_DIRECTORY]
; 4657    6176  2 OR .RECATTR[FAT$B_RTYPE] NEQ FAT$C_VARIABLE
; 4658    6177  2 OR .RECATTR[FAT$B_RATTRIB] NEQ FAT$M_NOSPAN
; 4659    6178  2 OR .LAST_BLOCK EQL 0
; 4660    6179  2 THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_BADIRECTORY);
; 4661    6180  2
; 4662    6181  2 ! Search the directory for the indicated name. If the search succeeds, we
; 4663    6182  2 ! have a duplicate entry. If the search failed, make a new entry.
; 4664    6183  2 !
; 4665    6184  2
; 4666    6185  2 FND_STRING = .NAM[NAM$L_NAME];
; 4667    6186  2 FND_COUNT = .NAM[NAM$L_VER] - .NAM[NAM$L_NAME];
; 4668    6187  2 IF .NAM[NAM$B_VER] LSSU 2
; 4669    6188  2 THEN FND_VERSION = 0
; 4670    6189  2 ELSE IF NOT LIB$CVT_DTB (.NAM[NAM$B_VER]-1, .NAM[NAM$L_VER]+1, FND_VERSION)
; 4671    6190  2 THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_BADFILEVER);
; 4672    6191  2 IF .FND_VERSION GTRU 32767
; 4673    6192  2 THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_BADFILEVER);
; 4674    6193  2
; 4675    6194  2 STATUS =  DIR_SCAN (DIR_CONTEXT);
; 4676    6195  2 IF .STATUS
; 4677    6196  2 AND .FND_VERSION NEQ 0
; 4678    6197  2 THEN
; 4679    6198  2     FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_DUPFILENAME);
; 4680    6199  2
; 4681    6200  2 ! Set up the position for the insert. Scan to the end of the
; 4682    6201  2 ! records in the block.
; 4683    6202  2 !
; 4684    6203  2
; 4685    6204  2 NAME_LENGTH = .FND_COUNT + 1 AND NOT 1;
; 4686    6205  2 DIR_END = .DIR_ENTRY;
; 4687    6206  2
; 4688    6207  2 UNTIL .DIR_END[DIR$W_SIZE] EQL 65535
; 4689    6208  2 DO DIR_END = NEXT_REC (.DIR_END, DIR_CONTEXT);
; 4690    6209  2 DIR_END = .DIR_END + 2;
; 4691    6210  2
; 4692    6211  2 ! If there was not a name match, we are constructing a whole new record.
; 4693    6212  2 ! Compute the record size and see if there is enough space. If not, extend
; 4694    6213  2 ! the directory. Then shuffle down the rest of the records and build the
; 4695    6214  2 ! new entry.
; 4696    6215  2 !
; 4697    6216  2
; 4698    6217  2 IF .DIR_VERSION EQL 0
; 4699    6218  2 THEN
; 4700    6219  3     BEGIN
; 4701    6220  3     IF .FND_VERSION EQL 0
; 4702    6221  3     THEN FND_VERSION = .FND_VERSION + 1;
; 4703    6222  3
; 4704    6223  3     NEW_SIZE = DIR$C_LENGTH + DIR$C_VERSION + .NAME_LENGTH;
; 4705    6224  3     IF .NEW_SIZE GTRU .DIR_BUFFER + 512 - .DIR_END
; 4706    6225  3     THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_DIRFULL);
; 4707    6226  3
```

```
; 4708          6227  3      CH$MOVE (.DIR_END-.DIR_ENTRY, .DIR_ENTRY, .DIR_ENTRY+.NEW_SIZE);
; 4709          6228  3
; 4710          6229  3      DIR_ENTRY[DIR$W_SIZE] = .NEW_SIZE - 2;
; 4711          6230  3      VERSIONS = (512*DIR$C_VERSION-2-.NEW_SIZE) / DIR$C_VERSION;
; 4712          6231  3      IF .RECATTR[FAT$W_VERSIONS] NEQ 0
; 4713          6232  3      THEN VERSIONS = .RECATTR[FAT$W_VERSIONS];
; 4714          6233  3      DIR_ENTRY[DIR$W_VERLIMIT] = .VERSIONS;
; 4715          6234  3
; 4716          6235  3      DIR_ENTRY[DIR$B_FLAGS] = DIR$C_FID;
; 4717          6236  3      DIR_ENTRY[DIR$B_NAMECOUNT] = .FND_COUNT;
; 4718          6237  3      CH$COPY (.FND_COUNT, .FND_STRING,
; 4719          6238  3                   0, .NAME_LENGTH, DIR_ENTRY[DIR$T_NAME]);
; 4720          6239  3
; 4721          6240  3      DIR_VERSION = .DIR_ENTRY + .NEW_SIZE - DIR$C_VERSION;
; 4722          6241  3      END
; 4723          6242  3
; 4724          6243  3
; 4725          6244  3  ! Otherwise we are adding a new version to an existing entry. Then
; 4726          6245  3  ! shuffle the rest of the directory down.
; 4727          6246  3  !
; 4728          6247  3
; 4729          6248  2  ELSE
; 4730          6249  3      BEGIN
; 4731          6250  3      IF   .FND_VERSION EQL 0
; 4732          6251  3      THEN FND_VERSION = .DIR_VERSION[DIR$W_VERSION] + 1;
; 4733          6252  3
; 4734          6253  3      IF DIR$C_VERSION GTRU .DIR_BUFFER + 512 - .DIR_END
; 4735          6254  3      THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_DIRFULL);
; 4736          6255  3      DIR_ENTRY[DIR$W_SIZE] = .DIR_ENTRY[DIR$W_SIZE] + DIR$C_VERSION;
; 4737          6256  3
; 4738          6257  3      CH$MOVE (.DIR_END-.DIR_VERSION, .DIR_VERSION, .DIR_VERSION+DIR$C_VERSION);
; 4739          6258  2      END;
; 4740          6259  2
; 4741          6260  2  ! Now insert the version number and file ID into the version slot.
; 4742          6261  2  !
; 4743          6262  2
; 4744          6263  2  IF .FND_VERSION GTRU 32767
; 4745          6264  2  THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, SS$_BADFILEVER);
; 4746          6265  2  DIR_VERSION[DIR$W_VERSION] = .FND_VERSION;
; 4747          6266  2  DIR_VERSION[DIR$W_FID_NUM] = .NAM[NAM$W_FID_NUM];
; 4748          6267  2  DIR_VERSION[DIR$W_FID_SEQ] = .NAM[NAM$W_FID_SEQ];
; 4749          6268  2  DIR_VERSION[DIR$B_FID_NMX] = .NAM[NAM$B_FID_NMX];
; 4750          6269  2  DIR_VERSION[DIR$B_FID_RVN] = 0;
; 4751          6270  2
; 4752        P 6271  2  STATUS = S$QIOW (CHAN = .CHANNEL,
; 4753        P 6272  2                   IOSB = IO_STATUS,
; 4754        P 6273  2                   FUNC = IO$_WRITEVBLK,
; 4755        P 6274  2                   P1   = .DIR_BUFFER,
; 4756        P 6275  2                   P2   = 512,
; 4757        P 6276  2                   P3   = .DIR_VBN
; 4758          6277  2                   );
; 4759          6278  2  IF .STATUS THEN STATUS = .IO_STATUS[0];
; 4760          6279  2  IF NOT .STATUS THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, .STATUS);
; 4761          6280  2
; 4762        P 6281  2  STATUS = S$QIOW (CHAN = .CHANNEL,
; 4763        P 6282  2                   IOSB = IO_STATUS,
; 4764        P 6283  2                   FUNC = IO$_DEACCESS
```

```
                    2                    );
                    2 IF .STATUS THEN STATUS = .IO_STATUS[0];
                    2 IF NOT .STATUS THEN FILE_ERROR (BACKUP$_OPENOUT+STS$K_SEVERE, .DIR_FAB, .STATUS);
                    2
                    2 ! Finally build the resultant string with version number.
                    2 !
                    2
                    2 IF .NAM[NAM$B_RSL] EQL 0
                    2 THEN
                    3     BEGIN
                    3     CH$MOVE (.NAM[NAM$B_ESL], .NAM[NAM$L_ESA], .NAM[NAM$L_RSA]);
                    3     FAO_DESC[1] = .NAM[NAM$L_VER] + 1 + .NAM[NAM$L_RSA] - .NAM[NAM$L_ESA];
                    3     FAO_DESC[0] = .NAM[NAM$B_RSS] - (.FAO_DESC[1] - .NAM[NAM$L_RSA]);
                    3     IF .FAO_DESC[0] GTR 0
                    3     THEN
                    4         BEGIN
                P   4         $FAO ($DESCRIPTOR ('!UW'),
                P   4               FAO_DESC[0],
                P   4               FAO_DESC[0],
                P   4               .FND_VERSION
                    4               );
                    4         END
                    3     ELSE
                    3         FAO_DESC[0] = 0;
                    3     NAM[NAM$B_RSL] = .FAO_DESC[1] + .FAO_DESC[0] - .NAM[NAM$L_RSA];
                    3     INIT_NAMEBLOCK (.NAM);
                    2     END;
                    2
                    1 END;                                    ! end of routine STA_ENTER


                                57  55  21  0264E P.AAT:  .ASCII  \!UW\                                  ;
                                            02651         .BLKB   3
                                  00000003  02654 P.AAS:  .LONG   3                                      ;
                                  00000000' 02658         .ADDRESS P.AAT                                 ;

                                                          .EXTRN  LIB$CVT_DTB, INIT_NAMEBLOCK

                                      0FFC 00000          .ENTRY  STA_ENTER, Save R2,R3,R4,R5,R6,R7,R8,R9,-  ; 6057
                                                                  R10,R11                                 ;
                          5E      FD48  CE  9E 00002      MOVAB   -696(SP), SP                            ;
                          50        04  AC  D0 00007      MOVL    FAB, R0                                 ; 6140
                    2C    AE            50  D0 0000B      MOVL    R0, DIR_FAB                             ;
                    20    AE      00B0  CE  9E 0000F      MOVAB   BUFFER, DIR_BUFFER                      ; 6141
                    0C    AE        0C  A0  D0 00015      MOVL    12(R0), CHANNEL                         ; 6142
                          56        28  A0  D0 0001A      MOVL    40(R0), NAM                             ; 6143
0040  8F        00        6E            00  2C 0001E      MOVC5   #0, (SP), #0, #64, FIB                  ; 6145
                                    70  AE     00025                                                      ;
                    68    AE        40  8F  9A 00027      MOVZBL  #64, FIB_DESC                           ; 6146
                    6C    AE        70  AE  9E 0002C      MOVAB   FIB, FIB_DESC+4                         ; 6147
                                    70  AE  D4 00031      CLRL    FIB                                     ; 6148
                    74    AE        2A  A6  D0 00034      MOVL    42(NAM), FIB+4                          ; 6149
                    78    AE        2E  A6  B0 00039      MOVW    46(NAM), FIB+8                          ; 6151
                    34    AE  00040020  8F  D0 0003E      MOVL    #262176, ATT_CONTROL0                   ; 6153
                    38    AE        48  AE  9E 00046      MOVAB   RECATTR, ATT_CONTROL0+4                 ; 6155
                    3C    AE  00030004  8F  D0 0004B      MOVL    #196612, ATT_CONTROL1                   ; 6156
```

```
                40   AE          6E  9E 00053        MOVAB   FILECHAR, ATT_CONTROL1+4                  ; 6158
                          44    AE  D4 00057        CLRL    ATT_CONTROL2                              ; 6159
                                7E  D4 0005A        CLRL    -(SP)                                     ; 6166
                          38    AE  9F 0005C        PUSHAB  ATT_CONTROL                               ;
                                7E  7C 0005F        CLRQ    -(SP)                                     ;
                                7E  D4 00061        CLRL    -(SP)                                     ;
                          7C    AE  9F 00063        PUSHAB  FIB_DESC                                  ;
                                7E  7C 00066        CLRQ    -(SP)                                     ;
                          F8    AD  9F 00068        PUSHAB  IO_STATUS                                 ;
                   7E     72    8F  9A 0006B        MOVZBL  #114, -(SP)                               ;
                          34    AE  DD 0006F        PUSHL   CHANNEL                                   ;
                                7E  D4 00072        CLRL    -(SP)                                     ;
          00000000G  00         0C  FB 00074        CALLS   #12, STA_QIOW                             ;
                   5B           50  D0 0007B        MOVL    R0, STATUS                                ;
                   07           5B  E9 0007E        BLBC    STATUS, 1$                                ; 6167
                   5B     F8    AD  3C 00081        MOVZWL  IO_STATUS, STATUS                         ;
                   12           5B  E8 00085        BLBS    STATUS, 2$                                ; 6168
                                5B  DD 00088 1$:    PUSHL   STATUS                                    ;
                          30    AE  DD 0008A        PUSHL   DIR_FAB                                   ;
                    00000000G   8F  DD 0008D        PUSHL   #BACKUP$_OPENOUT+4                        ;
          00000000G  00         03  FB 00093        CALLS   #3, FILE_ERROR                            ;
   30   AE      50   AE         10  9C 0009A 2$:    ROTL    #16, RECATTR+8, LAST_BLOCK                ; 6170
                          54    AE  B5 000A0        TSTW    RECATTR+12                                ; 6171
                                08  12 000A3        BNEQ    3$                                        ;
                          30    AE  D5 000A5        TSTL    LAST_BLOCK                                ; 6172
                                03  13 000A8        BEQL    3$                                        ;
                          30    AE  D7 000AA        DECL    LAST_BLOCK                                ; 6173
      11       01   AE         05  E1 000AD 3$:    BBC     #5, FILECHAR+1, 4$                        ; 6175
                   02     48    AE  91 000B2        CMPB    RECATTR, #2                               ; 6176
                                0B  12 000B6        BNEQ    4$                                        ;
                   08     49    AE  91 000B8        CMPB    RECATTR+1, #8                             ; 6177
                                05  12 000BC        BNEQ    4$                                        ;
                          30    AE  D5 000BE        TSTL    LAST_BLOCK                                ; 6178
                                15  12 000C1        BNEQ    5$                                        ;
                   7E   0828    8F  3C 000C3 4$:    MOVZWL  #2088, -(SP)                              ; 6179
                          30    AE  DD 000C8        PUSHL   DIR_FAB                                   ;
                    00000000G   8F  DD 000CB        PUSHL   #BACKUP$_OPENOUT+4                        ;
          00000000G  00         03  FB 000D1        CALLS   #3, FILE_ERROR                            ;
                14   AE     4C  A6  D0 000D8 5$:    MOVL    76(NAM), FND_STRING                       ; 6185
   10   AE      54   A6     4C  A6  C3 000DD        SUBL3   76(NAM), 84(NAM), FND_COUNT               ; 6186
                   02     3D    A6  91 000E4        CMPB    61(NAM), #2                               ; 6187
                                05  1E 000E8        BGEQU   6$                                        ;
                          18    AE  D4 000EA        CLRL    FND_VERSION                               ; 6188
                                2D  11 000ED        BRB     7$                                        ;
                          18    AE  9F 000EF 6$:    PUSHAB  FND_VERSION                               ; 6189
      7E       54   A6         01  C1 000F2        ADDL3   #1, 84(NAM), -(SP)                        ;
                   7E     3D    A6  9A 000F7        MOVZBL  61(NAM), -(SP)                            ;
                                6E  D7 000FB        DECL    (SP)                                      ;
          00000000G  00         03  FB 000FD        CALLS   #3, LIB$CVT_DTB                           ;
                   15           50  E8 00104        BLBS    R0, 7$                                    ;
                   7E   0820    8F  3C 00107        MOVZWL  #2080, -(SP)                              ; 6190
                          30    AE  DD 0010C        PUSHL   DIR_FAB                                   ;
                    00000000G   8F  DD 0010F        PUSHL   #BACKUP$_OPENOUT+4                        ;
          00000000G  00         03  FB 00115        CALLS   #3, FILE_ERROR                            ;
          00007FFF   8F     18    AE  D1 0011C 7$:    CMPL    FND_VERSION, #32767                       ; 6191
                                15  1B 00124        BLEQU   8$                                        ;
                   7E   0820    8F  3C 00126        MOVZWL  #2080, -(SP)                              ; 6192
```

```
                                30   AE  DD 0012B          PUSHL   DIR_FAB                                  ;
                        00000000G   8F  DD 0012E          PUSHL   #BACKUP$_OPENOUT+4                       ;
          00000000G  00             03  FB 00134          CALLS   #3, FILE_ERROR                           ;
                                0C   AE  9F 0013B 8$:     PUSHAB  DIR_CONTEXT                              ; 6194
              FD91   CF             01  FB 0013E          CALLS   #1, DIR_SCAN                             ;
                     5B             50  D0 00143          MOVL    R0, STATUS                               ;
                     1A             5B  E9 00146          BLBC    STATUS, 9$                               ; 6195
                                18   AE  D5 00149          TSTL    FND_VERSION                              ; 6196
                                     15  13 0014C          BEQL    9$                                       ;
                     7E      0868   8F  3C 0014E          MOVZWL  #2152, -(SP)                             ; 6198
                                30   AE  DD 00153          PUSHL   DIR_FAB                                  ;
                        00000000G   8F  DD 00156          PUSHL   #BACKUP$_OPENOUT+4                       ;
          00000000G  00             03  FB 0015C          CALLS   #3, FILE_ERROR                           ;
       50       10   AE             01  C1 00163 9$:      ADDL3   #1, FND_COUNT, R0                        ; 6204
       58           50             01  CB 00168          BICL3   #1, R0, NAME_LENGTH                      ;
                     5A         24   AE  D0 0016C          MOVL    DIR_ENTRY, DIR_END                       ; 6205
              FFFF   8F             6A  B1 00170 10$:     CMPW    (DIR_END), #65535                        ; 6207
                                     0F  13 00175          BEQL    11$                                      ;
                                0C   AE  9F 00177          PUSHAB  DIR_CONTEXT                              ; 6208
                                     5A  DD 0017A          PUSHL   DIR_END                                  ;
              FCE2   CF             02  FB 0017C          CALLS   #2, NEXT_REC                             ;
                     5A             50  D0 00181          MOVL    R0, DIR_END                              ;
                                     EA  11 00184          BRB     10$                                      ;
                     5A             02  C0 00186 11$:     ADDL2   #2, DIR_END                              ; 6209
                                28   AE  D5 00189          TSTL    DIR_VERSION                              ; 6217
                                     72  12 0018C          BNEQ    15$                                      ;
                                18   AE  D5 0018E          TSTL    FND_VERSION                              ; 6220
                                     03  12 00191          BNEQ    12$                                      ;
                                18   AE  D6 00193          INCL    FND_VERSION                              ; 6221
                     57         0E   A8  9E 00196 12$:     MOVAB   14(R8), NEW_SIZE                         ; 6223
       50       20   AE             5A  C3 0019A          SUBL3   DIR_END, DIR_BUFFER, R0                  ; 6224
                     50       0200   C0  9E 0019F          MOVAB   512(R0), R0                              ;
                     50             57  D1 001A4          CMPL    NEW_SIZE, R0                             ;
                                     15  1B 001A7          BLEQU   13$                                      ;
                     7E      0860   8F  3C 001A9          MOVZWL  #2144, -(SP)                             ; 6225
                                30   AE  DD 001AE          PUSHL   DIR_FAB                                  ;
                        00000000G   8F  DD 001B1          PUSHL   #BACKUP$_OPENOUT+4                       ;
          00000000G  00             03  FB 001B7          CALLS   #3, FILE_ERROR                           ;
                     59         24   AE  D0 001BE 13$:     MOVL    DIR_ENTRY, R9                            ; 6227
       50           5A             59  C3 001C2          SUBL3   R9, DIR_END, R0                          ;
     6749           69             50  28 001C6          MOVC3   R0, (R9), (NEW_SIZE)[R9]                 ;
       69           57             02  A3 001CB          SUBW3   #2, NEW_SIZE, (R9)                       ; 6229
                     50       FDFA   C7  9E 001CF          MOVAB   -518(R7), R0                             ; 6230
                     50             08  C6 001D4          DIVL2   #8, R0                                   ;
                     50             50  CE 001D7          MNEGL   R0, VERSIONS                             ;
                                66   AE  B5 001DA          TSTW    RECATTR+30                               ; 6231
                                     04  13 001DD          BEQL    14$                                      ;
                     50         66   AE  3C 001DF          MOVZWL  RECATTR+30, VERSIONS                     ; 6232
                 02  A9             50  B0 001E3 14$:     MOVW    VERSIONS, 2(R9)                          ; 6233
                                04   A9  94 001E7          CLRB    4(R9)                                    ; 6235
                 05  A9         10   AE  90 001EA          MOVB    FND_COUNT, 5(R9)                         ; 6236
 58       00      14  BE         10   AE  2C 001EF          MOVC5   FND_COUNT, @FND_STRING, #0, NAME_LENGTH, - ; 6238
                                06   A9     001F6                  6(R9)                                    ;
                 28  AE         F8 A749  9E 001F8          MOVAB   -8(NEW_SIZE)[R9], DIR_VERSION            ; 6240
                                     42  11 001FE          BRB     18$                                      ; 6217
                                18   AE  D5 00200 15$:     TSTL    FND_VERSION                              ; 6250
                                     08  12 00203          BNEQ    16$                                      ;
```

```
                18   AE        28   BE  32 00205          CVTWL   @DIR_VERSION, FND_VERSION                  ; 6251
                                18   AE  D6 0020A          INCL    FND_VERSION                                ;
        50      20   AE             5A  C3 0020D 16$:     SUBL3   DIR_END, DIR_BUFFER, R0                    ; 6253
                     50      0200   C0  9E 00212          MOVAB   512(R0), R0                                ;
                     08             50  D1 00217          CMPL    R0, #8                                     ;
                                    15  1E 0021A          BGEQU   17$                                        ;
                     7E      0860   8F  3C 0021C          MOVZWL  #2144, -(SP)                               ; 6254
                                30   AE  DD 00221          PUSHL   DIR_FAB                                    ;
                         00000000G  8F  DD 00224          PUSHL   #BACKUP$_OPENOUT+4                         ;
          00000000G  00             03  FB 0022A          CALLS   #3, FILE_ERROR                             ;
                24   BE             08  A0 00231 17$:     ADDW2   #8, @DIR_ENTRY                             ; 6255
                     51        28   AE  D0 00235          MOVL    DIR_VERSION, R1                            ; 6257
        50           5A             51  C3 00239          SUBL3   R1, DIR_END, R0                            ;
   08   A1           61             50  28 0023D          MOVC3   R0, (R1), 8(R1)                            ;
          00007FFF   8F        18   AE  D1 00242 18$:     CMPL    FND_VERSION, #32767                        ; 6263
                                    15  1B 0024A          BLEQU   19$                                        ;
                     7E      0820   8F  3C 0024C          MOVZWL  #2080, -(SP)                               ; 6264
                                30   AE  DD 00251          PUSHL   DIR_FAB                                    ;
                         00000000G  8F  DD 00254          PUSHL   #BACKUP$_OPENOUT+4                         ;
          00000000G  00             03  FB 0025A          CALLS   #3, FILE_ERROR                             ;
                     50        28   AE  D0 00261 19$:     MOVL    DIR_VERSION, R0                            ; 6265
                     60        18   AE  B0 00265          MOVW    FND_VERSION, (R0)                          ;
                02   A0        24   A6  D0 00269          MOVL    36(NAM), 2(R0)                             ; 6266
                07   A0        29   A6  90 0026E          MOVB    41(NAM), 7(R0)                             ; 6268
                                06   A0  94 00273          CLRB    6(R0)                                      ; 6269
                                    7E  7C 00276          CLRQ    -(SP)                                      ; 6277
                                    7E  D4 00278          CLRL    -(SP)                                      ;
                                28   AE  DD 0027A          PUSHL   DIR_VBN                                    ;
                     7E      0200   8F  3C 0027D          MOVZWL  #512, -(SP)                                ;
                                34   AE  DD 00282          PUSHL   DIR_BUFFER                                 ;
                                    7E  7C 00285          CLRQ    -(SP)                                      ;
                                F8   AD  9F 00287          PUSHAB  IO_STATUS                                  ;
                                    30  DD 0028A          PUSHL   #48                                        ;
                                34   AE  DD 0028C          PUSHL   CHANNEL                                    ;
                                    7E  D4 0028F          CLRL    -(SP)                                      ;
          00000000G  00             0C  FB 00291          CALLS   #12, STA_QIOW                              ;
                     5B             50  D0 00298          MOVL    R0, STATUS                                 ;
                     07             5B  E9 0029B          BLBC    STATUS, 20$                                ; 6278
                     5B        F8   AD  3C 0029E          MOVZWL  IO_STATUS, STATUS                          ;
                     12             5B  E8 002A2          BLBS    STATUS, 21$                                ; 6279
                                    5B  DD 002A5 20$:     PUSHL   STATUS                                     ;
                                30   AE  DD 002A7          PUSHL   DIR_FAB                                    ;
                         00000000G  8F  DD 002AA          PUSHL   #BACKUP$_OPENOUT+4                         ;
          00000000G  00             03  FB 002B0          CALLS   #3, FILE_ERROR                             ;
                                    7E  7C 002B7 21$:     CLRQ    -(SP)                                      ; 6284
                                    7E  7C 002B9          CLRQ    -(SP)                                      ;
                                    7E  7C 002BB          CLRQ    -(SP)                                      ;
                                    7E  7C 002BD          CLRQ    -(SP)                                      ;
                                F8   AD  9F 002BF          PUSHAB  IO_STATUS                                  ;
                                    34  DD 002C2          PUSHL   #52                                        ;
                                34   AE  DD 002C4          PUSHL   CHANNEL                                    ;
                                    7E  D4 002C7          CLRL    -(SP)                                      ;
          00000000G  00             0C  FB 002C9          CALLS   #12, STA_QIOW                              ;
                     5B             50  D0 002D0          MOVL    R0, STATUS                                 ;
                     07             5B  E9 002D3          BLBC    STATUS, 22$                                ; 6285
                     5B        F8   AD  3C 002D6          MOVZWL  IO_STATUS, STATUS                          ;
                     12             5B  E8 002DA          BLBS    STATUS, 23$                                ; 6286
```

```
                                        5B  DD 002DD 22$:   PUSHL   STATUS                                  ;
                                  30    AE  DD 002DF        PUSHL   DIR_FAB                                 ;
                          00000000G     8F  DD 002E2        PUSHL   #BACKUP$_OPENOUT+4                      ;
            00000000G  00               03  FB 002E8        CALLS   #3, FILE_ERROR                          ;
                                  03    A6  95 002EF 23$:   TSTB    3(NAM)                                  ; 6291
                                        58  12 002F2        BNEQ    26$                                     ;
                        50        0B    A6  9A 002F4        MOVZBL  11(NAM), R0                             ; 6294
     04   B6       0C   B6              50  28 002F8        MOVC3   R0, @12(NAM), @4(NAM)                   ;
          50       54   A6        04    A6  C1 002FE        ADDL3   4(NAM), 84(NAM), R0                     ; 6295
                        50        0C    A6  C2 00304        SUBL2   12(NAM), R0                             ;
                   08   AE        01    A0  9E 00308        MOVAB   1(R0), FAO_DESC+4                       ;
          50       04   A6        08    AE  C3 0030D        SUBL3   FAO_DESC+4, 4(NAM), R0                  ; 6296
                        51        02    A6  9A 00313        MOVZBL  2(NAM), R1                              ;
     04   AE            50              51  C1 00317        ADDL3   R1, R0, FAO_DESC                        ;
                                        16  15 0031C        BLEQ    24$                                     ; 6297
                                  18    AE  DD 0031E        PUSHL   FND_VERSION                             ; 6304
                                  08    AE  9F 00321        PUSHAB  FAO_DESC                                ;
                                  0C    AE  9F 00324        PUSHAB  FAO_DESC                                ;
                                FCCD    CF  9F 00327        PUSHAB  P.AAS                                   ;
            00000000G  00               04  FB 0032B        CALLS   #4, SYS$FAO                             ;
                                        03  11 00332        BRB     25$                                     ; 6297
                                  04    AE  D4 00334 24$:   CLRL    FAO_DESC                                ; 6307
          50       08   AE        04    AE  C1 00337 25$:   ADDL3   FAO_DESC, FAO_DESC+4, R0                ; 6308
     03   A6            50        04    A6  83 0033D        SUBB3   4(NAM), R0, 3(NAM)                      ;
                                        56  DD 00343        PUSHL   NAM                                     ; 6309
            00000000G  00               01  FB 00345        CALLS   #1, INIT_NAMEBLOCK                      ;
                                            04 0034C 26$:   RET                                             ; 6312

; Routine Size:  845 bytes,    Routine Base:  CODE + 265C
```

```
; 4795   6313  1 %SBTTL 'STA_EXTEND - extend a file'
; 4796   6314  1 GLOBAL ROUTINE STA_EXTEND (P_COUNT, RET_COUNT) =
; 4797   6315  1
; 4798   6316  1 !++
; 4799   6317  1 !
; 4800   6318  1 ! FUNCTIONAL DESCRIPTION:
; 4801   6319  1 !
; 4802   6320  1 !       This routine attempts to allocate the specified number of
; 4803   6321  1 !       blocks to the currently open file and appends them to the file.
; 4804   6322  1 !       When asked to return blocks, allocated blocks listed in the
; 4805   6323  1 !       window are recorded in the file header.
; 4806   6324  1 !
; 4807   6325  1 ! CALLING SEQUENCE:
; 4808   6326  1 !       STA_EXTEND (P_COUNT, RET_COUNT)
; 4809   6327  1 !
; 4810   6328  1 ! INPUT PARAMETERS:
; 4811   6329  1 !       P_COUNT: if positive, the number of new blocks to allocate
; 4812   6330  1 !                if negative, the number of blocks to return; also
; 4813   6331  1 !                the signal to build header map pointers.
; 4814   6332  1 !
; 4815   6333  1 ! IMPLICIT INPUTS:
; 4816   6334  1 !       CURRENT_MTL: MTL of file in process
; 4817   6335  1 !
; 4818   6336  1 ! OUTPUT PARAMETERS:
; 4819   6337  1 !       RET_COUNT: address into which to return count of blocks allocated
; 4820   6338  1 !
; 4821   6339  1 ! IMPLICIT OUTPUTS:
; 4822   6340  1 !       NONE
; 4823   6341  1 !
; 4824   6342  1 ! ROUTINE VALUE:
; 4825   6343  1 !       success or failure status
; 4826   6344  1 !
; 4827   6345  1 ! SIDE EFFECTS:
; 4828   6346  1 !       NONE
; 4829   6347  1 !
; 4830   6348  1 !--
; 4831   6349  1
; 4832   6350  2 BEGIN
; 4833   6351  2
; 4834   6352  2 LOCAL
; 4835   6353  2         STATUS,                          ! general status value
; 4836   6354  2         BLOCK_COUNT,                     ! rounded form of requested count
; 4837   6355  2         NEW_COUNT,                       ! count of new blocks allocated
; 4838   6356  2         NEW_LBN,                         ! LBN of same
; 4839   6357  2         MTL             : REF BBLOCK,    ! address of MTL for volume set
; 4840   6358  2         W               : REF BBLOCK,    ! pointer to current window segment
; 4841   6359  2         LAST_W          : REF BBLOCK,    ! pointer to previous window
; 4842   6360  2         WP              : REF BBLOCK;    ! pointer to current window pointer
; 4843   6361  2
; 4844   6362  2
; 4845   6363  2 !  Round the block count and do setup.
; 4846   6364  2 !
; 4847   6365  2
; 4848   6366  3 BLOCK_COUNT = (.P_COUNT + .CURRENT_VCB[VCB_CLUSTER] - 1)
; 4849   6367  2                 / .CURRENT_VCB[VCB_CLUSTER] * .CURRENT_VCB[VCB_CLUSTER];
; 4850   6368  2
; 4851   6369  2 .RET_COUNT = 0;
```

```
; 4852   6370  2 MTL = .CURRENT_MTL;
; 4853   6371  2 IF .MTL[MTL_WINDOW] EQL 0 THEN RETURN SS$_FILNOTACC;
; 4854   6372  2
; 4855   6373  2 ! Attempt allocation if requested. Record the new blocks in the
; 4856   6374  2 ! window.
; 4857   6375  2 !
; 4858   6376  2
; 4859   6377  2 IF .BLOCK_COUNT GTR 0
; 4860   6378  2 THEN
; 4861   6379  3     BEGIN
; 4862   6380  3     IF NOT STA_ALLOC_BEST (.BLOCK_COUNT, NEW_COUNT, NEW_LBN)
; 4863   6381  3     THEN RETURN SS$_DEVICEFULL;
; 4864   6382  3     ADD_WINDOW_MAP (.MTL[MTL_WINDOW], .MTL[MTL_FID_RVN], .NEW_COUNT, .NEW_LBN);
; 4865   6383  3     .RET_COUNT = .NEW_COUNT;
; 4866   6384  3     END
; 4867   6385  3
; 4868   6386  3 ! Otherwise this is a request to truncate allocated blocks and finish
; 4869   6387  3 ! off the file header. First truncate the requested number of blocks
; 4870   6388  3 ! out of the window.
; 4871   6389  3 !
; 4872   6390  3
; 4873   6391  2 ELSE
; 4874   6392  3     BEGIN
; 4875   6393  3     BLOCK_COUNT = -.BLOCK_COUNT;
; 4876   6394  3     UNTIL .BLOCK_COUNT LEQ 0
; 4877   6395  3     DO
; 4878   6396  4         BEGIN
; 4879   6397  4         LAST_W = 0;
; 4880   6398  4         W = .MTL[MTL_WINDOW];
; 4881   6399  4         UNTIL .W[WCB_LINK] EQL 0
; 4882   6400  4         DO
; 4883   6401  5             BEGIN
; 4884   6402  5             LAST_W = .W;
; 4885   6403  5             W = .W[WCB_LINK];
; 4886   6404  4             END;
; 4887   6405  4         IF .W[WCB_SIZE] EQL 0 THEN EXITLOOP;
; 4888   6406  4
; 4889   6407  4         WP = .W + WCB_S_HEADER + (.W[WCB_SIZE]-1) * WCB_S_ENTRY;
; 4890   6408  4         IF .WP[WCB_COUNT] GTR .BLOCK_COUNT
; 4891   6409  4         THEN
; 4892   6410  5             BEGIN
; 4893   6411  5             WP[WCB_COUNT] = .WP[WCB_COUNT] - .BLOCK_COUNT;
; 4894   6412  5             FREE_BLOCKS (.BLOCK_COUNT, .WP[WCB_LBN] + .WP[WCB_COUNT]);
; 4895   6413  5             .RET_COUNT = ..RET_COUNT - .BLOCK_COUNT;
; 4896   6414  5             EXITLOOP;
; 4897   6415  5             END
; 4898   6416  5
; 4899   6417  4         ELSE
; 4900   6418  5             BEGIN
; 4901   6419  5             FREE_BLOCKS (.WP[WCB_COUNT], .WP[WCB_LBN]);
; 4902   6420  5             .RET_COUNT = ..RET_COUNT - .WP[WCB_COUNT];
; 4903   6421  5             BLOCK_COUNT = .BLOCK_COUNT - .WP[WCB_COUNT];
; 4904   6422  5             W[WCB_SIZE] = .W[WCB_SIZE] - 1;
; 4905   6423  5             IF .W[WCB_SIZE] EQL 0
; 4906   6424  5             AND .LAST_W NEQ 0
; 4907   6425  5             AND .W[WCB_RVN] EQL .LAST_W[WCB_RVN]
; 4908   6426  5             THEN
```

```
6                   BEGIN
6                   DELETE_WINDOW (.W);
6                   LAST_W[WCB_LINK] = 0;
5                   END;
4               END;
3           END;
3
3   ! Now build map pointers in the file header using the pointers in the
3   ! window.
3   !
3
3       W = .MTL[MTL_WINDOW];
3       UNTIL .W EQL 0
3       OR .W[WCB_RVN] EQL .CURRENT_VCB[VCB_RVN]
3       DO W = .W[WCB_LINK];
3
3       UNTIL .W EQL 0
3       DO
4           BEGIN
4           WP = .W + WCB_S_HEADER;
4           DECR J FROM .W[WCB_SIZE] TO 1
4           DO
5               BEGIN
6               STATUS = (IF .CURRENT_VCB[VCB_ODS_2]
6                         THEN MAKE_POINTER ELSE MAKE_POINTER1)
5                        (.MTL[MTL_HEADER], .WP[WCB_COUNT], .WP[WCB_LBN]);
5               IF NOT .STATUS THEN RETURN .STATUS;
5               WP = .WP + WCB_S_ENTRY;
4               END;
4           W = .W[WCB_LINK];
3           END;
2       END;
2
2   TRUE
1   END;                                    ! End of routine STA_EXTEND
```

```
                    01FC 00000        .ENTRY  STA_EXTEND, Save R2,R3,R4,R5,R6,R7,R8      ; 6314
58 00000000'   EF   9E 00002        MOVAB   CURRENT_VCB, R8                            ;
5E             08   C2 00009        SUBL2   #8, SP                                     ;
50             68   D0 0000C        MOVL    CURRENT_VCB, R0                            ; 6366
51        04   A0   3C 0000F        MOVZWL  4(R0), R1                                  ;
51        04   AC   C0 00013        ADDL2   P_COUNT, R1                                ;
               51   D7 00017        DECL    R1                                         ;
52        04   A0   3C 00019        MOVZWL  4(R0), R2                                  ; 6367
51             52   C6 0001D        DIVL2   R2, R1                                     ;
54        04   A0   3C 00020        MOVZWL  4(R0), BLOCK_COUNT                         ;
54             51   C4 00024        MULL2   R1, BLOCK_COUNT                            ;
          08   BC   D4 00027        CLRL    @RET_COUNT                                 ; 6369
56        FC   A8   D0 0002A        MOVL    CURRENT_MTL, MTL                           ; 6370
57        08   A6   D0 0002E        MOVL    8(MTL), R7                                 ; 6371
               05   12 00032        BNEQ    1$                                         ;
50        AC   8F   9A 00034        MOVZBL  #172, R0                                   ;
                   04 00038        RET                                                ;
```

```
                                 54  D5 00039 1$:    TSTL    BLOCK_COUNT                          ; 6377
                                 2D  15 0003B        BLEQ    3$                                   ;
                                 5E  DD 0003D        PUSHL   SP                                   ; 6380
                          08     AE  9F 0003F        PUSHAB  NEW_COUNT                            ;
                                 54  DD 00042        PUSHL   BLOCK_COUNT                          ;
          DB69    CF             03  FB 00044        CALLS   #3, STA_ALLOC_BEST                   ;
                  06             50  E8 00049        BLBS    R0, 2$                               ;
                  50      0850   8F  3C 0004C        MOVZWL  #2128, R0                            ; 6381
                                     04 00051        RET                                          ;
                                 6E  DD 00052 2$:    PUSHL   NEW_LBN                              ; 6382
                          08     AE  DD 00054        PUSHL   NEW_COUNT                            ;
                  7E      1C     A6  9A 00057        MOVZBL  28(MTL), -(SP)                       ;
                                 57  DD 0005B        PUSHL   R7                                   ;
          E05C    CF             04  FB 0005D        CALLS   #4, ADD_WINDOW_MAP                   ;
            08    BC      04     AE  D0 00062        MOVL    NEW_COUNT, @RET_COUNT                ; 6383
                             00B9  31 00067        BRW     15$                                  ; 6377
                  54             54  CE 0006A 3$:    MNEGL   BLOCK_COUNT, BLOCK_COUNT             ; 6393
                                 54  D5 0006D 4$:    TSTL    BLOCK_COUNT                          ; 6394
                                 63  15 0006F        BLEQ    8$                                   ;
                                 55  D4 00071        CLRL    LAST_W                               ; 6397
                  52             57  D0 00073        MOVL    R7, W                                ; 6398
                                 62  D5 00076 5$:    TSTL    (W)                                  ; 6399
                                 08  13 00078        BEQL    6$                                   ;
                  55             52  D0 0007A        MOVL    W, LAST_W                            ; 6402
                  52             62  D0 0007D        MOVL    (W), W                               ; 6403
                                 F4  11 00080        BRB     5$                                   ; 6399
                          08     A2  95 00082 6$:    TSTB    8(W)                                 ; 6405
                                 4D  13 00085        BEQL    8$                                   ;
                  50      08     A2  9A 00087        MOVZBL  8(W), R0                             ; 6407
                  53      0C A240  7E 0008B        MOVAQ   12(W)[R0], WP                        ;
                  54             63  D1 00090        CMPL    (WP), BLOCK_COUNT                    ; 6408
                                 15  15 00093        BLEQ    7$                                   ;
                  63             54  C2 00095        SUBL2   BLOCK_COUNT, (WP)                    ; 6411
     7E      04   A3             63  C1 00098        ADDL3   (WP), 4(WP), -(SP)                   ; 6412
                                 54  DD 0009D        PUSHL   BLOCK_COUNT                          ;
          DB9C    CF             02  FB 0009F        CALLS   #2, FREE_BLOCKS                      ;
            08    BC             54  C2 000A4        SUBL2   BLOCK_COUNT, @RET_COUNT              ; 6413
                                 2A  11 000A8        BRB     8$                                   ; 6410
                  7E             63  7D 000AA 7$:    MOVQ    (WP), -(SP)                          ; 6419
          DB8E    CF             02  FB 000AD        CALLS   #2, FREE_BLOCKS                      ;
            08    BC             63  C2 000B2        SUBL2   (WP), @RET_COUNT                     ; 6420
                  54             63  C2 000B6        SUBL2   (WP), BLOCK_COUNT                    ; 6421
                          08     A2  97 000B9        DECB    8(W)                                 ; 6422
                                 AF  12 000BC        BNEQ    4$                                   ; 6423
                                 55  D5 000BE        TSTL    LAST_W                               ; 6424
                                 AB  13 000C0        BEQL    4$                                   ;
            0A    A5      0A     A2  91 000C2        CMPB    10(W), 10(LAST_W)                    ; 6425
                                 A4  12 000C7        BNEQ    4$                                   ;
                                 52  DD 000C9        PUSHL   W                                    ; 6428
          DF73    CF             01  FB 000CB        CALLS   #1, DELETE_WINDOW                    ;
                                 65  D4 000D0        CLRL    (LAST_W)                             ; 6429
                                 99  11 000D2        BRB     4$                                   ; 6394
                  52             57  D0 000D4 8$:    MOVL    R7, W                                ; 6438
                                 0F  13 000D7 9$:    BEQL    10$                                  ; 6439
                  50             68  D0 000D9        MOVL    CURRENT_VCB, R0                      ; 6440
            06    A0      0A     A2  91 000DC        CMPB    10(W), 6(R0)                         ;
                                 05  13 000E1        BEQL    10$                                  ;
```

```
                    52          62  D0 000E3          MOVL    (W), W                          ; 6441
                                EF  11 000E6          BRB     9$                              ;
                                52  D5 000E8 10$:     TSTL    W                               ; 6443
                                37  13 000EA          BEQL    15$                             ;
                    53      14  A2  9E 000EC          MOVAB   20(R2), WP                      ; 6446
                    54      08  A2  9A 000F0          MOVZBL  8(W), J                         ; 6447
                                54  D6 000F4          INCL    J                               ;
                                23  11 000F6          BRB     14$                             ;
                    51          68  D0 000F8 11$:     MOVL    CURRENT_VCB, R1                 ; 6450
        07      07  A1          01  E1 000FB          BBC     #1, 7(R1), 12$                  ;
                    51  DC43    CF  9E 00100          MOVAB   MAKE_POINTER, R1                ;
                                05  11 00105          BRB     13$                             ;
                    51  DBCB    CF  9E 00107 12$:     MOVAB   MAKE_POINTER1, R1               ;
                    7E          63  7D 0010C 13$:     MOVQ    (WP), -(SP)                     ; 6452
                        0C      A6  DD 0010F          PUSHL   12(MTL)                         ;
                    61          03  FB 00112          CALLS   #3, (R1)                        ;
                    0E          50  E9 00115          BLBC    STATUS, 16$                     ; 6453
                    53          08  C0 00118          ADDL2   #8, WP                          ; 6454
                    DA          54  F5 0011B 14$:     SOBGTR  J, 11$                          ; 6447
                    52          62  D0 0011E          MOVL    (W), W                          ; 6456
                                C5  11 00121          BRB     10$                             ; 6443
                    50          01  D0 00123 15$:     MOVL    #1, R0                          ; 6461
                                    04 00126 16$:     RET                                     ;

; Routine Size:  295 bytes,    Routine Base:  CODE + 29A9
```

```
1 %SBTTL 'STA_RDWRVBLK - read/write virtual QIO routine'
1 ROUTINE STA_RDWRVBLK (EFN,CHAN,FUNC,IOSB,ASTADR,ASTPRM,P1,P2,P3,P4,P5,P6)=
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !       This routine executes IO$_READVBLK and IO$_WRITEVBLK in the
1 !       standalone environment.
1 !
1 ! INPUT PARAMETERS:
1 !       As for $QIO(W) system service.
1 !
1 ! IMPLICIT INPUTS:
1 !       CURRENT_MTL     - Pointer to MTL for selected volume set.
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       Completion status.
1 !
1 ! SIDE EFFECTS:
1 !       NONE
1 !
1 !--
1
2 BEGIN
2 BUILTIN
2         AP;
2
2
2 ! Find the accessed file.  If none, error.
2 !
2 CURRENT_WCB = .CURRENT_MTL[MTL_WINDOW];
2 IF .CURRENT_WCB EQL 0 THEN RETURN SS$_FILNOTACC;
2
2
2 ! Do the I/O.
2 !
2 CALLG(.AP, R_W_VIRTUAL)
1 END;
```

```
                                  0000 00000 STA_RDWRVBLK:
                                                     .WORD   Save nothing                        ; 6463
                50 00000000'  EF  D0 00002         MOVL    CURRENT_MTL, R0                     ; 6498
      00000000'  EF       08  A0  D0 00009         MOVL    8(R0), CURRENT_WCB                  ;
                              05  12 00011         BNEQ    1$                                  ; 6499
                50       AC  8F  9A 00013         MOVZBL  #172, R0                            ;
                                  04 00017         RET                                         ;
          DFFF  CF            6C  FA 00018 1$:     CALLG   (AP), R_W_VIRTUAL                   ; 6504
```

```
                                        04 0001D        RET                                     ; 6505

; Routine Size:  30 bytes,    Routine Base:  CODE + 2AD0
```

```
%SBTTL 'STA_ACCESS - access QIO routine'
ROUTINE STA_ACCESS (EFN,CHAN,FUNC,IOSB,ASTADR,ASTPRM,P1,P2,P3,P4,P5,P6)=

!++
!
! FUNCTIONAL DESCRIPTION:
!       This routine executes IO$_ACCESS in the standalone environment.
!
! INPUT PARAMETERS:
!       As for $QIO(W) system service.
!
! IMPLICIT INPUTS:
!       CURRENT_MTL     - Pointer to MTL for selected volume set.
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       Completion status.
!
! SIDE EFFECTS:
!       NONE
!
!--

BEGIN
MAP
        FUNC:           BBLOCK,         ! I/O function code
        P1:             REF BBLOCK;     ! Descriptor for FIB
LOCAL
        FIB:            REF $BBLOCK,    ! Address of the FIB
        LOCAL_HEADER:   BBLOCK[512],    ! Local header buffer
        HEADER:         REF BBLOCK,     ! Pointer to header
        STATUS,
        VBN;                            ! Starting VBN of file


! If necessary, access the specified file.  In the standalone ACP, the only
! FIB field used is FIB$W_FID.
!
IF .P1 NEQ 0
THEN
    BEGIN
    FIB = .P1[DSC$A_POINTER];
    IF .FUNC[IO$V_ACCESS]
    THEN
        BEGIN
        !
        ! Access specified:  check for file already accessed, save the file
        ! ID, set up to use the MTL header buffer, read the header, and create
        ! the window.
        !
        IF .CURRENT_MTL[MTL_WINDOW] NEQ 0 THEN RETURN SS$_FILALRACC;
```

```
; 5047          6563  4
; 5048          6564  4         QUEUE_HEADERS[0] = QUEUE_HEADERS[1] = QUEUE_HEADERS[0];
; 5049          6565  4         QUEUE_HEADERS[2] = QUEUE_HEADERS[3] = QUEUE_HEADERS[2];
; 5050          6566  4         QUEUE_HEADERS[4] = QUEUE_HEADERS[5] = QUEUE_HEADERS[4];
; 5051          6567  4         CURRENT_MTL[MTL_FID_NUM] = .FIB[FIB$W_FID_NUM];
; 5052          6568  4         CURRENT_MTL[MTL_FID_SEQ] = .FIB[FIB$W_FID_SEQ];
; 5053          6569  4         CURRENT_MTL[MTL_FID_RVNW] = .FIB[FIB$W_FID_RVN];
; 5054          6570  4         CURRENT_MTL[MTL_NEW_ACL] = 0;
; 5055          6571  4         HEADER = .CURRENT_MTL[MTL_HEADER];
; 5056          6572  4         STATUS = READ_HEADER(FIB[FIB$W_FID_NUM], .HEADER);
; 5057          6573  4         IF NOT .STATUS THEN RETURN .STATUS;
; 5058          6574  4         VBN = 1;
; 5059          6575  4         IF .P1[DSC$W_LENGTH] GEQU FIB$C_EXTDATA
; 5060          6576  4         AND .FIB[FIB$L_EXVBN] NEQ 0
; 5061          6577  4         THEN VBN = .FIB[FIB$L_EXVBN];
; 5062          6578  4         STATUS = CREATE_WINDOW(.HEADER, .FIB[FIB$B_FID_RVN],
; 5063          6579  4                 CURRENT_MTL[MTL_WINDOW], .VBN, .FIB[FIB$B_WSIZE]);
; 5064          6580  4         IF NOT .STATUS THEN RETURN .STATUS;
; 5065          6581  4         END
; 5066          6582  3     ELSE
; 5067          6583  4         BEGIN
; 5068          6584  4         !
; 5069          6585  4         ! No access specified:  allow file already accessed, use the local
; 5070          6586  4         ! header buffer to avoid destroying context, and read the header.
; 5071          6587  4         !
; 5072          6588  4         HEADER = LOCAL_HEADER;
; 5073          6589  4         STATUS = READ_HEADER(FIB[FIB$W_FID_NUM], .HEADER);
; 5074          6590  4         IF NOT .STATUS THEN RETURN .STATUS;
; 5075          6591  3         END;
; 5076          6592  3     END
; 5077          6593  2 ELSE
; 5078          6594  3     BEGIN
; 5079          6595  3     IF .CURRENT_MTL[MTL_WINDOW] EQL 0 THEN RETURN SS$_BADPARAM;
; 5080          6596  3     HEADER = .CURRENT_MTL[MTL_HEADER];
; 5081          6597  2     END;
; 5082          6598  2
; 5083          6599  2
; 5084          6600  2 ! If necessary, build the file's ACL.
; 5085          6601  2 !
; 5086          6602  2 IF .CURRENT_MTL[MTL_ACLFL] EQL 0
; 5087          6603  2 THEN
; 5088          6604  3     BEGIN
; 5089          6605  3     CURRENT_MTL[MTL_ACLFL] = CURRENT_MTL[MTL_ACLFL];     ! Initialize ACL
; 5090          6606  3     CURRENT_MTL[MTL_ACLBL] = CURRENT_MTL[MTL_ACLFL];     !   queue head
; 5091          6607  3     IF NOT .CURRENT_MTL[MTL_SEQ_DISK]
; 5092          6608  3     THEN
; 5093          6609  4         BEGIN
; 5094          6610  4         STATUS = ACL_BUILDACL ();
; 5095          6611  4         IF NOT .STATUS
; 5096          6612  4         THEN
; 5097          6613  5             BEGIN
; 5098          6614  5             IF .FUNC[IO$V_ACCESS]
; 5099          6615  5             THEN
; 5100          6616  6                 BEGIN
; 5101          6617  6                 ACL_DELETEACL ();
; 5102          6618  6                 CURRENT_MTL[MTL_ACLFL] = CURRENT_MTL[MTL_ACLBL] = 0;
; 5103          6619  6                 DELETE_WINDOW (.CURRENT_MTL[MTL_WINDOW]);
```

```
6                   CURRENT_MTL[MTL_WINDOW] = 0;
5                   END;
5               RETURN .STATUS;
4               END;
3           END;
2       END;
2
2
2   ! If specified, read attributes.
2   !
2   IF .P5 NEQ 0
2   THEN
3       BEGIN
3       STATUS = READ_ATTRIBUTES(.HEADER, .P5, (IF .P1 EQL 0 THEN 0 ELSE .P1[DSC$A_POINTER]));
3       IF NOT .STATUS
3       THEN
4           BEGIN
4           IF .FUNC[IO$V_ACCESS]
4           THEN
5               BEGIN
5               ACL_DELETEACL ();
5               CURRENT_MTL[MTL_ACLFL] = CURRENT_MTL[MTL_ACLBL] = 0;
5               DELETE_WINDOW (.CURRENT_MTL[MTL_WINDOW]);
5               CURRENT_MTL[MTL_WINDOW] = 0;
4               END;
4           RETURN .STATUS;
3           END;
2       END;
2
2
2   ! Completed normally.
2   !
2   SS$_NORMAL
1   END;
```

```
                                  00FC 00000 STA_ACCESS:
                                                        .WORD   Save R2,R3,R4,R5,R6,R7                  ; 6507
                 57 00000000'  EF  9E 00002             MOVAB   CURRENT_MTL, R7                         ;
                 56 00000000'  EF  9E 00009             MOVAB   QUEUE_HEADERS, R6                       ;
                 5E      FE00  CE  9E 00010             MOVAB   -512(SP), SP                            ;
                 53        1C  AC  D0 00015             MOVL    P1, R3                                  ; 6550
                                03  12 00019             BNEQ    1$                                      ;
                              0097  31 0001B             BRW     6$                                      ;
                 52        04  A3  D0 0001E 1$:         MOVL    4(R3), FIB                              ; 6553
     79      0C  AC            06  E1 00022             BBC     #6, FUNC, 4$                            ; 6554
                 50            67  D0 00027             MOVL    CURRENT_MTL, R0                         ; 6562
                           08  A0  D5 0002A             TSTL    8(R0)                                   ;
                                05  13 0002D             BEQL    2$                                      ;
                 50        A4  8F  9A 0002F             MOVZBL  #164, R0                                ;
                                    04 00033             RET                                             ;
                 51            66  9E 00034 2$:         MOVAB   QUEUE_HEADERS, R1                       ; 6564
             04  A6            51  D0 00037             MOVL    R1, QUEUE_HEADERS+4                     ;
                 66            51  D0 0003B             MOVL    R1, QUEUE_HEADERS                       ;
```

```
                 51      08  A6  9E 0003E        MOVAB   QUEUE_HEADERS+8, R1                  ; 6565
          0C     A6          51  D0 00042        MOVL    R1, QUEUE_HEADERS+12                 ;
          08     A6          51  D0 00046        MOVL    R1, QUEUE_HEADERS+8                  ;
                 51      10  A6  9E 0004A        MOVAB   QUEUE_HEADERS+16, R1                 ; 6566
          14     A6          51  D0 0004E        MOVL    R1, QUEUE_HEADERS+20                 ;
          10     A6          51  D0 00052        MOVL    R1, QUEUE_HEADERS+16                 ;
          18     A0      04  A2  D0 00056        MOVL    4(FIB), 24(R0)                       ; 6567
          1C     A0      08  A2  B0 0005B        MOVW    8(FIB), 28(R0)                       ; 6569
          31     A0          02  8A 00060        BICB2   #2, 49(R0)                           ; 6570
                 55      0C  A0  D0 00064        MOVL    12(R0), HEADER                       ; 6571
                             55  DD 00068        PUSHL   HEADER                               ; 6572
                         04  A2  9F 0006A        PUSHAB  4(FIB)                               ;
        D750     CF          02  FB 0006D        CALLS   #2, READ_HEADER                      ;
                 54          50  D0 00072        MOVL    R0, STATUS                           ;
                 75          54  E9 00075        BLBC    STATUS, 9$                           ; 6573
                 50          01  D0 00078        MOVL    #1, VBN                              ; 6574
                 20          63  B1 0007B        CMPW    (R3), #32                            ; 6575
                             09  1F 0007E        BLSSU   3$                                   ;
                         1C  A2  D5 00080        TSTL    28(FIB)                              ; 6576
                             04  13 00083        BEQL    3$                                   ;
                 50      1C  A2  D0 00085        MOVL    28(FIB), VBN                         ; 6577
                 7E      03  A2  98 00089 3$:    CVTBL   3(FIB), -(SP)                        ; 6579
                             50  DD 0008D        PUSHL   VBN                                  ;
     7E          67          08  C1 0008F        ADDL3   #8, CURRENT_MTL, -(SP)               ;
                 7E      08  A2  9A 00093        MOVZBL  8(FIB), -(SP)                        ;
                             55  DD 00097        PUSHL   HEADER                               ;
        DC42     CF          05  FB 00099        CALLS   #5, CREATE_WINDOW                    ;
                             0D  11 0009E        BRB     5$                                   ;
                 55          6E  9E 000A0 4$:    MOVAB   LOCAL_HEADER, HEADER                 ; 6588
                             55  DD 000A3        PUSHL   HEADER                               ; 6589
                         04  A2  9F 000A5        PUSHAB  4(FIB)                               ;
        D715     CF          02  FB 000A8        CALLS   #2, READ_HEADER                      ;
                 54          50  D0 000AD 5$:    MOVL    R0, STATUS                           ;
                 12          54  E8 000B0        BLBS    STATUS, 8$                           ; 6590
                             7A  11 000B3        BRB     14$                                  ;
                 50          67  D0 000B5 6$:    MOVL    CURRENT_MTL, R0                      ; 6595
                         08  A0  D5 000B8        TSTL    8(R0)                                ;
                             04  12 000BB        BNEQ    7$                                   ;
                 50          14  D0 000BD        MOVL    #20, R0                              ;
                                 04 000C0        RET                                          ;
                 55      0C  A0  D0 000C1 7$:    MOVL    12(R0), HEADER                       ; 6596
                 50          67  D0 000C5 8$:    MOVL    CURRENT_MTL, R0                      ; 6602
                         10  A0  D5 000C8        TSTL    16(R0)                               ;
                             22  12 000CB        BNEQ    10$                                  ;
          10     A0      10  A0  9E 000CD        MOVAB   16(R0), 16(R0)                       ; 6605
          14     A0      10  A0  9E 000D2        MOVAB   16(R0), 20(R0)                       ; 6606
                 14      31  A0  E8 000D7        BLBS    49(R0), 10$                          ; 6607
   00000000G     00          00  FB 000DB        CALLS   #0, ACL_BUILDACL                     ; 6610
                 54          50  D0 000E2        MOVL    R0, STATUS                           ;
                 07          54  E8 000E5        BLBS    STATUS, 10$                          ; 6611
     27     0C  AC          06  E0 000E8        BBS     #6, FUNC, 13$                        ; 6614
                             40  11 000ED 9$:    BRB     14$                                  ; 6622
                         2C  AC  D5 000EF 10$:   TSTL    P5                                   ; 6630
                             3F  13 000F2        BEQL    15$                                  ;
                             53  D5 000F4        TSTL    R3                                   ; 6633
                             04  12 000F6        BNEQ    11$                                  ;
                             7E  D4 000F8        CLRL    -(SP)                                ;
```

```
                                  03  11 000FA          BRB     12$                                  ;
                            04    A3  DD 000FC 11$:     PUSHL   4(R3)                                ;
                            2C    AC  DD 000FF 12$:     PUSHL   P5                                   ;
                                  55  DD 00102          PUSHL   HEADER                               ;
                0000V  CF         03  FB 00104          CALLS   #3, READ_ATTRIBUTES                  ;
                       54         50  D0 00109          MOVL    R0, STATUS                           ;
                       24         54  E8 0010C          BLBS    STATUS, 15$                          ; 6634
          1B       0C  AC         06  E1 0010F          BBC     #6, FUNC, 14$                        ; 6637
             00000000G 00         00  FB 00114 13$:     CALLS   #0, ACL_DELETEACL                    ; 6640
                       50         67  D0 0011B          MOVL    CURRENT_MTL, R0                      ; 6641
                            10    A0  7C 0011E          CLRQ    16(R0)                               ;
                            08    A0  DD 00121          PUSHL   8(R0)                                ; 6642
                DDD5   CF         01  FB 00124          CALLS   #1, DELETE_WINDOW                    ;
                       50         67  D0 00129          MOVL    CURRENT_MTL, R0                      ; 6643
                            08    A0  D4 0012C          CLRL    8(R0)                                ;
                       50         54  D0 0012F 14$:     MOVL    STATUS, R0                           ; 6645
                                      04 00132          RET                                          ;
                       50         01  D0 00133 15$:     MOVL    #1, R0                               ; 6653
                                      04 00136          RET                                          ;

; Routine Size:  311 bytes,    Routine Base:  CODE + 2AEE
```

```
; 5139          %SBTTL 'CREATE_CLEANUP - clean up after create failure'
; 5140          ROUTINE CREATE_CLEANUP (CREATE_STATUS)=
; 5141
; 5142          !++
; 5143          !
; 5144          ! FUNCTIONAL DESCRIPTION:
; 5145          !       This routine processes the extent list produced during an IO$_CREATE
; 5146          !       and frees the disk extents if the create failed.  In any case, the
; 5147          !       extent list, the create list, and the window are freed.
; 5148          !
; 5149          ! INPUT PARAMETERS:
; 5150          !       CREATE_STATUS   - Create status.
; 5151          !
; 5152          ! IMPLICIT INPUTS:
; 5153          !       NONE
; 5154          !
; 5155          ! OUTPUT PARAMETERS:
; 5156          !       NONE
; 5157          !
; 5158          ! IMPLICIT OUTPUTS:
; 5159          !       NONE
; 5160          !
; 5161          ! ROUTINE VALUE:
; 5162          !       The create status.
; 5163          !
; 5164          ! SIDE EFFECTS:
; 5165          !       NONE
; 5166          !
; 5167          !--
; 5168
; 5169          BEGIN
; 5170          LOCAL
; 5171                  P:              REF BBLOCK;     ! Pointer to list entry
; 5172
; 5173
; 5174          ! Free the extent list.
; 5175          !
; 5176          UNTIL REMQUE(.QUEUE_HEADERS[0], P) DO
; 5177              BEGIN
; 5178
; 5179              ! If the create failed, release the allocated disk blocks.
; 5180              !
; 5181              IF NOT .CREATE_STATUS AND .P[EXT_COUNT] NEQ 0
; 5182              THEN
; 5183                  BEGIN
; 5184                  CURRENT_VCB = .P[EXT_VCB];
; 5185                  FREE_BLOCKS(.P[EXT_COUNT], .P[EXT_LBN]);
; 5186                  END;
; 5187
; 5188
; 5189              ! Deallocate the extent list entry.
; 5190              !
; 5191              FREE_VM(EXT_S_ENTRY, .P);
; 5192              END;
; 5193
; 5194
; 5195          ! Free the create list if any errors occurred.
```

```
; 5196          6711  2 !
; 5197          6712  2 IF NOT .CREATE_STATUS
; 5198          6713  2 THEN
; 5199          6714  2     UNTIL REMQUE(.QUEUE_HEADERS[2], P) DO
; 5200          6715  3         BEGIN
; 5201          6716  3         LOCAL
; 5202          6717  3             Q:          REF BBLOCK;     ! Pointer to FID block
; 5203          6718  3
; 5204          6719  3
; 5205          6720  3         ! Free the FID blocks.
; 5206          6721  3         !
; 5207          6722  3         UNTIL REMQUE(.P[CRT_FID_FQHDR], Q) DO FREE_VM(CRT_S_FID, .Q);
; 5208          6723  3
; 5209          6724  3
; 5210          6725  3         ! Deallocate the create list entry.
; 5211          6726  3         !
; 5212          6727  3         FREE_VM(CRT_S_BLOCKS, .P);
; 5213          6728  2         END;
; 5214          6729  2
; 5215          6730  2
; 5216          6731  2 ! Free the used file ID list.
; 5217          6732  2 !
; 5218          6733  2 UNTIL REMQUE(.QUEUE_HEADERS[4], P) DO
; 5219          6734  3     BEGIN
; 5220          6735  3     LOCAL
; 5221          6736  3         HEADER:         BBLOCK[512];    ! File header buffer
; 5222          6737  3
; 5223          6738  3
; 5224          6739  3     ! If the create failed, write a deleted file header.
; 5225          6740  3     !
; 5226          6741  3     IF NOT .CREATE_STATUS
; 5227          6742  3     THEN
; 5228          6743  4         BEGIN
; 5229          6744  4         CREATE_DELHDR(P[CRT_FID], HEADER);
; 5230          6745  4         WRITE_HEADER(P[CRT_FID], HEADER);
; 5231          6746  3         END;
; 5232          6747  3
; 5233          6748  3
; 5234          6749  3     ! Deallocate the create list entry.
; 5235          6750  3     !
; 5236          6751  3     FREE_VM(CRT_S_FID, .P);
; 5237          6752  2     END;
; 5238          6753  2
; 5239          6754  2
; 5240          6755  2 ! Release the window if one exists.
; 5241          6756  2 !
; 5242          6757  2 IF NOT .CREATE_STATUS AND .CURRENT_MTL[MTL_WINDOW] NEQ 0
; 5243          6758  2 THEN
; 5244          6759  3     BEGIN
; 5245          6760  3     DELETE_WINDOW(.CURRENT_MTL[MTL_WINDOW]);
; 5246          6761  3     CURRENT_MTL[MTL_WINDOW] = 0;
; 5247          6762  2     END;
; 5248          6763  2
; 5249          6764  2
; 5250          6765  2 ! Return the original status.
; 5251          6766  2 !
; 5252          6767  2 .CREATE_STATUS
```

```
; 5253          6768  1 END;


                                  007C 00000 CREATE_CLEANUP:
                                                        .WORD   Save R2,R3,R4,R5,R6                    ; 6655
                 56 00000000'  EF  9E 00002             MOVAB   QUEUE_HEADERS, R6                      ;
                 55 00000000G  00  9E 00009             MOVAB   FREE_VM, R5                            ;
                 54 00000000'  EF  9E 00010             MOVAB   CURRENT_MTL, R4                        ;
                 5E      FE00  CE  9E 00017             MOVAB   -512(SP), SP                           ;
                 52        00  B6  0F 0001C 1$:         REMQUE  @QUEUE_HEADERS, P                      ; 6691
                                20  1D 00020             BVS     3$                                     ;
                 13        04  AC  E8 00022             BLBS    CREATE_STATUS, 2$                      ; 6696
                           0C  A2  D5 00026             TSTL    12(P)                                  ;
                                0E  13 00029             BEQL    2$                                     ;
          04     A4        08  A2  D0 0002B             MOVL    8(P), CURRENT_VCB                      ; 6699
                 7E        0C  A2  7D 00030             MOVQ    12(P), -(SP)                           ; 6700
        D98B     CF            02  FB 00034             CALLS   #2, FREE_BLOCKS                        ;
                                52  DD 00039 2$:         PUSHL   P                                      ; 6706
                                14  DD 0003B             PUSHL   #20                                    ;
                 65            02  FB 0003D             CALLS   #2, FREE_VM                            ;
                                DA  11 00040             BRB     1$                                     ; 6691
                 1E        04  AC  E8 00042 3$:         BLBS    CREATE_STATUS, 7$                      ; 6712
                 52        08  B6  0F 00046 4$:         REMQUE  @QUEUE_HEADERS+8, P                    ; 6714
                                18  1D 0004A             BVS     7$                                     ;
                 53        08  B2  0F 0004C 5$:         REMQUE  @8(P), Q                               ; 6722
                                09  1D 00050             BVS     6$                                     ;
                                53  DD 00052             PUSHL   Q                                      ;
                                0E  DD 00054             PUSHL   #14                                    ;
                 65            02  FB 00056             CALLS   #2, FREE_VM                            ;
                                F1  11 00059             BRB     5$                                     ;
                                52  DD 0005B 6$:         PUSHL   P                                      ; 6727
                                14  DD 0005D             PUSHL   #20                                    ;
                 65            02  FB 0005F             CALLS   #2, FREE_VM                            ;
                                E2  11 00062             BRB     4$                                     ; 6714
                 52        10  B6  0F 00064 7$:         REMQUE  @QUEUE_HEADERS+16, P                   ; 6733
                                21  1D 00068             BVS     9$                                     ;
                 14        04  AC  E8 0006A             BLBS    CREATE_STATUS, 8$                      ; 6741
                                5E  DD 0006E             PUSHL   SP                                     ; 6744
                           08  A2  9F 00070             PUSHAB  8(P)                                   ;
        D795     CF            02  FB 00073             CALLS   #2, CREATE_DELHDR                      ;
                                5E  DD 00078             PUSHL   SP                                     ; 6745
                           08  A2  9F 0007A             PUSHAB  8(P)                                   ;
        D699     CF            02  FB 0007D             CALLS   #2, WRITE_HEADER                       ;
                                52  DD 00082 8$:         PUSHL   P                                      ; 6751
                                0E  DD 00084             PUSHL   #14                                    ;
                 65            02  FB 00086             CALLS   #2, FREE_VM                            ;
                                D9  11 00089             BRB     7$                                     ; 6733
                 19        04  AC  E8 0008B 9$:         BLBS    CREATE_STATUS, 10$                     ; 6757
                 50            64  D0 0008F             MOVL    CURRENT_MTL, R0                        ;
                           08  A0  D5 00092             TSTL    8(R0)                                  ;
                                11  13 00095             BEQL    10$                                    ;
                 50            64  D0 00097             MOVL    CURRENT_MTL, R0                        ; 6760
                           08  A0  DD 0009A             PUSHL   8(R0)                                  ;
        DD25     CF            01  FB 0009D             CALLS   #1, DELETE_WINDOW                      ;
```

```
                50          64  D0 000A2          MOVL    CURRENT_MTL, R0                    ; 6761
                        08  A0  D4 000A5          CLRL    8(R0)                              ;
                50      04  AC  D0 000A8 10$:     MOVL    CREATE_STATUS, R0                  ; 6768
                                04 000AC          RET                                        ;

; Routine Size:  173 bytes,    Routine Base:  CODE + 2C25
```

```
; 5255   6769  1 %SBTTL 'CREATE_EXTHDR - create extension header'
; 5256   6770  1 ROUTINE CREATE_EXTHDR (OLD_HDR,OLD_FILE_ID,NEW_HDR,NEW_FILE_ID)=
; 5257   6771  1
; 5258   6772  1 !++
; 5259   6773  1 !
; 5260   6774  1 ! FUNCTIONAL DESCRIPTION:
; 5261   6775  1 !       This routine creates an extension header.
; 5262   6776  1 !
; 5263   6777  1 ! INPUT PARAMETERS:
; 5264   6778  1 !       OLD_HDR         - Pointer to current file header.
; 5265   6779  1 !       OLD_FILE_ID     - File ID of current file header.
; 5266   6780  1 !       NEW_HDR         - Pointer to buffer where extension header is built.
; 5267   6781  1 !       NEW_FILE_ID     - File ID of extension file header.
; 5268   6782  1 !
; 5269   6783  1 ! IMPLICIT INPUTS:
; 5270   6784  1 !       CURRENT_MTL     - Pointer to MTL for current volume set.
; 5271   6785  1 !
; 5272   6786  1 ! OUTPUT PARAMETERS:
; 5273   6787  1 !       NONE
; 5274   6788  1 !
; 5275   6789  1 ! IMPLICIT OUTPUTS:
; 5276   6790  1 !       NONE
; 5277   6791  1 !
; 5278   6792  1 ! ROUTINE VALUE:
; 5279   6793  1 !       Completion status.
; 5280   6794  1 !
; 5281   6795  1 ! SIDE EFFECTS:
; 5282   6796  1 !       NONE
; 5283   6797  1 !
; 5284   6798  1 !--
; 5285   6799  1
; 5286   6800  2 BEGIN
; 5287   6801  2 MAP
; 5288   6802  2         OLD_HDR:        REF BBLOCK,     ! Pointer to file header
; 5289   6803  2         OLD_FILE_ID:    REF BBLOCK,     ! Pointer to file ID
; 5290   6804  2         NEW_HDR:        REF BBLOCK,     ! Pointer to file header
; 5291   6805  2         NEW_FILE_ID:    REF BBLOCK;     ! Pointer to file ID
; 5292   6806  2
; 5293   6807  2
; 5294   6808  2 IF .OLD_HDR[FH2$B_STRUCLEV] EQL 2
; 5295   6809  2 THEN
; 5296   6810  3     BEGIN
; 5297   6811  3
; 5298   6812  3     ! Make sure the segment number will not overflow.
; 5299   6813  3     !
; 5300   6814  3     IF .OLD_HDR[FH2$W_SEG_NUM] GEQU 65535
; 5301   6815  3     THEN
; 5302   6816  3         RETURN SS$_HEADERFULL;
; 5303   6817  3
; 5304   6818  3
; 5305   6819  3     ! Put the extension linkage in the previous header.
; 5306   6820  3     !
; 5307   6821  3     OLD_HDR[FH2$W_EX_FIDNUM] = .NEW_FILE_ID[FID$W_NUM];
; 5308   6822  3     OLD_HDR[FH2$W_EX_FIDSEQ] = .NEW_FILE_ID[FID$W_SEQ];
; 5309   6823  3     OLD_HDR[FH2$W_EX_FIDRVN] = .NEW_FILE_ID[FID$W_RVN];
; 5310   6824  3     IF .OLD_FILE_ID[FID$B_RVN] EQL .NEW_FILE_ID[FID$B_RVN]
; 5311   6825  3         THEN OLD_HDR[FH2$B_EX_FIDRVN] = 0;
```

```
; 5312          6826  3     END
; 5313          6827  2 ELSE
; 5314          6828  3     BEGIN
; 5315          6829  3     LOCAL
; 5316          6830  3         MAP_AREA:       REF BBLOCK;     ! Pointer to map area
; 5317          6831  3
; 5318          6832  3
; 5319          6833  3     MAP_AREA = .OLD_HDR + .OLD_HDR[FH1$B_MPOFFSET]*2;
; 5320          6834  3
; 5321          6835  3
; 5322          6836  3     ! Make sure the segment number will not overflow.
; 5323          6837  3     !
; 5324          6838  3     IF .MAP_AREA[FM1$B_EX_SEGNUM] GEQU 255
; 5325          6839  3     THEN
; 5326          6840  3         RETURN SS$_HEADERFULL;
; 5327          6841  3
; 5328          6842  3
; 5329          6843  3     ! Put the extension linkage in the previous header.
; 5330          6844  3     !
; 5331          6845  3     MAP_AREA[FM1$W_EX_FILNUM] = .NEW_FILE_ID[FID$W_NUM];
; 5332          6846  3     MAP_AREA[FM1$W_EX_FILSEQ] = .NEW_FILE_ID[FID$W_SEQ];
; 5333          6847  2     END;
; 5334          6848  2
; 5335          6849  2
; 5336          6850  2 ! If the old header and the new header occupy the same buffer, the old header
; 5337          6851  2 ! is an extension header.  Otherwise, it is the primary header.  Write the old
; 5338          6852  2 ! header if necessary.
; 5339          6853  2 !
; 5340          6854  2 IF .OLD_HDR EQL .NEW_HDR
; 5341          6855  2 THEN
; 5342          6856  3     BEGIN
; 5343          6857  3     LOCAL
; 5344          6858  3         STATUS;                         ! Status variable
; 5345          6859  3
; 5346          6860  3     IF
; 5347          6861  3         NOT .QUAL[QUAL_VOLU] OR
; 5348          6862  3         .QUAL[QUAL_VOLU_VALUE] EQL .OLD_FILE_ID[FID$B_RVN]
; 5349          6863  3     THEN
; 5350          6864  4         BEGIN
; 5351          6865  4         STATUS = WRITE_HEADER(.OLD_FILE_ID, .OLD_HDR);
; 5352          6866  4         IF NOT .STATUS THEN RETURN .STATUS;
; 5353          6867  3         END;
; 5354          6868  3     END
; 5355          6869  2 ELSE
; 5356          6870  2     CH$MOVE(512, .OLD_HDR, .NEW_HDR);
; 5357          6871  2
; 5358          6872  2
; 5359          6873  2 IF .NEW_HDR[FH2$B_STRUCLEV] EQL 2
; 5360          6874  2 THEN
; 5361          6875  3     BEGIN
; 5362          6876  3
; 5363          6877  3     ! Place the file ID in the new header.
; 5364          6878  3     !
; 5365          6879  3     NEW_HDR[FH2$W_FID_NUM] = .NEW_FILE_ID[FID$W_NUM];
; 5366          6880  3     NEW_HDR[FH2$W_FID_SEQ] = .NEW_FILE_ID[FID$W_SEQ];
; 5367          6881  3     NEW_HDR[FH2$B_FID_RVN] = 0;
; 5368          6882  3     NEW_HDR[FH2$B_FID_NMX] = .NEW_FILE_ID[FID$B_NMX];
```

```
3
3
3       ! Set the extension header back link to point to the primary header.
3       !
3       NEW_HDR[FH2$W_BK_FIDNUM] = .CURRENT_MTL[MTL_FID_NUM];
3       NEW_HDR[FH2$W_BK_FIDSEQ] = .CURRENT_MTL[MTL_FID_SEQ];
3       NEW_HDR[FH2$W_BK_FIDRVN] = .CURRENT_MTL[MTL_FID_RVNW];
3       IF .NEW_HDR[FH2$B_BK_FIDRVN] EQL .NEW_FILE_ID[FID$B_RVN]
3           THEN NEW_HDR[FH2$B_BK_FIDRVN] = 0;
3
3
3       ! Finish initializing the new header.
3       !
3       NEW_HDR[FH2$W_SEG_NUM] = .NEW_HDR[FH2$W_SEG_NUM] + 1;
3       NEW_HDR[FH2$W_EX_FIDNUM] = 0;
3       NEW_HDR[FH2$W_EX_FIDSEQ] = 0;
3       NEW_HDR[FH2$W_EX_FIDRVN] = 0;
3       NEW_HDR[FH2$B_MAP_INUSE] = 0;
3       NEW_HDR[FH2$V_CONTIG] = FALSE;
3       NEW_HDR[FH2$V_LOCKED] = FALSE;
3       BBLOCK[NEW_HDR[FH2$W_RECATTR], FAT$L_HIBLK] = 0;
3       BBLOCK[NEW_HDR[FH2$W_RECATTR], FAT$L_EFBLK] = 0;
3       BBLOCK[NEW_HDR[FH2$W_RECATTR], FAT$W_FFBYTE] = 0;
3
3
3       ! Truncate the ident area to provide more space for the map area.
3       ! Clear the map area.
3       !
3       NEW_HDR[FH2$B_MPOFFSET] = .NEW_HDR[FH2$B_IDOFFSET] + $BYTEOFFSET(FI2$W_REVISION) / 2;
3       NEW_HDR[FH2$B_ACOFFSET] = $BYTEOFFSET(FH2$W_CHECKSUM) / 2;
3       NEW_HDR[FH2$B_RSOFFSET] = $BYTEOFFSET(FH2$W_CHECKSUM) / 2;
3       CH$FILL(0, 512 - .NEW_HDR[FH2$B_MPOFFSET]*2, .NEW_HDR + .NEW_HDR[FH2$B_MPOFFSET]*2);
3       END
2   ELSE
3       BEGIN
3       LOCAL
3           MAP_AREA:       REF BBLOCK;     ! Pointer to map area
3
3
3       MAP_AREA = .NEW_HDR + .NEW_HDR[FH1$B_MPOFFSET] * 2;
3
3
3       ! Place the file ID in the new header.
3       !
3       NEW_HDR[FH1$W_FID_NUM] = .NEW_FILE_ID[FID$W_NUM];
3       NEW_HDR[FH1$W_FID_SEQ] = .NEW_FILE_ID[FID$W_SEQ];
3
3
3       ! Finish initializing the new header.
3       !
3       BBLOCK[NEW_HDR[FH1$W_RECATTR], FAT$L_HIBLK] = 0;
3       BBLOCK[NEW_HDR[FH1$W_RECATTR], FAT$L_EFBLK] = 0;
3       BBLOCK[NEW_HDR[FH1$W_RECATTR], FAT$W_FFBYTE] = 0;
3       MAP_AREA[FM1$B_EX_SEGNUM] = .MAP_AREA[FM1$B_EX_SEGNUM] + 1;
3       MAP_AREA[FM1$W_EX_FILNUM] = 0;
3       MAP_AREA[FM1$W_EX_FILSEQ] = 0;
3       MAP_AREA[FM1$B_INUSE] = 0;
```

```
; 5426      6940  3     CH$FILL(0, .MAP_AREA[FM1$B_AVAIL] * 2, .MAP_AREA + FM1$C_POINTERS);
; 5427      6941  2     END;
; 5428      6942  2
; 5429      6943  2
; 5430      6944  2 ! Indicate success.
; 5431      6945  2 !
; 5432      6946  2 SS$_NORMAL
; 5433      6947  1 END;


                                  07FC 00000 CREATE_EXTHDR:
                                                        .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10          ; 6770
                5A 00000000'  EF  9E 00002              MOVAB   QUAL+12, R10                              ;
                57        10  AC  D0 00009              MOVL    NEW_FILE_ID, R7                           ; 6821
                50        04  AC  D0 0000D              MOVL    OLD_HDR, R0                               ; 6808
                02        07  A0  91 00011              CMPB    7(R0), #2                                 ;
                              2C  12 00015              BNEQ    1$                                        ;
          FFFF  8F        04  A0  B1 00017              CMPW    4(R0), #65535                             ; 6814
                              32  1E 0001D              BGEQU   2$                                        ;
                59            67  3C 0001F              MOVZWL  (R7), R9                                  ; 6821
            0E  A0            59  B0 00022              MOVW    R9, 14(R0)                                ;
                58        02  A7  3C 00026              MOVZWL  2(R7), R8                                 ; 6822
            10  A0            58  B0 0002A              MOVW    R8, 16(R0)                                ;
            12  A0        04  A7  B0 0002E              MOVW    4(R7), 18(R0)                             ; 6823
                51        08  AC  D0 00033              MOVL    OLD_FILE_ID, R1                           ; 6824
            04  A7        04  A1  91 00037              CMPB    4(R1), 4(R7)                              ;
                              28  12 0003C              BNEQ    4$                                        ;
                          12  A0  94 0003E              CLRB    18(R0)                                    ; 6825
                              23  11 00041              BRB     4$                                        ; 6808
                51        01  A0  9A 00043 1$:          MOVZBL  1(R0), R1                                 ; 6833
                51          6041  3E 00047              MOVAW   (R0)[R1], MAP_AREA                        ;
            FF  8F            61  91 0004B              CMPB    (MAP_AREA), #255                          ; 6838
                              06  1F 0004F              BLSSU   3$                                        ;
                50      08C8  8F  3C 00051 2$:          MOVZWL  #2248, R0                                 ; 6840
                                  04 00056              RET                                               ;
                59            67  3C 00057 3$:          MOVZWL  (R7), R9                                  ; 6845
            02  A1            59  B0 0005A              MOVW    R9, 2(MAP_AREA)                           ;
                58        02  A7  3C 0005E              MOVZWL  2(R7), R8                                 ; 6846
            04  A1            58  B0 00062              MOVW    R8, 4(MAP_AREA)                           ;
                56        0C  AC  D0 00066 4$:          MOVL    NEW_HDR, R6                               ; 6854
                56            50  D1 0006A              CMPL    R0, R6                                    ;
                              1D  12 0006D              BNEQ    6$                                        ;
                0B        02  AA  E9 0006F              BLBC    QUAL+14, 5$                               ; 6861
                51        08  AC  D0 00073              MOVL    OLD_FILE_ID, R1                           ; 6862
            04  A1        43  AA  91 00077              CMPB    QUAL+79, 4(R1)                            ;
                              14  12 0007C              BNEQ    7$                                        ;
                              50  DD 0007E 5$:          PUSHL   R0                                        ; 6865
                          08  AC  DD 00080              PUSHL   OLD_FILE_ID                               ;
          D5E6  CF            02  FB 00083              CALLS   #2, WRITE_HEADER                          ;
                07            50  E8 00088              BLBS    STATUS, 7$                                ; 6866
                                  04 0008B              RET                                               ;
      66        60      0200  8F  28 0008C 6$:          MOVC3   #512, (R0), (R6)                          ; 6870
                51        0E  A6  9E 00092 7$:          MOVAB   14(R6), R1                                ; 6897
                02        07  A6  91 00096              CMPB    7(R6), #2                                 ; 6873
```

```
                                    65  12 0009A          BNEQ    9$                                  ;
                08   A6             59  B0 0009C          MOVW    R9, 8(R6)                           ; 6879
                0A   A6             58  B0 000A0          MOVW    R8, 10(R6)                          ; 6880
                            0C      A6  94 000A4          CLRB    12(R6)                              ; 6881
                0D   A6     05      A7  90 000A7          MOVB    5(R7), 13(R6)                       ; 6882
                     50     066C    CA  D0 000AC          MOVL    CURRENT_MTL, R0                     ; 6887
                42   A6     18      A0  D0 000B1          MOVL    24(R0), 66(R6)                      ;
                46   A6     1C      A0  B0 000B6          MOVW    28(R0), 70(R6)                      ; 6889
                04   A7     46      A6  91 000BB          CMPB    70(R6), 4(R7)                       ; 6890
                                    03  12 000C0          BNEQ    8$                                  ;
                            46      A6  94 000C2          CLRB    70(R6)                              ; 6891
                            04      A6  B6 000C5 8$:      INCW    4(R6)                               ; 6896
                                    61  B4 000C8          CLRW    (R1)                                ; 6897
                            10      A6  D4 000CA          CLRL    16(R6)                              ; 6898
                            3A      A6  94 000CD          CLRB    58(R6)                              ; 6900
                34   A6     C0      8F  8A 000D0          BICB2   #192, 52(R6)                        ; 6902
                            18      A6  7C 000D5          CLRQ    24(R6)                              ; 6903
                            20      A6  B4 000D8          CLRW    32(R6)                              ; 6905
           01   A6          66          0A 81 000DB       ADDB3   #10, (R6), 1(R6)                    ; 6911
                02   A6     FFFF    8F  B0 000E0          MOVW    #65535, 2(R6)                       ; 6912
                     50     01      A6  9A 000E6          MOVZBL  1(R6), R0                           ; 6914
                     51             50  CE 000EA          MNEGL   R0, R1                              ;
                     51             02  C4 000ED          MULL2   #2, R1                              ;
                     51     0200    C1  9E 000F0          MOVAB   512(R1), R1                         ;
                     57             6640 3E 000F5         MOVAW   (R6)[R0], R7                        ;
     51         00  6E             00  2C 000F9          MOVC5   #0, (SP), #0, R1, (R7)              ;
                                    67     000FE                                                      ;
                                    2C  11 000FF          BRB     10$                                 ; 6873
                     50     01      A6  9A 00101 9$:      MOVZBL  1(R6), R0                           ; 6922
                     50             6640 3E 00105         MOVAW   (R6)[R0], MAP_AREA                  ;
                02   A6             59  B0 00109          MOVW    R9, 2(R0)                           ; 6927
                04   A6             58  B0 0010D          MOVW    R8, 4(R0)                           ; 6928
                            04      A1  7C 00111          CLRQ    4(R1)                               ; 6933
                            0C      A1  B4 00114          CLRW    12(R1)                              ; 6935
                                    60  96 00117          INCB    (MAP_AREA)                          ; 6936
                            02      A0  D4 00119          CLRL    2(MAP_AREA)                         ; 6937
                            08      A0  94 0011C          CLRB    8(MAP_AREA)                         ; 6939
                     51     09      A0  9A 0011F          MOVZBL  9(MAP_AREA), R1                     ; 6940
                     51             02  C4 00123          MULL2   #2, R1                              ;
     51         00  6E             00  2C 00126          MOVC5   #0, (SP), #0, R1, 10(MAP_AREA)      ;
                            0A      A0     0012B                                                      ;
                     50             01  D0 0012D 10$:     MOVL    #1, R0                              ; 6947
                                        04 00130          RET                                         ;

; Routine Size:  305 bytes,    Routine Base:  CODE + 2CD2
```

```
%SBTTL 'STA_CREATE - create QIO service routine'
ROUTINE STA_CREATE (EFN,CHAN,FUNC,IOSB,ASTADR,ASTPRM,P1,P2,P3,P4,P5,P6)=

!++
!
! FUNCTIONAL DESCRIPTION:
!       This routine executes IO$_CREATE in the standalone environment.
!
! INPUT PARAMETERS:
!       As for $QIO(W) system service.  However, a nonzero P6 points to
!       OUTPUT_ATTBUF, which indicates that the IO$_CREATE refers to a file
!       on an image output volume.
!
! IMPLICIT INPUTS:
!       CURRENT_MTL     - Pointer to MTL for selected volume set.
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       Completion status.
!
! SIDE EFFECTS:
!       NONE
!
!--

BEGIN
MAP
        FUNC:           BBLOCK,         ! I/O function code
        P1:             REF BBLOCK,     ! Descriptor for FIB
        P2:             REF BBLOCK,     ! Descriptor for filename
        P6:             REF BBLOCK;     ! Pointer to OUTPUT_ATTBUF
LOCAL
        FIB:            REF BBLOCK,     ! Pointer to FIB
        HEADER:         REF BBLOCK,     ! Pointer to primary header
        EXT_HDR:        BBLOCK[512],    ! Buffer for extension header
        CUR_HDR:        REF BBLOCK,     ! Pointer to current header
        CUR_FID:        REF BBLOCK,     ! Pointer to current file ID
        CHANNEL,                        ! Channel assigned to RVN
        CRT:            REF BBLOCK,     ! Pointer to CRT entry
        STATUS,                         ! Status return
        TCOUNT,                         ! Total allocated block count
        HCOUNT;                         ! Count of file headers

! Initialize and check parameters.
!
IF .CURRENT_MTL[MTL_WINDOW] NEQ 0 THEN RETURN SS$_FILALRACC;
QUEUE_HEADERS[0] = QUEUE_HEADERS[1] = QUEUE_HEADERS[0];
QUEUE_HEADERS[2] = QUEUE_HEADERS[3] = QUEUE_HEADERS[2];
QUEUE_HEADERS[4] = QUEUE_HEADERS[5] = QUEUE_HEADERS[4];
```

```
; 5492   7005  2 ! Get file ID.
; 5493   7006  2 !
; 5494   7007  2 FIB = .P1[DSC$A_POINTER];
; 5495   7008  2 CURRENT_MTL[MTL_FID_NUM] = .FIB[FIB$W_FID_NUM];
; 5496   7009  2 CURRENT_MTL[MTL_FID_SEQ] = .FIB[FIB$W_FID_SEQ];
; 5497   7010  2 CURRENT_MTL[MTL_FID_RVNW] = .FIB[FIB$Q_FID_RVN];
; 5498   7011  2 IF .FIB[FIB$L_EXVBN] EQL 0 THEN FIB[FIB$L_EXVBN] = 1;
; 5499   7012  2 CURRENT_MTL[MTL_ACLFL] = CURRENT_MTL[MTL_ACLFL];
; 5500   7013  2 CURRENT_MTL[MTL_ACLBL] = CURRENT_MTL[MTL_ACLFL];
; 5501   7014  2 CURRENT_MTL[MTL_NEW_ACL] = 0;
; 5502   7015  2
; 5503   7016  2 IF .FIB[FIB$W_FID_NUM] EQL 0
; 5504   7017  2 AND .FIB[FIB$Q_FID_RVN] EQL 0
; 5505   7018  2 THEN SIGNAL (BACKUP$_INVFID, 0);
; 5506   7019  2
; 5507   7020  2 ! Create header.
; 5508   7021  2 !
; 5509   7022  2 HEADER = .CURRENT_MTL[MTL_HEADER];
; 5510   7023  2 CH$FILL(0, 512, .HEADER);
; 5511   7024  2 IF .CURRENT_MTL[MTL_STRUCLEV] EQL 1
; 5512   7025  2 THEN
; 5513   7026  3     BEGIN
; 5514   7027  3     LOCAL
; 5515   7028  3         NAMEBLOCK:      BBLOCK[NMB$C_LENGTH];
; 5516   7029  3
; 5517   7030  3     HEADER[FH1$B_IDOFFSET] = FH1$C_LENGTH/2;
; 5518   7031  3     HEADER[FH1$B_MPOFFSET] = (FH1$C_LENGTH+FI1$C_LENGTH)/2;
; 5519   7032  3     HEADER[FH1$W_FID_NUM] = .FIB[FIB$W_FID_NUM];
; 5520   7033  3     HEADER[FH1$W_FID_SEQ] = .FIB[FIB$W_FID_SEQ];
; 5521   7034  3     HEADER[FH1$W_STRUCLEV] = FH1$C_LEVEL1;
; 5522   7035  3     IF .FIB[FIB$V_ALCON] THEN HEADER[FH1$V_CONTIG] = TRUE;
; 5523   7036  3     MAKE_NAMEBLOCK(.P2[DSC$W_LENGTH], .P2[DSC$A_POINTER], NAMEBLOCK);
; 5524   7037  3     CH$MOVE(
; 5525   7038  3         10,
; 5526   7039  3         NAMEBLOCK[NMB$W_NAME],
; 5527   7040  3         BBLOCK[.HEADER + FH1$C_LENGTH, FI1$W_FILENAME]);
; 5528   7041  3     BBLOCK[.HEADER + FH1$C_LENGTH + FI1$C_LENGTH, FM1$B_COUNTSIZE] = 1;
; 5529   7042  3     BBLOCK[.HEADER + FH1$C_LENGTH + FI1$C_LENGTH, FM1$B_LBNSIZE] = 3;
; 5530   7043  3     BBLOCK[.HEADER + FH1$C_LENGTH + FI1$C_LENGTH, FM1$B_AVAIL] =
; 5531   7044  3         (512-2-FH1$C_LENGTH-FI1$C_LENGTH-FM1$C_LENGTH)/2;
; 5532   7045  3     END
; 5533   7046  2 ELSE
; 5534   7047  3     BEGIN
; 5535   7048  3     HEADER[FH2$B_IDOFFSET] = FH2$C_LENGTH/2;
; 5536   7049  3     HEADER[FH2$B_MPOFFSET] = (FH2$C_LENGTH+FI2$C_LENGTH)/2;
; 5537   7050  3     HEADER[FH2$B_ACOFFSET] = $BYTEOFFSET(FH2$W_CHECKSUM)/2;
; 5538   7051  3     HEADER[FH2$B_RSOFFSET] = $BYTEOFFSET(FH2$W_CHECKSUM)/2;
; 5539   7052  3     HEADER[FH2$B_STRUCVER] = 1;
; 5540   7053  3     HEADER[FH2$B_STRUCLEV] = 2;
; 5541   7054  3     HEADER[FH2$W_FID_NUM] = .FIB[FIB$W_FID_NUM];
; 5542   7055  3     HEADER[FH2$B_FID_NMX] = .FIB[FIB$B_FID_NMX];
; 5543   7056  3     HEADER[FH2$W_FID_SEQ] = .FIB[FIB$W_FID_SEQ];
; 5544   7057  3     HEADER[FH2$W_BK_FIDNUM] = .FIB[FIB$W_DID_NUM];
; 5545   7058  3     HEADER[FH2$W_BK_FIDSEQ] = .FIB[FIB$W_DID_SEQ];
; 5546   7059  3     HEADER[FH2$W_BK_FIDRVN] = .FIB[FIB$W_DID_RVN];
; 5547   7060  3     IF .FIB[FIB$V_ALCON] THEN HEADER[FH2$V_CONTIG] = TRUE;
; 5548   7061  3     HEADER[FH2$L_HIGHWATER] = 1;
```

```
; 5549          7062  3     IF .P6 NEQ 0
; 5550          7063  3     THEN HEADER[FH2$L_HIGHWATER] = .P6[FAR_HIGHWATER];
; 5551          7064  3     CH$COPY(
; 5552          7065  3         .P2[DSC$W_LENGTH],
; 5553          7066  3         .P2[DSC$A_POINTER],
; 5554          7067  3         %C' ',
; 5555          7068  3         FI2$S_FILENAME,
; 5556          7069  3         BBLOCK[.HEADER + FH2$C_LENGTH, FI2$T_FILENAME]);
; 5557          7070  3     CH$COPY(
; 5558          7071  3         MAX (.P2[DSC$W_LENGTH]-FI2$S_FILENAME, 0),
; 5559          7072  3         .P2[DSC$A_POINTER]+FI2$S_FILENAME,
; 5560          7073  3         %C' ',
; 5561          7074  3         FI2$S_FILENAMEXT,
; 5562          7075  3         BBLOCK[.HEADER + FH2$C_LENGTH, FI2$T_FILENAMEXT]);
; 5563          7076  2     END;
; 5564          7077  2
; 5565          7078  2
; 5566          7079  2 ! Write attributes.
; 5567          7080  2 !
; 5568          7081  2 STATUS = WRITE_ATTRIBUTES(.HEADER, .P5, .FIB);
; 5569          7082  2 IF NOT .STATUS THEN RETURN .STATUS;
; 5570          7083  2
; 5571          7084  2
; 5572          7085  2 ! Create window.
; 5573          7086  2 !
; 5574          7087  2 STATUS = CREATE_WINDOW(
; 5575          7088  2     .HEADER, 0, CURRENT_MTL[MTL_WINDOW],
; 5576          7089  2     .FIB[FIB$L_EXVBN], MAXU(10, .FIB[FIB$B_WSIZE]));
; 5577          7090  2 IF NOT .STATUS THEN RETURN .STATUS;
; 5578          7091  2 BBLOCK [.CURRENT_MTL[MTL_WINDOW], WCB_CUR_HWM] = .FIB[FIB$L_EXVBN];
; 5579          7092  2
; 5580          7093  2
; 5581          7094  2 ! Process placement data.
; 5582          7095  2 !
; 5583          7096  2 TCOUNT = 0;
; 5584          7097  2 HCOUNT = 1;
; 5585          7098  2 IF
; 5586          7099  3     BEGIN
; 5587          7100  3     IF .P6 NEQ 0
; 5588          7101  3         THEN .BBLOCK[P6[FAR_PLACEMENT], DSC$W_LENGTH] NEQ 0
; 5589          7102  3         ELSE FALSE
; 5590          7103  3     END
; 5591          7104  2 THEN
; 5592          7105  3     BEGIN
; 5593          7106  3     LOCAL
; 5594          7107  3         CRT:            REF BBLOCK,     ! Pointer to create list entry
; 5595          7108  3         FID:            REF BBLOCK,     ! Pointer to FID list entry
; 5596          7109  3         PLC:            REF BBLOCK,     ! Pointer to placement data
; 5597          7110  3         PLC_END:        REF BBLOCK;     ! Pointer beyond placement data
; 5598          7111  3
; 5599          7112  3
; 5600          7113  3     ! Placement data exists.  Allocate a CRT entry and FID entry for the file
; 5601          7114  3     ! ID in the FIB.
; 5602          7115  3     !
; 5603          7116  3     CRT = GET_VM(CRT_S_BLOCKS);
; 5604          7117  3     INSQUE(.CRT, .QUEUE_HEADERS[2]);
; 5605          7118  3     CRT[CRT_FID_FQHDR] = CRT[CRT_FID_BQHDR] = CRT[CRT_FID_FQHDR];
```

```
; 5606   7119  3      CRT[CRT_BLOCKS] = 0;
; 5607   7120  3      FID = GET_VM(CRT_S_FID);
; 5608   7121  3      INSQUE(.FID, .CRT[CRT_FID_FQHDR]);
; 5609   7122  3      FID[CRT_FID_NUM] = .FIB[FIB$W_FID_NUM];
; 5610   7123  3      FID[CRT_FID_SEQ] = .FIB[FIB$W_FID_SEQ];
; 5611   7124  3      FID[CRT_FID_RVNW] = .FIB[FIB$W_FID_RVN];
; 5612   7125  3      PLC = .BBLOCK[P6[FAR_PLACEMENT], DSC$A_POINTER];
; 5613   7126  3      PLC_END = .PLC + .BBLOCK[P6[FAR_PLACEMENT], DSC$W_LENGTH];
; 5614   7127  3      WHILE .PLC LSSA .PLC_END DO
; 5615   7128  4          BEGIN
; 5616   7129  4          LOCAL
; 5617   7130  4              TYPE;
; 5618   7131  4
; 5619   7132  4          TYPE = .(.PLC)<0,8>;
; 5620   7133  4          PLC = .PLC + 1;
; 5621   7134  4          CASE .TYPE FROM BSA$K_PLC_FID TO BSA$K_PLC_PLLBN OF
; 5622   7135  4              SET
; 5623   7136  4
; 5624   7137  4              [BSA$K_PLC_FID]:
; 5625   7138  5                  BEGIN
; 5626   7139  5                  IF
; 5627   7140  6                      BEGIN
; 5628   7141  6                      IF .QUAL[QUAL_OF11] AND .QUAL[QUAL_VOLU]
; 5629   7142  6                      THEN
; 5630   7143  6                          TRUE
; 5631   7144  6                      ELSE
; 5632   7145  7                          BEGIN
; 5633   7146  7                          CRT = .QUEUE_HEADERS[2];
; 5634   7147  7                          WHILE .CRT NEQA QUEUE_HEADERS[2] DO
; 5635   7148  8                              BEGIN
; 5636   7149  8                              IF .PLC[FID$B_RVN] EQL .BBLOCK[.CRT[CRT_FID_FQHDR], CRT_FID_RVN] THEN EXITLOOP F
; 5637   7150  8                              CRT = .CRT[CRT_FLINK];
; 5638   7151  8                              END
; 5639   7152  7                          END
; 5640   7153  6                      END
; 5641   7154  5                  THEN
; 5642   7155  6                      BEGIN
; 5643   7156  6                      CRT = GET_VM(CRT_S_BLOCKS);
; 5644   7157  6                      INSQUE(.CRT, .QUEUE_HEADERS[3]);
; 5645   7158  6                      CRT[CRT_FID_FQHDR] = CRT[CRT_FID_BQHDR] = CRT[CRT_FID_FQHDR];
; 5646   7159  6                      CRT[CRT_BLOCKS] = 0;
; 5647   7160  5                      END;
; 5648   7161  5                  FID = GET_VM(CRT_S_FID);
; 5649   7162  5                  INSQUE(.FID, .CRT[CRT_FID_BQHDR]);
; 5650   7163  5                  FID[CRT_FID_NUM] = .PLC[FID$W_NUM];
; 5651   7164  5                  FID[CRT_FID_SEQ] = .PLC[FID$W_SEQ];
; 5652   7165  5                  FID[CRT_FID_RVNW] = .PLC[FID$B_RVN];
; 5653   7166  5                  PLC = .PLC + BSA$S_PLC_FID;
; 5654   7167  4                  END;
; 5655   7168  4
; 5656   7169  4              [BSA$K_PLC_COUNT]:
; 5657   7170  5                  BEGIN
; 5658   7171  5                  CRT[CRT_BLOCKS] = .CRT[CRT_BLOCKS] + ..PLC;
; 5659   7172  5                  PLC = .PLC + BSA$S_PLC_COUNT;
; 5660   7173  4                  END;
; 5661   7174  4
; 5662   7175  4              [BSA$K_PLC_PLACE]:
```

```
; 5663          7176  5                 BEGIN
; 5664          7177  5                 CRT[CRT_BLOCKS] = .CRT[CRT_BLOCKS] + .PLC[BSA$L_PLC_COUNT];
; 5665          7178  5                 PLC = .PLC + BSA$S_PLC_PLACE;
; 5666          7179  4                 END;
; 5667          7180  4
; 5668          7181  4             [BSA$K_PLC_PLLBN]:
; 5669          7182  5                 BEGIN
; 5670          7183  5                 CRT[CRT_BLOCKS] = .CRT[CRT_BLOCKS] + .PLC[BSA$L_PLC_COUNT];
; 5671          7184  5                 PLC = .PLC + BSA$S_PLC_PLLBN;
; 5672          7185  4                 END;
; 5673          7186  4
; 5674          7187  4             [OUTRANGE]:
; 5675          7188  4                 RETURN CREATE_CLEANUP(BACKUP$_INVATTVAL);
; 5676          7189  4
; 5677          7190  4             TES;
; 5678          7191  3         END;
; 5679          7192  3     END
; 5680          7193  2 ELSE
; 5681          7194  3     BEGIN
; 5682          7195  3     LOCAL
; 5683          7196  3         CRT:            REF BBLOCK,     ! Pointer to create list entry
; 5684          7197  3         FID:            REF BBLOCK;     ! Pointer to FID list entry
; 5685          7198  3
; 5686          7199  3
; 5687          7200  3     ! No placement data exists.  Allocate a degenerate list containing just
; 5688          7201  3     ! the file ID in the FIB and BLOCKS equal to EXSZ.
; 5689          7202  3     !
; 5690          7203  3     CRT = GET_VM(CRT_S_BLOCKS);
; 5691          7204  3     INSQUE(.CRT, .QUEUE_HEADERS[2]);
; 5692          7205  3     CRT[CRT_FID_FQHDR] = CRT[CRT_FID_BQHDR] = CRT[CRT_FID_FQHDR];
; 5693          7206  3     CRT[CRT_BLOCKS] = .FIB[FIB$L_EXSZ];
; 5694          7207  3     FID = GET_VM(CRT_S_FID);
; 5695          7208  3     INSQUE(.FID, .CRT[CRT_FID_FQHDR]);
; 5696          7209  3     FID[CRT_FID_NUM] = .FIB[FIB$W_FID_NUM];
; 5697          7210  3     FID[CRT_FID_SEQ] = .FIB[FIB$W_FID_SEQ];
; 5698          7211  3     FID[CRT_FID_RVNW] = .FIB[FIB$B_FID_RVN];
; 5699          7212  2     END;
; 5700          7213  2
; 5701          7214  2
; 5702          7215  2 ! Allocate space, append map pointers and window pointers.
; 5703          7216  2 !
; 5704          7217  2 CRT = .QUEUE_HEADERS[2];
; 5705          7218  2 CUR_HDR = .HEADER;
; 5706          7219  2 CUR_FID = FIB[FIB$W_FID];
; 5707          7220  2 IF .FIB[FIB$L_EXSZ] NEQ 0
; 5708          7221  2 THEN
; 5709          7222  3     BEGIN
; 5710          7223  3     WHILE .TCOUNT LSSU .FIB[FIB$L_EXSZ] DO
; 5711          7224  4         BEGIN
; 5712          7225  4         LOCAL
; 5713          7226  4             FID:                REF BBLOCK,     ! Pointer to FID entry
; 5714          7227  4             RCOUNT;                             ! Requested allocation from this CRT
; 5715          7228  4
; 5716          7229  4
; 5717          7230  4         REMQUE(.CRT[CRT_FID_FQHDR], FID);       ! Get first FID entry
; 5718          7231  4         INSQUE(.FID, QUEUE_HEADERS[4]);
; 5719          7232  4
```

```
; 5720          7233  4
; 5721          7234  4         ! Generate an extension header if this is not the primary file ID.
; 5722          7235  4         !
; 5723          7236  4         IF .CRT NEQA .QUEUE_HEADERS[2]
; 5724          7237  4         THEN
; 5725          7238  5             BEGIN
; 5726          7239  5             STATUS = CREATE_EXTHDR(.CUR_HDR, .CUR_FID, EXT_HDR, FID[CRT_FID]);
; 5727          7240  5             IF NOT .STATUS THEN RETURN CREATE_CLEANUP(.STATUS);
; 5728          7241  5             CUR_HDR = EXT_HDR;
; 5729          7242  5             CUR_FID = FID[CRT_FID];
; 5730          7243  5             HCOUNT = .HCOUNT + 1;
; 5731          7244  4             END;
; 5732          7245  4
; 5733          7246  4
; 5734          7247  4         RCOUNT = MINU(.FIB[FIB$L_EXSZ] - . TCOUNT, .CRT[CRT_BLOCKS]);
; 5735          7248  4         IF
; 5736          7249  4             NOT .QUAL[QUAL_OF11] OR      ! Sequential disk output
; 5737          7250  4             NOT .QUAL[QUAL_VOLU] OR      ! Not /VOLUME restore
; 5738          7251  4             .QUAL[QUAL_VOLU_VALUE] EQL .FID[CRT_FID_RVN]
; 5739          7252  4         THEN
; 5740          7253  5             BEGIN
; 5741          7254  5             LOCAL
; 5742          7255  5                 VCB:            REF BBLOCK;     ! VCB for RVN
; 5743          7256  5
; 5744          7257  5
; 5745          7258  5             IF .FID[CRT_FID_RVN] - .CURRENT_MTL[MTL_RVN_BASE] GEQU .CURRENT_MTL[MTL_SETCOUNT]
; 5746          7259  5             THEN
; 5747          7260  5                 RETURN CREATE_CLEANUP(SS$_DEVNOTMOUNT);
; 5748          7261  5
; 5749          7262  5             CURRENT_VCB = VCB = .CURRENT_MTL[MTL_VCB(.FID[CRT_FID_RVN]-.CURRENT_MTL[MTL_RVN_BASE])];
; 5750          7263  5
; 5751          7264  5             IF NOT .VCB[VCB_INIT_DONE]
; 5752          7265  5             THEN
; 5753          7266  5                 SIGNAL(BACKUP$_NOVOLDATA, 1, VCB[VCB_DEVICE]);
; 5754          7267  5
; 5755          7268  5
; 5756          7269  5             WHILE TRUE DO
; 5757          7270  6                 BEGIN
; 5758          7271  6                 LOCAL
; 5759          7272  6                     EXT:        REF BBLOCK;     ! Pointer to extent list entry
; 5760          7273  6
; 5761          7274  6
; 5762          7275  6                 ! Generate extent list entry for new extent.
; 5763          7276  6                 !
; 5764          7277  6                 EXT = GET_VM(EXT_S_ENTRY);
; 5765          7278  6                 INSQUE(.EXT, .QUEUE_HEADERS[0]);
; 5766          7279  6                 EXT[EXT_VCB] = .VCB;
; 5767          7280  6
; 5768          7281  6
; 5769          7282  6                 ! Try to allocate remaining blocks.
; 5770          7283  6                 !
; 5771          7284  6                 STA_ALLOC_BEST(.RCOUNT, EXT[EXT_COUNT], EXT[EXT_LBN]);
; 5772          7285  6
; 5773          7286  6
; 5774          7287  6                 ! If no blocks were allocated, or if not enough blocks were
; 5775          7288  6                 ! allocated and the allocation is required to be contiguous,
; 5776          7289  6                 ! return device-full.
```

```
6                       !
6                       IF
6                           .EXT[EXT_COUNT] EQL 0 OR
6                           .EXT[EXT_COUNT] LSSU .RCOUNT AND .FIB[FIB$V_ALCON]
6                       THEN
6                           RETURN CREATE_CLEANUP(SS$_DEVICEFULL);
6
6
6                       ! Append the map pointer.  For ODS-1, append one maximal pointer at
6                       ! a time so that header overflow can be cleanly detected.  If the
6                       ! header should fill, allocate an extension header from the list
6                       ! hanging from the CRT entry.  If all headers have been used, fail.
6                       !
7                       BEGIN LOCAL L;
7                       L = .EXT[EXT_LBN];
7                       WHILE .L LSSU .EXT[EXT_LBN] + .EXT[EXT_COUNT] DO
8                           BEGIN LOCAL C;
8                           C = .EXT[EXT_LBN] + .EXT[EXT_COUNT] - .L;
8                           IF NOT .VCB[VCB_ODS_2]
8                           THEN
9                               BEGIN
9                               IF .C GTRU 256 THEN C = 256;
9                               STATUS = MAKE_POINTER1(.CUR_HDR, .C, .L);
9                               END
8                           ELSE
8                               STATUS = MAKE_POINTER(.CUR_HDR, .C, .L);
8
8                           IF .STATUS
8                           THEN
8                               L = .L + .C
8                           ELSE IF REMQUE(.CRT[CRT_FID_FQHDR], FID)
8                           THEN
8                               RETURN CREATE_CLEANUP(SS$_HEADERFULL)
8                           ELSE
9                               BEGIN
9                               INSQUE(.FID, QUEUE_HEADERS[4]);
9                               STATUS = CREATE_EXTHDR(
9                                   .CUR_HDR, .CUR_FID, EXT_HDR, FID[CRT_FID]);
9                               IF NOT .STATUS
9                                   THEN RETURN CREATE_CLEANUP(.STATUS);
9                               CUR_HDR = EXT_HDR;
9                               CUR_FID = FID[CRT_FID];
9                               HCOUNT = .HCOUNT + 1;
8                               END;
7                           END;
6                       END;
6
6
6                       ! Append the window pointer.
6                       !
6                       ADD_WINDOW_MAP(
6                           .CURRENT_MTL[MTL_WINDOW],
6                           .FID[CRT_FID_RVN], .EXT[EXT_COUNT], .EXT[EXT_LBN]);
6
6
6                       ! Count the allocation into the total, and determine if we need
6                       ! to go around again for another extent.
```

```
6                   !
6                   TCOUNT = .TCOUNT + .EXT[EXT_COUNT];
6                   IF .EXT[EXT_COUNT] GEQU .RCOUNT THEN EXITLOOP;
6                   RCOUNT = .RCOUNT - .EXT[EXT_COUNT];
5                   END;
5               END
4           ELSE
5               BEGIN
5               ADD_BLACKHOLE_MAP(.CURRENT_MTL[MTL_WINDOW], .CRT[CRT_BLOCKS]);
5               TCOUNT = .TCOUNT + .CRT[CRT_BLOCKS];
4               END;
4           CRT = .CRT[CRT_FLINK];
3           END;
3       END
2   ELSE
3       BEGIN
3
3       ! If there are no blocks allocated to the file, it is still necessary
3       ! to take off the first entry of the FID queue.  This is necessary to
3       ! make the ACL building logic in STA_DEACCESS work correctly.
3       !
3       LOCAL
3           FID:            REF BBLOCK;     ! Pointer to FID entry
3
3
3       REMQUE(.CRT[CRT_FID_FQHDR], FID);   ! Get first FID entry
3       INSQUE(.FID, QUEUE_HEADERS[4]);
2       END;
2
2
2   ! Initialize HIBLK.
2   !
2   IF
2       NOT .QUAL[QUAL_OF11] OR     ! Sequential disk output
2       NOT .QUAL[QUAL_VOLU]        ! Not /VOLUME restore
2   THEN
2       IF .HEADER[FH2$B_STRUCLEV] EQL 1
2           THEN BBLOCK[HEADER[FH1$W_RECATTR], FAT$L_HIBLK] = ROT(.TCOUNT, 16)
2           ELSE BBLOCK[HEADER[FH2$W_RECATTR], FAT$L_HIBLK] = ROT(.TCOUNT, 16);
2
2
2   ! Write last extension header if it exists.
2   !
2   IF
2       .CUR_HDR EQLA EXT_HDR AND
3       (NOT .QUAL[QUAL_VOLU] OR .QUAL[QUAL_VOLU_VALUE] EQL .CUR_FID[FID$B_RVN])
2   THEN
3       BEGIN
3       STATUS = WRITE_HEADER(.CUR_FID, .CUR_HDR);
3       IF NOT .STATUS THEN RETURN CREATE_CLEANUP(.STATUS);
2       END;
2
2
2   ! Write header and set index file bitmap bit.
2   !
2   IF
2       NOT .QUAL[QUAL_OF11] OR     ! Sequential disk output
```

```
2       NOT .QUAL[QUAL_VOLU] OR      ! Not /VOLUME restore
2       .QUAL[QUAL_VOLU_VALUE] EQL .CURRENT_MTL[MTL_FID_RVN]
2   THEN
3       BEGIN
3       STATUS = WRITE_HEADER(CURRENT_MTL[MTL_FID], .HEADER);
3       IF NOT .STATUS THEN RETURN CREATE_CLEANUP(.STATUS);
2       END;
2
2
2   ! Quota table maintenance.
2   !
2   IF .HEADER[FH2$B_STRUCLEV] EQL 2 AND .QUAL[QUAL_OF11] AND NOT .QUAL[QUAL_VOLU]
2   THEN
3       BEGIN
3
3       ! Locate and record file ID of QUOTA.SYS.
3       !
3       IF
3           .BBLOCK[HEADER[FH2$W_RECATTR], FAT$B_RTYPE] EQL FAT$C_FIXED AND
3           .BBLOCK[HEADER[FH2$W_RECATTR], FAT$B_RATTRIB] EQL 0 AND
3           .BBLOCK[HEADER[FH2$W_RECATTR], FAT$W_RSIZE] EQL DQF$C_LENGTH AND
3           .HEADER[FH2$V_CONTIG] AND
3           .HEADER[FH2$W_BK_FIDNUM] EQL FID$C_MFD AND
3           .HEADER[FH2$B_BK_FIDNMX] EQL 0 AND
3           .HEADER[FH2$W_BK_FIDSEQ] EQL FID$C_MFD AND
3           .FIB[FIB$B_FID_RVN] EQL 1 AND
3           .P2[DSC$W_LENGTH] EQL %CHARCOUNT('QUOTA.SYS;1') AND
3           CH$EQL(
3               %CHARCOUNT('QUOTA.SYS;1'), .P2[DSC$A_POINTER],
3               %CHARCOUNT('QUOTA.SYS;1'), UPLIT BYTE('QUOTA.SYS;1'))
3       THEN
4           BEGIN
4           DQF_QUOTA_FID[FID$W_NUM] = .FIB[FIB$W_FID_NUM];
4           DQF_QUOTA_FID[FID$W_SEQ] = .FIB[FIB$W_FID_SEQ];
4           DQF_QUOTA_FID[FID$W_RVN] = .FIB[FIB$W_FID_RVN];
3           END;
3
3
3       ! Charge file space.
3       !
3       DQF_MODIFY_USAGE(.HEADER[FH2$L_FILEOWNER], .TCOUNT + .HCOUNT);
2       END;
2
2
2   ! Completed normally.
2   !
2   CREATE_CLEANUP(SS$_NORMAL)
1   END;


31  3B  53  59  53  2E  41  54  4F  55  51  02E03 P.AAU:  .ASCII  \QUOTA.SYS;1\                          ;


                                                  0FFC 00000 STA_CREATE:
                                                                  .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10,R11        ; 6949
```

```
                        5E      FDC8   CE  9E 00002          MOVAB   -568(SP), SP                          ;
                        50 00000000'   EF  D0 00007          MOVL    CURRENT_MTL, R0                       ; 6999
                                08     A0  D5 0000E          TSTL    8(R0)                                 ;
                                       05  13 00011          BEQL    1$                                    ;
                        50        A4   8F  9A 00013          MOVZBL  #164, R0                              ;
                                       04  00017             RET                                           ;
                        51 00000000'   EF  9E 00018 1$:      MOVAB   QUEUE_HEADERS, R1                     ; 7000
                00000000'  EF          51  D0 0001F          MOVL    R1, QUEUE_HEADERS+4                   ;
                00000000'  EF          51  D0 00026          MOVL    R1, QUEUE_HEADERS                     ;
                        51 00000000'   EF  9E 0002D          MOVAB   QUEUE_HEADERS+8, R1                   ; 7001
                00000000'  EF          51  D0 00034          MOVL    R1, QUEUE_HEADERS+12                  ;
                00000000'  EF          51  D0 0003B          MOVL    R1, QUEUE_HEADERS+8                   ;
                        51 00000000'   EF  9E 00042          MOVAB   QUEUE_HEADERS+16, R1                  ; 7002
                00000000'  EF          51  D0 00049          MOVL    R1, QUEUE_HEADERS+20                  ;
                00000000'  EF          51  D0 00050          MOVL    R1, QUEUE_HEADERS+16                  ;
                        51        1C   AC  D0 00057          MOVL    P1, R1                                ; 7007
                        56        04   A1  D0 0005B          MOVL    4(R1), FIB                            ;
                    18  A0        04   A6  D0 0005F          MOVL    4(FIB), 24(R0)                        ; 7008
                    1C  A0        08   A6  B0 00064          MOVW    8(FIB), 28(R0)                        ; 7010
                                1C   A6  D5 00069          TSTL    28(FIB)                               ; 7011
                                       04  12 0006C          BNEQ    2$                                    ;
                    1C  A6             01  D0 0006E          MOVL    #1, 28(FIB)                           ;
                    10  A0        10   A0  9E 00072 2$:      MOVAB   16(R0), 16(R0)                        ; 7012
                    14  A0        10   A0  9E 00077          MOVAB   16(R0), 20(R0)                        ; 7013
                    31  A0             02  8A 0007C          BICB2   #2, 49(R0)                            ; 7014
                        5A        04   A6  3C 00080          MOVZWL  4(FIB), R10                           ; 7016
                                       14  12 00084          BNEQ    3$                                    ;
                                08     A6  B5 00086          TSTW    8(FIB)                                ; 7017
                                       0F  12 00089          BNEQ    3$                                    ;
                                       7E  D4 0008B          CLRL    -(SP)                                 ; 7018
                            00000000G  8F  DD 0008D          PUSHL   #BACKUP$_INVFID                       ;
                00000000G  00          02  FB 00093          CALLS   #2, LIB$SIGNAL                        ;
                        58 00000000'   EF  D0 0009A 3$:      MOVL    CURRENT_MTL, R8                       ; 7022
                        57        0C   A8  D0 000A1          MOVL    12(R8), HEADER                        ;
0200    8F        00    6E             00  2C 000A5          MOVC5   #0, (SP), #0, #512, (HEADER)          ; 7023
                                       67     000AC                                                      ;
                        59        20   AC  D0 000AD          MOVL    P2, R9                                ; 7036
                        01        1E   A8  91 000B1          CMPB    30(R8), #1                            ; 7024
                                       40  12 000B5          BNEQ    5$                                    ;
                        67      2E17   8F  B0 000B7          MOVW    #11799, (HEADER)                      ; 7030
                    02  A7             5A  B0 000BC          MOVW    R10, 2(HEADER)                        ; 7032
                    04  A7        06   A6  B0 000C0          MOVW    6(FIB), 4(HEADER)                     ; 7033
                    06  A7      0101   8F  B0 000C5          MOVW    #257, 6(HEADER)                       ; 7034
                        05        16   A6  E9 000CB          BLBC    22(FIB), 4$                           ; 7035
                    0C  A7        80   8F  88 000CF          BISB2   #128, 12(HEADER)                      ;
                                10     AE  9F 000D4 4$:      PUSHAB  NAMEBLOCK                             ; 7036
                                04     A9  DD 000D7          PUSHL   4(R9)                                 ;
                        7E        20   BC  3C 000DA          MOVZWL  @P2, -(SP)                            ;
                00000000G  00          03  FB 000DE          CALLS   #3, MAKE_NAMEBLOCK                    ;
            2E  A7  16  AE             0A  28 000E5          MOVC3   #10, NAMEBLOCK+6, 46(HEADER)          ; 7040
                    62  A7      0301   8F  B0 000EB          MOVW    #769, 98(HEADER)                      ; 7041
                    65  A7             34  8E 000F1          MNEGB   #52, 101(HEADER)                      ; 7044
                                       60  11 000F5          BRB     9$                                    ; 7024
                        67 FFFF6428    8F  D0 000F7 5$:      MOVL    #-39896, (HEADER)                     ; 7048
                    06  A7      0201   8F  B0 000FE          MOVW    #513, 6(HEADER)                       ; 7052
                    08  A7             5A  B0 00104          MOVW    R10, 8(HEADER)                        ; 7054
                    0D  A7        09   A6  90 00108          MOVB    9(FIB), 13(HEADER)                    ; 7055
```

```
                        0A   A7      06   A6  B0 0010D        MOVW    6(FIB), 10(HEADER)                          ; 7056
                        42   A7      0A   A6  D0 00112        MOVL    10(FIB), 66(HEADER)                         ; 7057
                        46   A7      0E   A6  B0 00117        MOVW    14(FIB), 70(HEADER)                         ; 7059
                             05      16   A6  E9 0011C        BLBC    22(FIB), 6$                                 ; 7060
                        34   A7      80   8F  88 00120        BISB2   #128, 52(HEADER)                            ;
                        4C   A7           01  D0 00125 6$:    MOVL    #1, 76(HEADER)                              ; 7061
                             50      30   AC  D0 00129        MOVL    P6, R0                                      ; 7062
                                          06  13 0012D        BEQL    7$                                          ;
                        4C   A7    0088   C0  D0 0012F        MOVL    136(R0), 76(HEADER)                         ; 7063
                             58      04   A9  D0 00135 7$:    MOVL    4(R9), R8                                   ; 7066
        14        20         68      20   BC  2C 00139        MOVC5   @P2, (R8), #32, #20, 80(HEADER)             ; 7069
                                     50   A7     0013F                                                            ;
                             50      20   BC  3C 00141        MOVZWL  @P2, R0                                     ; 7071
                             50           14  C2 00145        SUBL2   #20, R0                                     ;
                                          02  18 00148        BGEQ    8$                                          ;
                                          50  D4 0014A        CLRL    R0                                          ;
  0042  8F        20      14   A8          50  2C 0014C 8$:    MOVC5   R0, 20(R8), #32, #66, 134(HEADER)           ; 7075
                                    0086   C7     00154                                                            ;
                                          56  DD 00157 9$:    PUSHL   FIB                                         ; 7081
                                     2C   AC  DD 00159        PUSHL   P5                                          ;
                                          57  DD 0015C        PUSHL   HEADER                                      ;
                      0000V  CF           03  FB 0015E        CALLS   #3, WRITE_ATTRIBUTES                        ;
                             6E           50  D0 00163        MOVL    R0, STATUS                                  ;
                             26           6E  E9 00166        BLBC    STATUS, 11$                                 ; 7082
                             7E      03   A6  98 00169        CVTBL   3(FIB), -(SP)                               ; 7089
                             0A           6E  91 0016D        CMPB    (SP), #10                                   ;
                                          03  1E 00170        BGEQU   10$                                         ;
                             6E           0A  D0 00172        MOVL    #10, (SP)                                   ;
                                     1C   A6  DD 00175 10$:   PUSHL   28(FIB)                                     ;
                7E 00000000'  EF          08  C1 00178        ADDL3   #8, CURRENT_MTL, -(SP)                      ; 7088
                                          7E  D4 00180        CLRL    -(SP)                                       ;
                                          57  DD 00182        PUSHL   HEADER                                      ;
                      D837   CF           05  FB 00184        CALLS   #5, CREATE_WINDOW                           ;
                             6E           50  D0 00189        MOVL    R0, STATUS                                  ;
                             04           6E  E8 0018C        BLBS    STATUS, 12$                                 ; 7090
                             50           6E  D0 0018F 11$:   MOVL    STATUS, R0                                  ;
                                          04  00192           RET                                                 ;
                             50 00000000'  EF  D0 00193 12$:   MOVL    CURRENT_MTL, R0                             ; 7091
                             50      08   A0  D0 0019A        MOVL    8(R0), R0                                   ;
                        0C   A0      1C   A6  D0 0019E        MOVL    28(FIB), 12(R0)                             ;
                                          54  D4 001A3        CLRL    TCOUNT                                      ; 7096
                        0C   AE           01  D0 001A5        MOVL    #1, HCOUNT                                  ; 7097
                             50      30   AC  D0 001A9        MOVL    P6, R0                                      ; 7100
                                          03  13 001AD        BEQL    13$                                         ;
                                     08   A0  B5 001AF        TSTW    8(R0)                                       ; 7101
                                          03  12 001B2 13$:   BNEQ    14$                                         ;
                                       00F5  31 001B4        BRW     28$                                         ;
                                          14  DD 001B7 14$:   PUSHL   #20                                         ; 7116
                00000000G  00             01  FB 001B9        CALLS   #1, GET_VM                                  ;
                             52           50  D0 001C0        MOVL    R0, CRT                                     ;
                00000000'  FF             62  0E 001C3        INSQUE  (CRT), @QUEUE_HEADERS+8                     ; 7117
                             50      08   A2  9E 001CA        MOVAB   8(CRT), R0                                  ; 7118
                        0C   A2           50  D0 001CE        MOVL    R0, 12(CRT)                                 ;
                        08   A2           50  D0 001D2        MOVL    R0, 8(CRT)                                  ;
                                     10   A2  D4 001D6        CLRL    16(CRT)                                     ; 7119
                                          0E  DD 001D9        PUSHL   #14                                         ; 7120
                00000000G  00             01  FB 001DB        CALLS   #1, GET_VM                                  ;
```

```
                                55          50  D0 001E2          MOVL    R0, FID                                  ;
                            08  B2          65  0E 001E5          INSQUE  (FID), @8(CRT)                           ; 7121
                            08  A5      04  A6  D0 001E9          MOVL    4(FIB), 8(FID)                           ; 7122
                            0C  A5      08  A6  B0 001EE          MOVW    8(FIB), 12(FID)                          ; 7124
                                50      30  AC  D0 001F3          MOVL    P6, R0                                   ; 7125
                                53      0C  A0  D0 001F7          MOVL    12(R0), PLC                              ;
                                58      08  A0  3C 001FB          MOVZWL  8(R0), PLC_END                           ; 7126
                                58          53  C0 001FF          ADDL2   PLC, PLC_END                             ;
                                58          53  D1 00202 15$:     CMPL    PLC, PLC_END                             ; 7127
                                            03  1F 00205          BLSSU   16$                                      ;
                                          00DD  31 00207          BRW     29$                                      ;
                                50          83  9A 0020A 16$:     MOVZBL  (PLC)+, TYPE                             ; 7132
                        03      01          50  CF 0020D          CASEL   TYPE, #1, #3                             ; 7134
0090                0086    0080          0011     00211 17$:     .WORD   18$-17$,-                                ;
                                                                            23$-17$,-                                ;
                                                                            24$-17$,-                                ;
                                                                            26$-17$                                  ;
                                  00000000G 8F  DD 00219          PUSHL   #BACKUP$_INVATTVAL                       ; 7188
                                          03AA  31 0021F          BRW     65$                                      ;
                        07 00000000'    EF  06  E1 00222 18$:     BBC     #6, QUAL+15, 19$                         ; 7141
                                23 00000000'    EF  E8 0022A      BLBS    QUAL+14, 21$                             ;
                                52 00000000'    EF  D0 00231 19$: MOVL    QUEUE_HEADERS+8, CRT                     ; 7146
                                50 00000000'    EF  9E 00238 20$: MOVAB   QUEUE_HEADERS+8, R0                      ; 7147
                                50          52  D1 0023F          CMPL    CRT, R0                                  ;
                                            10  13 00242          BEQL    21$                                      ;
                                50      08  A2  D0 00244          MOVL    8(CRT), R0                               ; 7149
                            0C  A0      04  A3  91 00248          CMPB    4(PLC), 12(R0)                           ;
                                            27  13 0024D          BEQL    22$                                      ;
                                52          62  D0 0024F          MOVL    (CRT), CRT                               ; 7150
                                            E4  11 00252          BRB     20$                                      ; 7147
                                            14  DD 00254 21$:     PUSHL   #20                                      ; 7156
                00000000G   00              01  FB 00256          CALLS   #1, GET_VM                               ;
                            52              50  D0 0025D          MOVL    R0, CRT                                  ;
                00000000'   FF              62  0E 00260          INSQUE  (CRT), @QUEUE_HEADERS+12                 ; 7157
                            50      08  A2  9E 00267          MOVAB   8(CRT), R0                                 ; 7158
                        0C  A2              50  D0 0026B          MOVL    R0, 12(CRT)                              ;
                        08  A2              50  D0 0026F          MOVL    R0, 8(CRT)                               ;
                                    10  A2  D4 00273          CLRL    16(CRT)                                  ; 7159
                                            0E  DD 00276 22$:     PUSHL   #14                                      ; 7161
                00000000G   00              01  FB 00278          CALLS   #1, GET_VM                               ;
                            55              50  D0 0027F          MOVL    R0, FID                                  ;
                        0C  B2              65  0E 00282          INSQUE  (FID), @12(CRT)                          ; 7162
                        08  A5              63  D0 00286          MOVL    (PLC), 8(FID)                            ; 7163
                        0C  A5      04  A3  B0 0028A          MOVW    4(PLC), 12(FID)                          ; 7165
                                            0B  11 0028F          BRB     25$                                      ; 7166
                        10  A2              83  C0 00291 23$:     ADDL2   (PLC)+, 16(CRT)                          ; 7171
                                            12  11 00295          BRB     27$                                      ; 7134
                        10  A2      02  A3  C0 00297 24$:     ADDL2   2(PLC), 16(CRT)                          ; 7177
                            53              06  C0 0029C 25$:     ADDL2   #6, PLC                                  ; 7178
                                            08  11 0029F          BRB     27$                                      ; 7134
                        10  A2      02  A3  C0 002A1 26$:     ADDL2   2(PLC), 16(CRT)                          ; 7183
                            53              0A  C0 002A6          ADDL2   #10, PLC                                 ; 7184
                                          FF56  31 002A9 27$:     BRW     15$                                      ; 7127
                                            14  DD 002AC 28$:     PUSHL   #20                                      ; 7203
                00000000G   00              01  FB 002AE          CALLS   #1, GET_VM                               ;
                            52              50  D0 002B5          MOVL    R0, CRT                                  ;
                00000000'   FF              62  0E 002B8          INSQUE  (CRT), @QUEUE_HEADERS+8                  ; 7204
```

```
                    50        08   A2  9E 002BF          MOVAB   8(CRT), R0                          ; 7205
                 0C   A2            50  D0 002C3          MOVL    R0, 12(CRT)                         ;
                 08   A2            50  D0 002C7          MOVL    R0, 8(CRT)                          ;
                 10   A2        18   A6  D0 002CB          MOVL    24(FIB), 16(CRT)                    ; 7206
                                     0E  DD 002D0          PUSHL   #14                                 ; 7207
          00000000G   00            01  FB 002D2          CALLS   #1, GET_VM                          ;
                 08   B2            60  0E 002D9          INSQUE  (FID), @8(CRT)                      ; 7208
                 08   A0        04   A6  D0 002DD          MOVL    4(FIB), 8(FID)                      ; 7209
                 0C   A0        08   A6  B0 002E2          MOVW    8(FIB), 12(FID)                     ; 7211
                    58 00000000'    EF  D0 002E7 29$:     MOVL    QUEUE_HEADERS+8, CRT                ; 7217
                 04   AE            57  D0 002EE          MOVL    HEADER, CUR_HDR                     ; 7218
                    53        04   A6  9E 002F2          MOVAB   4(R6), CUR_FID                      ; 7219
                              18   A6  D5 002F6          TSTL    24(FIB)                             ; 7220
                                     03  12 002F9          BNEQ    30$                                 ;
                                   01C6  31 002FB          BRW     53$                                 ;
                 18   A6            54  D1 002FE 30$:     CMPL    TCOUNT, 24(FIB)                     ; 7223
                                     03  1F 00302          BLSSU   31$                                 ;
                                   01C8  31 00304          BRW     54$                                 ;
                    52        08   B8  0F 00307 31$:     REMQUE  @8(CRT), FID                        ; 7230
          00000000'   EF            62  0E 0030B          INSQUE  (FID), QUEUE_HEADERS+16             ; 7231
          00000000'   EF            58  D1 00312          CMPL    CRT, QUEUE_HEADERS+8                ; 7236
                                     25  13 00319          BEQL    33$                                 ;
                              08   A2  9F 0031B          PUSHAB  8(FID)                              ; 7239
                              3C   AE  9F 0031E          PUSHAB  EXT_HDR                             ;
                                     53  DD 00321          PUSHL   CUR_FID                             ;
                              10   AE  DD 00323          PUSHL   CUR_HDR                             ;
              FB99   CF            04  FB 00326          CALLS   #4, CREATE_EXTHDR                   ;
                    6E            50  D0 0032B          MOVL    R0, STATUS                          ;
                    03            6E  E8 0032E          BLBS    STATUS, 32$                         ; 7240
                                   021E  31 00331          BRW     61$                                 ;
                 04   AE        38   AE  9E 00334 32$:     MOVAB   EXT_HDR, CUR_HDR                    ; 7241
                    53        08   A2  9E 00339          MOVAB   8(FID), CUR_FID                     ; 7242
                              0C   AE  D6 0033D          INCL    HCOUNT                              ; 7243
          50    18   A6            54  C3 00340 33$:     SUBL3   TCOUNT, 24(FIB), R0                 ; 7247
                 10   A8            50  D1 00345          CMPL    R0, 16(CRT)                         ;
                                     04  1B 00349          BLEQU   34$                                 ;
                    50        10   A8  D0 0034B          MOVL    16(CRT), R0                         ;
                 08   AE            50  D0 0034F 34$:     MOVL    R0, RCOUNT                          ;
                    50 00000000'    EF  D0 00353          MOVL    CURRENT_MTL, R0                     ; 7258
          14 00000000'   EF            06  E1 0035A          BBC     #6, QUAL+15, 35$                    ; 7249
                    0D 00000000'    EF  E9 00362          BLBC    QUAL+14, 35$                        ; 7250
                 0C   A2 00000000'    EF  91 00369          CMPB    QUAL+79, 12(FID)                    ; 7251
                                     03  13 00371          BEQL    35$                                 ;
                                   0139  31 00373          BRW     51$                                 ;
                    51        0C   A2  9A 00376 35$:     MOVZBL  12(FID), R1                         ; 7258
                    55        30   A0  9A 0037A          MOVZBL  48(R0), R5                          ;
                    51            55  C2 0037E          SUBL2   R5, R1                              ;
51        1F   A0   08            00  ED 00381          CMPZV   #0, #8, 31(R0), R1                  ;
                                     06  1A 00387          BGTRU   36$                                 ;
                    7E        7C   8F  9A 00389          MOVZBL  #124, -(SP)                         ; 7260
                                     6F  11 0038D          BRB     39$                                 ;
                    51 00000000'    EF  D0 0038F 36$:     MOVL    CURRENT_MTL, R1                     ; 7262
                    50        0C   A2  9A 00396          MOVZBL  12(FID), R0                         ;
                    55        30   A1  9A 0039A          MOVZBL  48(R1), R5                          ;
                    50            55  C2 0039E          SUBL2   R5, R0                              ;
                    59        34 A140  D0 003A1          MOVL    52(R1)[R0], VCB                     ;
          00000000'   EF            59  D0 003A6          MOVL    VCB, CURRENT_VCB                    ;
```

```
12        07   A9              02  E0 003AD          BBS     #2, 7(VCB), 37$                  ; 7264
                         20    A9  9F 003B2          PUSHAB  32(VCB)                          ; 7266
                               01  DD 003B5          PUSHL   #1                               ;
                  00000000G    8F  DD 003B7          PUSHL   #BACKUP$_NOVOLDATA               ;
   00000000G   00              03  FB 003BD          CALLS   #3, LIB$SIGNAL                   ;
                               14  DD 003C4 37$:     PUSHL   #20                              ; 7277
   00000000G   00              01  FB 003C6          CALLS   #1, GET_VM                       ;
               55              50  D0 003CD          MOVL    R0, EXT                          ;
   00000000'   FF              65  0E 003D0          INSQUE  (EXT), @QUEUE_HEADERS            ; 7278
         08    A5              59  D0 003D7          MOVL    VCB, 8(EXT)                      ; 7279
                         10    A5  9F 003DB          PUSHAB  16(EXT)                          ; 7284
                         0C    A5  9F 003DE          PUSHAB  12(EXT)                          ;
                         10    AE  DD 003E1          PUSHL   RCOUNT                           ;
       D364    CF              03  FB 003E4          CALLS   #3, STA_ALLOC_BEST               ;
                         0C    A5  D5 003E9          TSTL    12(EXT)                          ; 7292
                               0B  13 003EC          BEQL    38$                              ;
         08    AE        0C    A5  D1 003EE          CMPL    12(EXT), RCOUNT                  ; 7293
                               0B  1E 003F3          BGEQU   40$                              ;
               07        16    A6  E9 003F5          BLBC    22(FIB), 40$                     ;
               7E      0850    8F  3C 003F9 38$:     MOVZWL  #2128, -(SP)                     ; 7295
                               54  11 003FE 39$:     BRB     47$                              ;
               5B        10    A5  D0 00400 40$:     MOVL    16(EXT), L                       ; 7304
50        10   A5        0C    A5  C1 00404 41$:     ADDL3   12(EXT), 16(EXT), R0             ; 7305
               50              5B  D1 0040A          CMPL    L, R0                            ;
                               76  1E 0040D          BGEQU   50$                              ;
5A             50              5B  C3 0040F          SUBL3   L, R0, C                         ; 7307
1B        07   A9              01  E0 00413          BBS     #1, 7(VCB), 43$                  ; 7308
   00000100    8F              5A  D1 00418          CMPL    C, #256                          ; 7311
                               05  1B 0041F          BLEQU   42$                              ;
               5A      0100    8F  3C 00421          MOVZWL  #256, C                          ;
               7E              5A  7D 00426 42$:     MOVQ    C, -(SP)                         ; 7312
                         0C    AE  DD 00429          PUSHL   CUR_HDR                          ;
       D440    CF              03  FB 0042C          CALLS   #3, MAKE_POINTER1                ;
                               0B  11 00431          BRB     44$                              ;
               7E              5A  7D 00433 43$:     MOVQ    C, -(SP)                         ; 7315
                         0C    AE  DD 00436          PUSHL   CUR_HDR                          ;
       D4A4    CF              03  FB 00439          CALLS   #3, MAKE_POINTER                 ;
               6E              50  D0 0043E 44$:     MOVL    R0, STATUS                       ;
               05              6E  E9 00441          BLBC    STATUS, 46$                      ; 7317
               5B              5A  C0 00444          ADDL2   C, L                             ; 7319
                               BB  11 00447 45$:     BRB     41$                              ;
               52        08    B8  0F 00449 46$:     REMQUE  @8(CRT), FID                     ; 7320
                               08  1C 0044D          BVC     48$                              ;
               7E      08C8    8F  3C 0044F          MOVZWL  #2248, -(SP)                     ; 7322
                             0175  31 00454 47$:     BRW     65$                              ;
   00000000'   EF              62  0E 00457 48$:     INSQUE  (FID), QUEUE_HEADERS+16          ; 7325
                         08    A2  9F 0045E          PUSHAB  8(FID)                           ; 7327
                         3C    AE  9F 00461          PUSHAB  EXT_HDR                          ; 7326
                               53  DD 00464          PUSHL   CUR_FID                          ; 7327
                         10    AE  DD 00466          PUSHL   CUR_HDR                          ;
       FA56    CF              04  FB 00469          CALLS   #4, CREATE_EXTHDR                ;
               6E              50  D0 0046E          MOVL    R0, STATUS                       ;
               03              6E  E8 00471          BLBS    STATUS, 49$                      ; 7328
                             00DB  31 00474          BRW     61$                              ;
         04    AE        38    AE  9E 00477 49$:     MOVAB   EXT_HDR, CUR_HDR                 ; 7330
               53        08    A2  9E 0047C          MOVAB   8(FID), CUR_FID                  ; 7331
                         0C    AE  D6 00480          INCL    HCOUNT                           ; 7332
```

```
                                  C2  11 00483          BRB     45$                                  ; 7305
                7E        0C      A5  7D 00485 50$:     MOVQ    12(EXT), -(SP)                       ; 7342
                7E        0C      A2  9A 00489          MOVZBL  12(FID), -(SP)                       ;
                50 00000000'      EF  D0 0048D          MOVL    CURRENT_MTL, R0                      ; 7341
                          08      A0  DD 00494          PUSHL   8(R0)                                ;
        D7BD    CF                04  FB 00497          CALLS   #4, ADD_WINDOW_MAP                   ;
                54        0C      A5  C0 0049C          ADDL2   12(EXT), TCOUNT                      ; 7348
          08    AE        0C      A5  D1 004A0          CMPL    12(EXT), RCOUNT                      ; 7349
                                  17  1E 004A5          BGEQU   52$                                  ;
          08    AE        0C      A5  C2 004A7          SUBL2   12(EXT), RCOUNT                      ; 7350
                                FF15  31 004AC          BRW     37$                                  ; 7269
                          10      A8  DD 004AF 51$:     PUSHL   16(CRT)                              ; 7355
                          08      A0  DD 004B2          PUSHL   8(R0)                                ;
        D750    CF                02  FB 004B5          CALLS   #2, ADD_BLACKHOLE_MAP                ;
                54        10      A8  C0 004BA          ADDL2   16(CRT), TCOUNT                      ; 7356
                58                68  D0 004BE 52$:     MOVL    (CRT), CRT                           ; 7358
                                FE3A  31 004C1          BRW     30$                                  ; 7223
                50        08      B8  0F 004C4 53$:     REMQUE  @8(CRT), FID                         ; 7372
   00000000'    EF                60  0E 004C8          INSQUE  (FID), QUEUE_HEADERS+16              ; 7373
07 00000000'    EF                06  E1 004CF 54$:     BBC     #6, QUAL+15, 55$                     ; 7380
                14 00000000'      EF  E8 004D7          BLBS    QUAL+14, 57$                         ; 7381
50              54                10  9C 004DE 55$:     ROTL    #16, TCOUNT, R0                      ; 7384
                01        07      A7  91 004E2          CMPB    7(HEADER), #1                        ; 7383
                                  06  12 004E6          BNEQ    56$                                  ;
          12    A7                50  D0 004E8          MOVL    R0, 18(HEADER)                       ; 7384
                                  04  11 004EC          BRB     57$                                  ;
          18    A7                50  D0 004EE 56$:     MOVL    R0, 24(HEADER)                       ; 7385
                50        38      AE  9E 004F2 57$:     MOVAB   EXT_HDR, R0                          ; 7391
                50        04      AE  D1 004F6          CMPL    CUR_HDR, R0                          ;
                                  21  12 004FA          BNEQ    59$                                  ;
                0A 00000000'      EF  E9 004FC          BLBC    QUAL+14, 58$                         ; 7392
          04    A3 00000000'      EF  91 00503          CMPB    QUAL+79, 4(CUR_FID)                  ;
                                  10  12 0050B          BNEQ    59$                                  ;
                          04      AE  DD 0050D 58$:     PUSHL   CUR_HDR                              ; 7395
                                  53  DD 00510          PUSHL   CUR_FID                              ;
        D01B    CF                02  FB 00512          CALLS   #2, WRITE_HEADER                     ;
                6E                50  D0 00517          MOVL    R0, STATUS                           ;
                35                6E  E9 0051A          BLBC    STATUS, 61$                          ; 7396
18 00000000'    EF                06  E1 0051D 59$:     BBC     #6, QUAL+15, 60$                     ; 7403
                11 00000000'      EF  E9 00525          BLBC    QUAL+14, 60$                         ; 7404
                50 00000000'      EF  D0 0052C          MOVL    CURRENT_MTL, R0                      ; 7405
          1C    A0 00000000'      EF  91 00533          CMPB    QUAL+79, 28(R0)                      ;
                                  19  12 0053B          BNEQ    62$                                  ;
                                  57  DD 0053D 60$:     PUSHL   HEADER                               ; 7408
7E 00000000'    EF                18  C1 0053F          ADDL3   #24, CURRENT_MTL, -(SP)              ;
        CFE6    CF                02  FB 00547          CALLS   #2, WRITE_HEADER                     ;
                6E                50  D0 0054C          MOVL    R0, STATUS                           ;
                04                6E  E8 0054F          BLBS    STATUS, 62$                          ; 7409
                                  6E  DD 00552 61$:     PUSHL   STATUS                               ;
                                  76  11 00554          BRB     65$                                  ;
                02        07      A7  91 00556 62$:     CMPB    7(HEADER), #2                        ; 7415
                                  6E  12 0055A          BNEQ    64$                                  ;
66 00000000'    EF                06  E1 0055C          BBC     #6, QUAL+15, 64$                     ;
                5F 00000000'      EF  E8 00564          BLBS    QUAL+14, 64$                         ;
                50        14      A7  9E 0056B          MOVAB   20(HEADER), R0                       ; 7422
                01                60  91 0056F          CMPB    (R0), #1                             ;
                                  4A  12 00572          BNEQ    63$                                  ;
```

```
                                  01   A0  95 00574          TSTB    1(R0)                                  ; 7423
                                       45  12 00577          BNEQ    63$                                    ;
                         20       02   A0  B1 00579          CMPW    2(R0), #32                             ; 7424
                                       3F  12 0057D          BNEQ    63$                                    ;
                                  34   A7  95 0057F          TSTB    52(HEADER)                             ; 7425
                                       3A  18 00582          BGEQ    63$                                    ;
                         04       42   A7  B1 00584          CMPW    66(HEADER), #4                         ; 7426
                                       34  12 00588          BNEQ    63$                                    ;
                                  47   A7  95 0058A          TSTB    71(HEADER)                             ; 7427
                                       2F  12 0058D          BNEQ    63$                                    ;
                         04       44   A7  B1 0058F          CMPW    68(HEADER), #4                         ; 7428
                                       29  12 00593          BNEQ    63$                                    ;
                         01       08   A6  91 00595          CMPB    8(FIB), #1                             ; 7429
                                       23  12 00599          BNEQ    63$                                    ;
                         0B       20   BC  B1 0059B          CMPW    @P2, #11                               ; 7430
                                       1D  12 0059F          BNEQ    63$                                    ;
                         50       20   AC  D0 005A1          MOVL    P2, R0                                 ; 7432
      FA49   CF      04   B0           0B  29 005A5          CMPC3   #11, @4(R0), P.AAU                     ; 7431
                                       10  12 005AC          BNEQ    63$                                    ;
            00000000'  EF       04   A6  D0 005AE          MOVL    4(FIB), DQF_QUOTA_FID                  ; 7436
            00000000'  EF       08   A6  B0 005B6          MOVW    8(FIB), DQF_QUOTA_FID+4                ; 7438
                                0C BE44  9F 005BE 63$:     PUSHAB  @HCOUNT[TCOUNT]                        ; 7444
                                3C   A7  DD 005C2          PUSHL   60(HEADER)                             ;
                 CC75   CF           02  FB 005C5          CALLS   #2, DQF_MODIFY_USAGE                   ;
                                       01  DD 005CA 64$:     PUSHL   #1                                     ; 7450
                 F846   CF           01  FB 005CC 65$:     CALLS   #1, CREATE_CLEANUP                     ;
                                           04 005D1          RET                                            ; 7451

; Routine Size:  1490 bytes,    Routine Base:  CODE + 2E0E
```

```
%SBTTL 'STA_DEACCESS - deaccess QIO service routine'
ROUTINE STA_DEACCESS (EFN,CHAN,FUNC,IOSB,ASTADR,ASTPRM,P1,P2,P3,P4,P5,P6)=

!++
!
! FUNCTIONAL DESCRIPTION:
!       This routine executes IO$_DEACCESS in the standalone environment.
!
! INPUT PARAMETERS:
!       As for $QIO(W) system service.
!
! IMPLICIT INPUTS:
!       CURRENT_MTL     - Pointer to MTL for selected volume set.
!
! OUTPUT PARAMETERS:
!       NONE
!
! IMPLICIT OUTPUTS:
!       NONE
!
! ROUTINE VALUE:
!       Completion status.
!
! SIDE EFFECTS:
!       NONE
!
!--

BEGIN

MAP
        P1:             REF BBLOCK;     ! Descriptor for FIB

LABEL
        WRITE_ACL;                      ! ACL writing loop

LOCAL
        WRITE_FLAG,                     ! Flag indicating header must be written
        ACL_POINTER     : REF BBLOCK,   ! Address of current ACL segment
        ACE_POINTER     : REF BBLOCK,   ! Current ACE in core
        ACE             : REF BBLOCK,   ! Current ACE in header
        ACL_LENGTH,                     ! Size of current header segment ACL
        LOCAL_HEADER    : BBLOCK [512], ! Local header storage
        HEADER          : REF BBLOCK,   ! Pointer to current header segment
        HEADER_FID      : BBLOCK [6],   ! File-id of current header
        EXT_HEADER_FID  : BBLOCK [6],   ! Extension header file-ID
        CRT             : REF BBLOCK,   ! Pointer to create list entry
        FID             : REF BBLOCK,   ! Pointer to FID entry
        RVN,                            ! Current RVN we are working on
        STATUS;                         ! Status return

! Check that a file is accessed.
!
IF .CURRENT_MTL[MTL_WINDOW] EQL 0 THEN RETURN SS$_FILNOTACC;

STATUS = SS$_NORMAL;                    ! Assume success
```

```
; 5997          7509  2
; 5998          7510  2 ! Write attributes if specified.
; 5999          7511  2 !
; 6000          7512  2 WRITE_FLAG = FALSE;
; 6001          7513  2 HEADER = .CURRENT_MTL[MTL_HEADER];
; 6002          7514  2 IF .P5 NEQ 0
; 6003          7515  2 THEN
; 6004          7516  3     BEGIN
; 6005          7517  3     STATUS = WRITE_ATTRIBUTES (.HEADER, .P5, (IF .P1 EQL 0 THEN 0 ELSE .P1[DSC$A_POINTER]));
; 6006          7518  3     IF .STATUS
; 6007          7519  3     THEN WRITE_FLAG = TRUE;
; 6008          7520  2     END;
; 6009          7521  2
; 6010          7522  2 ! Write the highwater mark if it has been modified. This is not done for
; 6011          7523  2 ! multi-volume files in /VOLUME restores, nor for multi-volume save sets.
; 6012          7524  2 !
; 6013          7525  2
; 6014          7526  2 IF .BBLOCK [.CURRENT_MTL[MTL_WINDOW], WCB_CUR_HWM]
; 6015          7527  2     NEQ .BBLOCK [.CURRENT_MT[[MTL_WINDOW], WCB_SET_HWM]
; 6016          7528  2 AND
; 6017          7529  3     BEGIN
; 6018          7530  4     IF (.QUAL[QUAL_OF11] AND .QUAL[QUAL_VOLU])
; 6019          7531  3     OR .QUAL[QUAL_OSAV]
; 6020          7532  3     THEN .HEADER[FH2$W_SEG_NUM] EQL 0
; 6021          7533  3         AND (.HEADER[FH2$W_EX_FIDNUM] OR .HEADER[FH2$W_EX_FIDRVN]) EQL 0
; 6022          7534  3     ELSE TRUE
; 6023          7535  3     END
; 6024          7536  2 AND .HEADER[FH2$B_STRUCLEV] EQL 2
; 6025          7537  2 AND .HEADER[FH2$B_IDOFFSET] GEQU ($BYTEOFFSET (FH2$L_HIGHWATER) + 4) / 2
; 6026          7538  2 THEN
; 6027          7539  3     BEGIN
; 6028          7540  3     HEADER[FH2$L_HIGHWATER] = .BBLOCK [.CURRENT_MTL[MTL_WINDOW], WCB_CUR_HWM];
; 6029          7541  3     WRITE_FLAG = TRUE;
; 6030          7542  2     END;
; 6031          7543  2
; 6032          7544  2 ! Write the header if necessary.
; 6033          7545  2 !
; 6034          7546  2 IF .WRITE_FLAG
; 6035          7547  2 THEN STATUS = WRITE_HEADER (CURRENT_MTL[MTL_FID], .HEADER);
; 6036          7548  2
; 6037          7549  2
; 6038          7550  2 ! Write out the file's ACL if necessary.
; 6039          7551  2 !
; 6040          7552  2 IF .CURRENT_MTL[MTL_ACLFL] NEQA CURRENT_MTL[MTL_ACLFL]
; 6041          7553  2 AND .CURRENT_MTL[MT[_NEW_ACL]
; 6042          7554  2 AND .STATUS
; 6043          7555  2 THEN
; 6044          7556  3     WRITE_ACL:  BEGIN
; 6045          7557  3     ACL_POINTER = .CURRENT_MTL[MTL_ACLFL];
; 6046          7558  3     ACE_POINTER = ACL_POINTER[ACL$[_LIST];
; 6047          7559  3     RVN = .CURRENT_MT[[MTL_FID_RVN];
; 6048          7560  3     WHILE 1
; 6049          7561  3     DO
; 6050          7562  4         BEGIN
; 6051          7563  5         ACL_LENGTH = (.HEADER[FH2$B_RSOFFSET] -
; 6052          7564  5                       .HEADER[FH2$B_MPOFFSET] -
; 6053          7565  5                       MAXU (.HEADER[FH2$B_MAP_INUSE],
```

```
                                    (IF .HEADER[FH2$W_SEG_NUM] EQL 0
                                     THEN FM2$C_LENGTH3/2
                                     ELSE 0))) * 2;
            IF .ACE_POINTER[ACE$B_SIZE] LEQ .ACL_LENGTH THEN EXITLOOP;
            CH$MOVE (6, HEADER[FH2$W_EXT_FID], EXT_HEADER_FID);
            IF .EXT_HEADER_FID[FID$B_RVN] EQL 0
            THEN EXT_HEADER_FID[FID$B_RVN] = .RVN
            ELSE RVN = .EXT_HEADER_FID[FID$B_RVN];
            STATUS = READ_HEADER (EXT_HEADER_FID, LOCAL_HEADER);
            IF NOT .STATUS
            THEN
                BEGIN
                ACL_DELETEACL ();
                LEAVE WRITE_ACL;
                END;
            HEADER = LOCAL_HEADER;
            END;
        CH$MOVE (6, HEADER[FH2$W_FID], HEADER_FID);
        HEADER_FID[FID$B_RVN] = .RVN;
        HEADER[FH2$B_ACOFFSET] = .HEADER[FH2$B_RSOFFSET] - .ACL_LENGTH / 2;
        ACE = .HEADER + .HEADER[FH2$B_ACOFFSET] * 2;
        WHILE 1
        DO
            BEGIN
            CH$MOVE (.ACE_POINTER[ACE$B_SIZE], .ACE_POINTER, .ACE);
            ACE = .ACE + .ACE_POINTER[ACE$B_SIZE];
            ACL_LENGTH = .ACL_LENGTH - .ACE_POINTER[ACE$B_SIZE];
            ACE_POINTER = .ACE_POINTER + .ACE_POINTER[ACE$B_SIZE];
            IF .ACE_POINTER GEQA .ACL_POINTER + .ACL_POINTER[ACL$W_SIZE]
            THEN
                BEGIN
                ACL_POINTER = .ACL_POINTER[ACL$L_FLINK];
                IF .ACL_POINTER EQLA CURRENT_MTL[MTL_ACLFL] THEN EXITLOOP;
                ACE_POINTER = ACL_POINTER[ACL$L_LIST];
                END;
            IF .ACE_POINTER[ACE$B_SIZE] GTR .ACL_LENGTH
            THEN
                BEGIN
                CRT = .QUEUE_HEADERS[2];
                IF REMQUE (.CRT[CRT_FID_FQHDR], FID)                    ! Get FID entry
                THEN
                    BEGIN
                    ACL_DELETEACL ();
                    STATUS = SS$_HEADERFULL;
                    LEAVE WRITE_ACL;
                    END;
                INSQUE (.FID, QUEUE_HEADERS[4]);
                STATUS = CREATE_EXTHDR (.HEADER, HEADER_FID, LOCAL_HEADER, FID[CRT_FID]);
                IF NOT .STATUS
                THEN
                    BEGIN
                    ACL_DELETEACL ();
                    LEAVE WRITE_ACL;
                    END;
                IF .HEADER NEQA LOCAL_HEADER
                THEN
                    BEGIN
```

```
; 6111    7623  6                 STATUS = WRITE_HEADER (HEADER_FID, .HEADER);
; 6112    7624  6                 IF NOT .STATUS
; 6113    7625  6                 THEN
; 6114    7626  7                     BEGIN
; 6115    7627  7                     ACL_DELETEACL ();
; 6116    7628  7                     LEAVE WRITE_ACL;
; 6117    7629  6                     END;
; 6118    7630  5                 END;
; 6119    7631  5             HEADER = LOCAL_HEADER;
; 6120    7632  5             CH$MOVE (6, HEADER[FH2$W_FID], HEADER_FID);
; 6121    7633  5             HEADER_FID[FID$B_RVN] = .RVN;
; 6122    7634  6             ACL_LENGTH = (.HEADER[FH2$B_RSOFFSET] -
; 6123    7635  6                           .HEADER[FH2$B_MPOFFSET] -
; 6124    7636  5                           .HEADER[FH2$B_MAP_INUSE]) * 2;
; 6125    7637  5             HEADER[FH2$B_ACOFFSET] = .HEADER[FH2$B_RSOFFSET] - .ACL_LENGTH / 2;
; 6126    7638  5             ACE = .HEADER + .HEADER[FH2$B_ACOFFSET] * 2;
; 6127    7639  4             END;
; 6128    7640  3         END;
; 6129    7641  3
; 6130    7642  3 ! Recover any unused ACL space from this header by sliding the ACL down
; 6131    7643  3 ! to the end of the header. Clear the odd byte at the end of the ACL
; 6132    7644  3 ! if there is one.
; 6133    7645  3
; 6134    7646  3     IF TESTBITSC (ACL_LENGTH<0,1>) THEN (.ACE)<0,8> = 0;
; 6135    7647  3     CH$MOVE ((.HEADER[FH2$B_RSOFFSET] - .HEADER[FH2$B_ACOFFSET]) * 2 - .ACL_LENGTH,
; 6136    7648  3              .HEADER + .HEADER[FH2$B_ACOFFSET] * 2,
; 6137    7649  3              .HEADER + .HEADER[FH2$B_ACOFFSET] * 2 + .ACL_LENGTH);
; 6138    7650  3     CH$FILL (0, .ACL_LENGTH, .HEADER + .HEADER[FH2$B_ACOFFSET] * 2);
; 6139    7651  3     HEADER[FH2$B_ACOFFSET] = .HEADER[FH2$B_ACOFFSET] + .ACL_LENGTH / 2;
; 6140    7652  3     STATUS = WRITE_HEADER (HEADER_FID, .HEADER);
; 6141    7653  3     IF NOT .STATUS
; 6142    7654  3     THEN
; 6143    7655  4         BEGIN
; 6144    7656  4         ACL_DELETEACL ();
; 6145    7657  4         LEAVE WRITE_ACL;
; 6146    7658  3         END;
; 6147    7659  2     END;                                ! End of WRITE_ACL loop
; 6148    7660  2
; 6149    7661  2
; 6150    7662  2 ! Do the final cleanup for the deaccess operation.
; 6151    7663  2 !
; 6152    7664  2
; 6153    7665  2
; 6154    7666  2 ! Free the create list.
; 6155    7667  2 !
; 6156    7668  2 UNTIL REMQUE (.QUEUE_HEADERS[2], CRT) DO
; 6157    7669  3     BEGIN
; 6158    7670  3     LOCAL
; 6159    7671  3         Q:              REF BBLOCK;     ! Pointer to FID block
; 6160    7672  3
; 6161    7673  3
; 6162    7674  3     ! Free the FID blocks.
; 6163    7675  3     !
; 6164    7676  3     UNTIL REMQUE (.CRT[CRT_FID_FQHDR], Q) DO FREE_VM (CRT_S_FID, .Q);
; 6165    7677  3
; 6166    7678  3
; 6167    7679  3     ! Deallocate the create list entry.
```

```
3       !
3       FREE_VM (CRT_S_BLOCKS, .CRT);
2       END;
2
2
2   ! Free the used file ID list.
2   !
2   UNTIL REMQUE (.QUEUE_HEADERS[4], CRT) DO
3       BEGIN
3
3
3       ! If the deaccess failed, write a deleted file header.
3       !
3       IF NOT .STATUS
3       THEN
4           BEGIN
4           CREATE_DELHDR (CRT[CRT_FID], LOCAL_HEADER);
4           WRITE_HEADER (CRT[CRT_FID], LOCAL_HEADER);
3           END;
2       END;
2
2
2   ! Release the window.
2   !
2   DELETE_WINDOW (.CURRENT_MTL[MTL_WINDOW]);
2   CURRENT_MTL[MTL_WINDOW] = 0;
2
2
2   ! Indicate that there is no ACL associated with the file.
2   !
2   CURRENT_MTL[MTL_ACLFL] = CURRENT_MTL[MTL_ACLBL] = 0;
2
2
2   ! Return with the final status.
2   !
2   RETURN .STATUS;
2
1   END;
```

```
                                 0FFC 00000 STA_DEACCESS:
                                                    .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10,R11        ; 7453
        5E      FDE4    CE   9E 00002               MOVAB   -540(SP), SP                                ;
        50 00000000'    EF   D0 00007               MOVL    CURRENT_MTL, R0                             ; 7506
                  08    A0   D5 0000E               TSTL    8(R0)                                       ;
                        05   12 00011               BNEQ    1$                                          ;
        50        AC    8F   9A 00013               MOVZBL  #172, R0                                    ;
                              04 00017               RET                                                 ;
        6E              01   D0 00018 1$:           MOVL    #1, STATUS                                  ; 7508
                        53   D4 0001B               CLRL    WRITE_FLAG                                  ; 7512
        56        0C    A0   D0 0001D               MOVL    12(R0), HEADER                              ; 7513
                  2C    AC   D5 00021               TSTL    P5                                          ; 7514
                        20   13 00024               BEQL    4$                                          ;
        50        1C    AC   D0 00026               MOVL    P1, R0                                      ; 7517
```

```
                                  04  12 0002A          BNEQ    2$                                  ;
                                  7E  D4 0002C          CLRL    -(SP)                               ;
                                  03  11 0002E          BRB     3$                                  ;
                            04    A0  DD 00030 2$:      PUSHL   4(R0)                               ;
                            2C    AC  DD 00033 3$:      PUSHL   P5                                  ;
                                  56  DD 00036          PUSHL   HEADER                              ;
          0000V  CF               03  FB 00038          CALLS   #3, WRITE_ATTRIBUTES                ;
                 6E               50  D0 0003D          MOVL    R0, STATUS                          ;
                 03               6E  E9 00040          BLBC    STATUS, 4$                          ; 7518
                 53               01  D0 00043          MOVL    #1, WRITE_FLAG                      ; 7519
                 51 00000000'     EF  D0 00046 4$:      MOVL    CURRENT_MTL, R1                     ; 7526
                 50         08    A1  D0 0004D          MOVL    8(R1), R0                           ;
             10  A0         0C    A0  D1 00051          CMPL    12(R0), 16(R0)                      ; 7527
                                  3C  13 00056          BEQL    8$                                  ;
     07 00000000'  EF             06  E1 00058          BBC     #6, QUAL+15, 5$                     ; 7530
                 08 00000000'     EF  E8 00060          BLBS    QUAL+14, 6$                         ;
                    00000000'     EF  95 00067 5$:      TSTB    QUAL+15                             ; 7531
                                  12  18 0006D          BGEQ    7$                                  ;
                            04    A6  B5 0006F 6$:      TSTW    4(HEADER)                           ; 7532
                                  20  12 00072          BNEQ    8$                                  ;
                 52         0E    A6  3C 00074          MOVZWL  14(HEADER), R2                      ; 7533
                 54         12    A6  3C 00078          MOVZWL  18(HEADER), R4                      ;
                 52               54  C8 0007C          BISL2   R4, R2                              ;
                                  13  12 0007F          BNEQ    8$                                  ;
                 02         07    A6  91 00081 7$:      CMPB    7(HEADER), #2                       ; 7536
                                  0D  12 00085          BNEQ    8$                                  ;
                 28               66  91 00087          CMPB    (HEADER), #40                       ; 7537
                                  08  1F 0008A          BLSSU   8$                                  ;
             4C  A6         0C    A0  D0 0008C          MOVL    12(R0), 76(HEADER)                  ; 7540
                 53               01  D0 00091          MOVL    #1, WRITE_FLAG                      ; 7541
                 0D               53  E9 00094 8$:      BLBC    WRITE_FLAG, 9$                      ; 7546
                                  56  DD 00097          PUSHL   HEADER                              ; 7547
                            18    A1  9F 00099          PUSHAB  24(R1)                              ;
          CEBF   CF               02  FB 0009C          CALLS   #2, WRITE_HEADER                    ;
                 6E               50  D0 000A1          MOVL    R0, STATUS                          ;
                 50 00000000'     EF  D0 000A4 9$:      MOVL    CURRENT_MTL, R0                     ; 7552
                 51         10    A0  9E 000AB          MOVAB   16(R0), R1                          ;
                 51         10    A0  D1 000AF          CMPL    16(R0), R1                          ;
                                  03  12 000B3          BNEQ    11$                                 ;
                               0199  31 000B5 10$:      BRW     29$                                 ;
     F8      31  A0               01  E1 000B8 11$:     BBC     #1, 49(R0), 10$                     ; 7553
                 F5               6E  E9 000BD          BLBC    STATUS, 10$                         ; 7554
                 59         10    A0  D0 000C0          MOVL    16(R0), ACL_POINTER                 ; 7557
                 58         0C    A9  9E 000C4          MOVAB   12(R9), ACE_POINTER                 ; 7558
             04  AE         1C    A0  9A 000C8          MOVZBL  28(R0), RVN                         ; 7559
                 52         03    A6  9A 000CD 12$:     MOVZBL  3(HEADER), R2                       ; 7564
                 50         01    A6  9A 000D1          MOVZBL  1(HEADER), R0                       ;
                 52               50  C2 000D5          SUBL2   R0, R2                              ;
                            04    A6  B5 000D8          TSTW    4(HEADER)                           ; 7566
                                  05  12 000DB          BNEQ    13$                                 ;
                 51               04  D0 000DD          MOVL    #4, R1                              ; 7567
                                  02  11 000E0          BRB     14$                                 ;
                                  51  D4 000E2 13$:     CLRL    R1                                  ; 7566
                 50         3A    A6  9A 000E4 14$:     MOVZBL  58(HEADER), R0                      ;
                 51               50  D1 000E8          CMPL    R0, R1                              ;
                                  03  1E 000EB          BGEQU   15$                                 ;
                 50               51  D0 000ED          MOVL    R1, R0                              ;
```

```
                                52          50  C2 000F0 15$:   SUBL2   R0, R2                                  ; 7565
                57              52          01  78 000F3        ASHL    #1, R2, ACL_LENGTH                      ; 7568
57              68              08          00  ED 000F7        CMPZV   #0, #8, (ACE_POINTER), ACL_LENGTH       ; 7569
                                            31  15 000FC        BLEQ    19$                                     ;
        0C      AE      0E      A6          06  28 000FE        MOVC3   #6, 14(HEADER), EXT_HEADER_FID          ; 7570
                                    10      AE  95 00104        TSTB    EXT_HEADER_FID+4                        ; 7571
                                            07  12 00107        BNEQ    16$                                     ;
                        10      AE      04  AE  90 00109        MOVB    RVN, EXT_HEADER_FID+4                   ; 7572
                                            05  11 0010E        BRB     17$                                     ;
                        04      AE      10  AE  9A 00110 16$:   MOVZBL  EXT_HEADER_FID+4, RVN                   ; 7573
                                    1C      AE  9F 00115 17$:   PUSHAB  LOCAL_HEADER                            ; 7574
                                    10      AE  9F 00118        PUSHAB  EXT_HEADER_FID                          ;
                    CDB0        CF          02  FB 0011B        CALLS   #2, READ_HEADER                         ;
                                6E          50  D0 00120        MOVL    R0, STATUS                              ;
                                03          6E  E8 00123        BLBS    STATUS, 18$                             ; 7575
                                        0121    31 00126        BRW     28$                                     ;
                                56      1C  AE  9E 00129 18$:   MOVAB   LOCAL_HEADER, HEADER                    ; 7581
                                            9E  11 0012D        BRB     12$                                     ; 7560
        14      AE      08      A6          06  28 0012F 19$:   MOVC3   #6, 8(HEADER), HEADER_FID               ; 7583
                        18      AE      04  AE  90 00135        MOVB    RVN, HEADER_FID+4                       ; 7584
                50              57          02  C7 0013A 20$:   DIVL3   #2, ACL_LENGTH, R0                      ; 7585
        02      A6      03      A6          50  83 0013E        SUBB3   R0, 3(HEADER), 2(HEADER)                ;
                                50      02  A6  9A 00144        MOVZBL  2(HEADER), R0                           ; 7586
                        08      AE        6640  3E 00148        MOVAW   (HEADER)[R0], ACE                       ;
                                50          68  9A 0014D 21$:   MOVZBL  (ACE_POINTER), R0                       ; 7590
        08      BE              68          50  28 00150        MOVC3   R0, (ACE_POINTER), @ACE                 ;
                                50          68  9A 00155        MOVZBL  (ACE_POINTER), R0                       ; 7591
                        08      AE          50  C0 00158        ADDL2   R0, ACE                                 ;
                                50          68  9A 0015C        MOVZBL  (ACE_POINTER), R0                       ; 7592
                                57          50  C2 0015F        SUBL2   R0, ACL_LENGTH                          ;
                                50          68  9A 00162        MOVZBL  (ACE_POINTER), R0                       ; 7593
                                58          50  C0 00165        ADDL2   R0, ACE_POINTER                         ;
                                50      08  A9  3C 00168        MOVZWL  8(ACL_POINTER), R0                      ; 7594
                                50          59  C0 0016C        ADDL2   ACL_POINTER, R0                         ;
                                50          58  D1 0016F        CMPL    ACE_POINTER, R0                         ;
                                            17  1F 00172        BLSSU   23$                                     ;
                                59          69  D0 00174        MOVL    (ACL_POINTER), ACL_POINTER              ; 7597
                50 00000000'    EF          10  C1 00177        ADDL3   #16, CURRENT_MTL, R0                    ; 7598
                                50          59  D1 0017F        CMPL    ACL_POINTER, R0                         ;
                                            03  12 00182        BNEQ    22$                                     ;
                                        0085    31 00184        BRW     26$                                     ;
                                58      0C  A9  9E 00187 22$:   MOVAB   12(R9), ACE_POINTER                     ; 7599
57              68              08          00  ED 0018B 23$:   CMPZV   #0, #8, (ACE_POINTER), ACL_LENGTH       ; 7601
                                            BB  15 00190        BLEQ    21$                                     ;
                                5A 00000000'  EF  D0 00192      MOVL    QUEUE_HEADERS+8, CRT                    ; 7604
                                5B      08  BA  0F 00199        REMQUE  @8(CRT), FID                            ; 7605
                                            0F  1C 0019D        BVC     24$                                     ;
                00000000G       00          00  FB 0019F        CALLS   #0, ACL_DELETEACL                       ; 7608
                                6E    08C8  8F  3C 001A6        MOVZWL  #2248, STATUS                           ; 7609
                                        00A3    31 001AB        BRW     29$                                     ; 7610
                00000000'       EF          6B  0E 001AE 24$:   INSQUE  (FID), QUEUE_HEADERS+16                 ; 7612
                                    08      AB  9F 001B5        PUSHAB  8(FID)                                  ; 7613
                                    20      AE  9F 001B8        PUSHAB  LOCAL_HEADER                            ;
                                    1C      AE  9F 001BB        PUSHAB  HEADER_FID                              ;
                                            56  DD 001BE        PUSHL   HEADER                                  ;
                    F72D        CF          04  FB 001C0        CALLS   #4, CREATE_EXTHDR                       ;
                                6E          50  D0 001C5        MOVL    R0, STATUS                              ;
```

```
                                7F          6E  E9 001C8          BLBC    STATUS, 28$                                  ; 7614
                                50      1C  AE  9E 001CB          MOVAB   LOCAL_HEADER, R0                             ; 7620
                                50          56  D1 001CF          CMPL    HEADER, R0                                   ;
                                            10  13 001D2          BEQL    25$                                          ;
                                            56  DD 001D4          PUSHL   HEADER                                       ; 7623
                                        18  AE  9F 001D6          PUSHAB  HEADER_FID                                   ;
                        CD82    CF          02  FB 001D9          CALLS   #2, WRITE_HEADER                             ;
                                6E          50  D0 001DE          MOVL    R0, STATUS                                   ;
                                66          6E  E9 001E1          BLBC    STATUS, 28$                                  ; 7624
                                56      1C  AE  9E 001E4  25$:    MOVAB   LOCAL_HEADER, HEADER                         ; 7631
            14  AE          08  A6          06  28 001E8          MOVC3   #6, 8(HEADER), HEADER_FID                    ; 7632
                            18  AE      04  AE  90 001EE          MOVB    RVN, HEADER_FID+4                            ; 7633
                                50      03  A6  9A 001F3          MOVZBL  3(HEADER), R0                                ; 7635
                                51      01  A6  9A 001F7          MOVZBL  1(HEADER), R1                                ;
                                50          51  C2 001FB          SUBL2   R1, R0                                       ;
                                52      3A  A6  9A 001FE          MOVZBL  58(HEADER), R2                               ; 7636
                                50          52  C2 00202          SUBL2   R2, R0                                       ;
                    57          50          01  78 00205          ASHL    #1, R0, ACL_LENGTH                           ;
                                          FF2E  31 00209          BRW     20$                                          ; 7637
                    03          57          00  E5 0020C  26$:    BBCC    #0, ACL_LENGTH, 27$                          ; 7646
                                        08  BE  94 00210          CLRB    @ACE                                         ;
                                51      02  A6  9A 00213  27$:    MOVZBL  2(HEADER), R1                                ; 7647
                                50      03  A6  9A 00217          MOVZBL  3(HEADER), R0                                ;
                                50          51  C2 0021B          SUBL2   R1, R0                                       ;
                                50          02  C4 0021E          MULL2   #2, R0                                       ;
                                50          57  C2 00221          SUBL2   ACL_LENGTH, R0                               ;
                                59        6641  3E 00224          MOVAW   (HEADER)[R1], R9                             ; 7648
                  6749          69          50  28 00228          MOVC3   R0, (R9), (ACL_LENGTH)[R9]                   ; 7649
        57          00          6E          00  2C 0022D          MOVC5   #0, (SP), #0, ACL_LENGTH, (R9)               ; 7650
                                            69     00232                                                             ;
                                57          02  C6 00233          DIVL2   #2, R7                                       ; 7651
                            02  A6          57  80 00236          ADDB2   R7, 2(HEADER)                                ;
                                            56  DD 0023A          PUSHL   HEADER                                       ; 7652
                                        18  AE  9F 0023C          PUSHAB  HEADER_FID                                   ;
                        CD1C    CF          02  FB 0023F          CALLS   #2, WRITE_HEADER                             ;
                                6E          50  D0 00244          MOVL    R0, STATUS                                   ;
                                07          6E  E8 00247          BLBS    STATUS, 29$                                  ; 7653
                    00000000G   00          00  FB 0024A  28$:    CALLS   #0, ACL_DELETEACL                            ; 7656
                                5A 00000000'  FF  0F 00251  29$:    REMQUE  @QUEUE_HEADERS+8, CRT                        ; 7668
                                            20  1D 00258          BVS     32$                                          ;
                                52      08  BA  0F 0025A  30$:    REMQUE  @8(CRT), Q                                   ; 7676
                                            0D  1D 0025E          BVS     31$                                          ;
                                            52  DD 00260          PUSHL   Q                                            ;
                                            0E  DD 00262          PUSHL   #14                                          ;
                    00000000G   00          02  FB 00264          CALLS   #2, FREE_VM                                  ;
                                            ED  11 0026B          BRB     30$                                          ;
                                            5A  DD 0026D  31$:    PUSHL   CRT                                          ; 7681
                                            14  DD 0026F          PUSHL   #20                                          ;
                    00000000G   00          02  FB 00271          CALLS   #2, FREE_VM                                  ;
                                            D7  11 00278          BRB     29$                                          ; 7668
                                5A 00000000'  FF  0F 0027A  32$:    REMQUE  @QUEUE_HEADERS+16, CRT                       ; 7687
                                            1B  1D 00281          BVS     33$                                          ;
                                F4          6E  E8 00283          BLBS    STATUS, 32$                                  ; 7693
                                        1C  AE  9F 00286          PUSHAB  LOCAL_HEADER                                 ; 7696
                                        08  AA  9F 00289          PUSHAB  8(CRT)                                       ;
                        CDC1    CF          02  FB 0028C          CALLS   #2, CREATE_DELHDR                            ;
                                        1C  AE  9F 00291          PUSHAB  LOCAL_HEADER                                 ; 7697
```

```
                        08   AA  9F 00294          PUSHAB  8(CRT)                          ;
        CCC4    CF           02  FB 00297          CALLS   #2, WRITE_HEADER                ;
                             DC  11 0029C          BRB     32$                             ; 7687
                50 00000000'  EF  D0 0029E 33$:    MOVL    CURRENT_MTL, R0                 ; 7704
                        08   A0  DD 002A5          PUSHL   8(R0)                           ;
        D35F    CF           01  FB 002A8          CALLS   #1, DELETE_WINDOW               ;
                50 00000000'  EF  D0 002AD          MOVL    CURRENT_MTL, R0                 ; 7705
                        08   A0  D4 002B4          CLRL    8(R0)                           ;
                        10   A0  7C 002B7          CLRQ    16(R0)                          ; 7710
                50           6E  D0 002BA          MOVL    STATUS, R0                      ; 7715
                                 04 002BD          RET                                     ; 7717

; Routine Size:  702 bytes,    Routine Base:  CODE + 33E0
```

```
; 6207          7718  1 %SBTTL 'STA_MODIFY - modify QIO service routine'
; 6208          7719  1 ROUTINE STA_MODIFY (EFN,CHAN,FUNC,IOSB,ASTADR,ASTPRM,P1,P2,P3,P4,P5,P6)=
; 6209          7720  1
; 6210          7721  1 !++
; 6211          7722  1 !
; 6212          7723  1 ! FUNCTIONAL DESCRIPTION:
; 6213          7724  1 !       This routine executes IO$_MODIFY in the standalone environment.
; 6214          7725  1 !
; 6215          7726  1 ! INPUT PARAMETERS:
; 6216          7727  1 !       As for $QIO(W) system service.  However, a nonzero P6 points to
; 6217          7728  1 !       OUTPUT_ATTBUF, which indicates that the IO$_MODIFY refers to a
; 6218          7729  1 !       file on an image output volume.
; 6219          7730  1 !
; 6220          7731  1 ! IMPLICIT INPUTS:
; 6221          7732  1 !       CURRENT_MTL     - Pointer to MTL for selected volume set.
; 6222          7733  1 !
; 6223          7734  1 ! OUTPUT PARAMETERS:
; 6224          7735  1 !       NONE
; 6225          7736  1 !
; 6226          7737  1 ! IMPLICIT OUTPUTS:
; 6227          7738  1 !       NONE
; 6228          7739  1 !
; 6229          7740  1 ! ROUTINE VALUE:
; 6230          7741  1 !       Completion status.
; 6231          7742  1 !
; 6232          7743  1 ! SIDE EFFECTS:
; 6233          7744  1 !       NONE
; 6234          7745  1 !
; 6235          7746  1 !--
; 6236          7747  1
; 6237          7748  2 BEGIN
; 6238          7749  2 MAP
; 6239          7750  2         P1:             REF BBLOCK;     ! Descriptor for FIB
; 6240          7751  2 LOCAL
; 6241          7752  2         FIB:            REF BBLOCK,     ! Pointer to FIB
; 6242          7753  2         STATUS,                         ! Status variable
; 6243          7754  2         RVN,                            ! RVN of current header
; 6244          7755  2         HEADER:         REF BBLOCK,     ! Pointer to file header
; 6245          7756  2         FID:            REF BBLOCK,     ! Pointer to current file ID
; 6246          7757  2         EXT_FILE_ID:    BBLOCK [FID$C_LENGTH], ! FID of extension header
; 6247          7758  2         LOCAL_HEADER:   BBLOCK [512];   ! Local buffer for extension header
; 6248          7759  2
; 6249          7760  2 ! If the FIB descriptor is present, get the address of the FIB.
; 6250          7761  2 !
; 6251          7762  2 IF .P1 NEQ 0 THEN FIB = .P1[DSC$A_POINTER];
; 6252          7763  2
; 6253          7764  2 ! Get the file ID if the file is not open.
; 6254          7765  2 !
; 6255          7766  2 HEADER = .CURRENT_MTL[MTL_HEADER];
; 6256          7767  2 FID = CURRENT_MTL[MTL_FID];
; 6257          7768  2 IF .CURRENT_MTL[MTL_WINDOW] EQL 0
; 6258          7769  2 THEN
; 6259          7770  3     BEGIN
; 6260          7771  3     IF .P1 EQL 0 THEN RETURN SS$_BADPARAM;
; 6261          7772  3     FID[FID$W_NUM] = .FIB[FIB$W_FID_NUM];
; 6262          7773  3     FID[FID$W_SEQ] = .FIB[FIB$W_FID_SEQ];
; 6263          7774  3     FID[FID$W_RVN] = .FIB[FIB$W_FID_RVN];
```

```
; 6264          7775  3      STATUS = READ_HEADER(.FID, .HEADER);
; 6265          7776  3      IF NOT .STATUS THEN RETURN .STATUS;
; 6266          7777  3      CURRENT_MTL[MTL_NEW_ACL] = 0;
; 6267          7778  2      END;
; 6268          7779  2  RVN = .FID[FID$B_RVN];
; 6269          7780  2
; 6270          7781  2
; 6271          7782  2  ! Iterate over the headers of a multi-header file.
; 6272          7783  2  !
; 6273          7784  2
; 6274          7785  2  WHILE TRUE
; 6275          7786  2  DO
; 6276          7787  3      BEGIN
; 6277          7788  3
; 6278          7789  3  ! Write attributes.
; 6279          7790  3  !
; 6280          7791  3      STATUS = WRITE_ATTRIBUTES (.HEADER, .P5, (IF .P1 EQL 0 THEN 0 ELSE .P1[DSC$A_POINTER]));
; 6281          7792  3      IF NOT .STATUS THEN RETURN .STATUS;
; 6282          7793  3
; 6283          7794  3
; 6284          7795  3  ! Rewrite header.
; 6285          7796  3  !
; 6286          7797  3      STATUS = WRITE_HEADER(.FID, .HEADER);
; 6287          7798  3      IF NOT .STATUS THEN RETURN .STATUS;
; 6288          7799  3
; 6289          7800  3
; 6290          7801  3  ! Quota table maintenance.  The file header must be charged.
; 6291          7802  3  !
; 6292          7803  3      IF
; 6293          7804  3          .HEADER[FH2$B_STRUCLEV] EQL 2 AND NOT .QUAL[QUAL_VOLU] AND
; 6294          7805  3          .P6 NEQ 0 AND
; 6295          7806  4          (.FIB[FIB$W_FID_NUM] GEQU FID$C_MFD OR .FIB[FIB$B_FID_NMX] NEQ 0)
; 6296          7807  3      THEN
; 6297          7808  3          DQF_MODIFY_USAGE(.HEADER[FH2$L_FILEOWNER], 1);
; 6298          7809  3
; 6299          7810  3  ! Read and modify the next extension file header.
; 6300          7811  3  ! Get clean file number and RVN.
; 6301          7812  3  !
; 6302          7813  3      IF .HEADER[FH2$B_STRUCLEV] EQL 2
; 6303          7814  3      THEN
; 6304          7815  4          BEGIN
; 6305          7816  4          EXT_FILE_ID[FID$W_NUM] = .HEADER[FH2$W_EX_FIDNUM];
; 6306          7817  4          EXT_FILE_ID[FID$W_SEQ] = .HEADER[FH2$W_EX_FIDSEQ];
; 6307          7818  4          EXT_FILE_ID[FID$W_RVN] = .HEADER[FH2$W_EX_FIDRVN];
; 6308          7819  4          END
; 6309          7820  3      ELSE
; 6310          7821  4          BEGIN
; 6311          7822  4          LOCAL MAP_POINTER: REF BBLOCK;
; 6312          7823  4          MAP_POINTER = .HEADER + .HEADER[FH1$B_MPOFFSET] * 2;
; 6313          7824  4          EXT_FILE_ID[FID$W_NUM] = .MAP_POINTER[FM1$W_EX_FILNUM];
; 6314          7825  4          EXT_FILE_ID[FID$W_SEQ] = .MAP_POINTER[FM1$W_EX_FILSEQ];
; 6315          7826  4          EXT_FILE_ID[FID$W_RVN] = 0;
; 6316          7827  3          END;
; 6317          7828  3      IF .CURRENT_MTL[MTL_SEQ_DISK]
; 6318          7829  4      OR (.EXT_FILE_ID[FID$W_NUM] EQL 0 AND .EXT_FILE_ID[FID$W_RVN] EQL 0)
; 6319          7830  4      OR (.EXT_FILE_ID[FID$B_RVN] NEQ 0 AND .QUA[[QUA[_VOLU])
; 6320          7831  3      THEN EXITLOOP;
```

```
3       IF .EXT_FILE_ID[FID$B_RVN] EQL 0 THEN EXT_FILE_ID[FID$B_RVN] = .RVN;
3
3
3 ! Set up header and RVN for next trip through loop.
3 !
3
3       FID = EXT_FILE_ID;
3       HEADER = LOCAL_HEADER;
3       RVN = .EXT_FILE_ID[FID$B_RVN];
3
3 ! Read extension file header.  If this fails,
3 ! exit the loop.
3 !
3       STATUS = READ_HEADER(EXT_FILE_ID, .HEADER);
3       IF NOT .STATUS
3       THEN RETURN .STATUS;
2       END;
2
2
2 ! Completed normally.
2 !
2 SS$_NORMAL
1 END;
```

```
                                03FC 00000 STA_MODIFY:
                                                  .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9                  ; 7719
          59 00000000'  EF  9E 00002              MOVAB   CURRENT_MTL, R9                               ;
          5E      FDF8  CE  9E 00009              MOVAB   -520(SP), SP                                  ;
          55        1C  AC  D0 0000E              MOVL    P1, R5                                        ; 7762
                        04  13 00012              BEQL    1$                                            ;
          54        04  A5  D0 00014              MOVL    4(R5), FIB                                    ;
          50            69  D0 00018 1$:          MOVL    CURRENT_MTL, R0                               ; 7766
          53        0C  A0  D0 0001B              MOVL    12(R0), HEADER                                ;
          52        18  A0  9E 0001F              MOVAB   24(R0), FID                                   ; 7767
                    08  A0  D5 00023              TSTL    8(R0)                                         ; 7768
                        25  12 00026              BNEQ    3$                                            ;
                        55  D5 00028              TSTL    R5                                            ; 7771
                        04  12 0002A              BNEQ    2$                                            ;
          50            14  D0 0002C              MOVL    #20, R0                                       ;
                            04 0002F              RET                                                   ;
          62        04  A4  D0 00030 2$:          MOVL    4(FIB), (FID)                                 ; 7772
     04   A2        08  A4  B0 00034              MOVW    8(FIB), 4(FID)                                ; 7774
                        0C  BB 00039              PUSHR   #^M<R2,R3>                                    ; 7775
   CBD2   CF            02  FB 0003B              CALLS   #2, READ_HEADER                               ;
          57            50  D0 00040              MOVL    R0, STATUS                                    ;
          30            57  E9 00043              BLBC    STATUS, 7$                                    ; 7776
          50            69  D0 00046              MOVL    CURRENT_MTL, R0                               ; 7777
     31   A0            02  8A 00049              BICB2   #2, 49(R0)                                    ;
          58        04  A2  9A 0004D 3$:          MOVZBL  4(FID), RVN                                   ; 7779
                        55  D5 00051 4$:          TSTL    R5                                            ; 7791
                        04  12 00053              BNEQ    5$                                            ;
                        7E  D4 00055              CLRL    -(SP)                                         ;
                        03  11 00057              BRB     6$                                            ;
```

```
                        04   A5  DD 00059 5$:     PUSHL   4(R5)                                  ;
                        2C   AC  DD 0005C 6$:     PUSHL   P5                                     ;
                             53  DD 0005F         PUSHL   HEADER                                 ;
        0000V  CF            03  FB 00061         CALLS   #3, WRITE_ATTRIBUTES                   ;
               57            50  D0 00066         MOVL    R0, STATUS                             ;
               0A            57  E9 00069         BLBC    STATUS, 7$                             ; 7792
                             0C  BB 0006C         PUSHR   #^M<R2,R3>                             ; 7797
        CC2F   CF            02  FB 0006E         CALLS   #2, WRITE_HEADER                       ;
               57            50  D0 00073         MOVL    R0, STATUS                             ;
               03            57  E8 00076 7$:     BLBS    STATUS, 8$                             ; 7798
                           0087  31 00079         BRW     16$                                    ;
                             56  D4 0007C 8$:     CLRL    R6                                     ; 7804
               02      07    A3  91 0007E         CMPB    7(HEADER), #2                          ;
                             21  12 00082         BNEQ    10$                                    ;
                             56  D6 00084         INCL    R6                                     ;
               1A    F996    C9  E8 00086         BLBS    QUAL+14, 10$                           ;
                        30   AC  D5 0008B         TSTL    P6                                     ; 7805
                             15  13 0008E         BEQL    10$                                    ;
               04      04    A4  B1 00090         CMPW    4(FIB), #4                             ; 7806
                             05  1E 00094         BGEQU   9$                                     ;
                        09   A4  95 00096         TSTB    9(FIB)                                 ;
                             0A  13 00099         BEQL    10$                                    ;
                             01  DD 0009B 9$:     PUSHL   #1                                     ; 7808
                        3C   A3  DD 0009D         PUSHL   60(HEADER)                             ;
        C90A   CF            02  FB 000A0         CALLS   #2, DQF_MODIFY_USAGE                   ;
               0C            56  E9 000A5 10$:    BLBC    R6, 11$                                ; 7813
          F8   AD      0E    A3  D0 000A8         MOVL    14(HEADER), EXT_FILE_ID                ; 7816
          FC   AD      12    A3  B0 000AD         MOVW    18(HEADER), EXT_FILE_ID+4              ; 7818
                             10  11 000B2         BRB     12$                                    ; 7813
               50      01    A3  9A 000B4 11$:    MOVZBL  1(HEADER), R0                          ; 7823
               50          6340  3E 000B8         MOVAW   (HEADER)[R0], MAP_POINTER              ;
          F8   AD      02    A0  D0 000BC         MOVL    2(MAP_POINTER), EXT_FILE_ID            ; 7824
                        FC   AD  B4 000C1         CLRW    EXT_FILE_ID+4                          ; 7826
               50            69  D0 000C4 12$:    MOVL    CURRENT_MTL, R0                        ; 7828
               3C      31    A0  E8 000C7         BLBS    49(R0), 17$                            ;
                        F8   AD  B5 000CB         TSTW    EXT_FILE_ID                            ; 7829
                             05  12 000CE         BNEQ    13$                                    ;
                        FC   AD  B5 000D0         TSTW    EXT_FILE_ID+4                          ;
                             32  13 000D3         BEQL    17$                                    ;
                        FC   AD  95 000D5 13$:    TSTB    EXT_FILE_ID+4                          ; 7830
                             07  13 000D8         BEQL    14$                                    ;
               28    F996    C9  E8 000DA         BLBS    QUAL+14, 17$                           ;
                             04  12 000DF         BNEQ    15$                                    ; 7832
          FC   AD            58  90 000E1 14$:    MOVB    RVN, EXT_FILE_ID+4                     ;
               52      F8    AD  9E 000E5 15$:    MOVAB   EXT_FILE_ID, FID                       ; 7838
               53            6E  9E 000E9         MOVAB   LOCAL_HEADER, HEADER                   ; 7839
               58      FC    AD  9A 000EC         MOVZBL  EXT_FILE_ID+4, RVN                     ; 7840
                             53  DD 000F0         PUSHL   HEADER                                 ; 7845
                        F8   AD  9F 000F2         PUSHAB  EXT_FILE_ID                            ;
        CB18   CF            02  FB 000F5         CALLS   #2, READ_HEADER                        ;
               57            50  D0 000FA         MOVL    R0, STATUS                             ;
               03            57  E9 000FD         BLBC    STATUS, 16$                            ; 7846
                           FF4E  31 00100         BRW     4$                                     ;
               50            57  D0 00103 16$:    MOVL    STATUS, R0                             ; 7847
                                 04 00106         RET                                            ;
               50            01  D0 00107 17$:    MOVL    #1, R0                                 ; 7854
                                 04 0010A         RET                                            ;
```

; Routine Size: 267 bytes, Routine Base: CODE + 369E

```
; 6345   7855  1 %SBTTL 'STA_QIO - stand-alone QIO dispatcher'
; 6346   7856  1 GLOBAL ROUTINE STA_QIO (EFN,CHAN,FUNC,IOSB,ASTADR,ASTPRM,P1,P2,P3,P4,P5,P6)=
; 6347   7857  1
; 6348   7858  1 !++
; 6349   7859  1 !
; 6350   7860  1 ! FUNCTIONAL DESCRIPTION:
; 6351   7861  1 !       This routine is the dispatcher for standalone ACP QIO functions.
; 6352   7862  1 !
; 6353   7863  1 ! INPUT PARAMETERS:
; 6354   7864  1 !       As for $QIO(W) system service.
; 6355   7865  1 !
; 6356   7866  1 ! IMPLICIT INPUTS:
; 6357   7867  1 !       INPUT_MTL       - Pointer to MTL for input volume set.
; 6358   7868  1 !       OUTPUT_MTL      - Pointer to MTL for output volume set.
; 6359   7869  1 !
; 6360   7870  1 ! OUTPUT PARAMETERS:
; 6361   7871  1 !       NONE
; 6362   7872  1 !
; 6363   7873  1 ! IMPLICIT OUTPUTS:
; 6364   7874  1 !       NONE
; 6365   7875  1 !
; 6366   7876  1 ! ROUTINE VALUE:
; 6367   7877  1 !       Completion status.
; 6368   7878  1 !
; 6369   7879  1 ! SIDE EFFECTS:
; 6370   7880  1 !       NONE
; 6371   7881  1 !
; 6372   7882  1 !--
; 6373   7883  1
; 6374   7884  2 BEGIN
; 6375   7885  2 MAP
; 6376   7886  2         FUNC:           BBLOCK,         ! I/O function code
; 6377   7887  2         IOSB:           REF VECTOR [,WORD]; ! I/O status block
; 6378   7888  2 LOCAL
; 6379   7889  2         STATUS;
; 6380   7890  2 BUILTIN
; 6381   7891  2         AP;
; 6382   7892  2
; 6383   7893  2
; 6384   7894  2 IF .IOSB NEQ 0
; 6385   7895  2 THEN
; 6386   7896  3     BEGIN
; 6387   7897  3     IOSB[0] = 0;
; 6388   7898  3     IOSB[1] = 0;
; 6389   7899  3     IOSB[2] = 0;
; 6390   7900  3     IOSB[3] = 0;
; 6391   7901  2     END;
; 6392   7902  2
; 6393   7903  2
; 6394   7904  2 ! Validate the channel number.  The standalone ACP uses special channel numbers
; 6395   7905  2 ! larger than 16 bits to avoid interacting with VMS channel numbers, which are
; 6396   7906  2 ! invalid here.  Set CURRENT_MTL to point to the MTL for the selected volume
; 6397   7907  2 ! set.
; 6398   7908  2 !
; 6399   7909  2 IF
; 6400   7910  3     BEGIN
; 6401   7911  3     SELECTONE .CHAN OF
```

```
; 6402          7912  3          SET
; 6403          7913  3
; 6404          7914  3          [STA_IN_CHAN]:
; 6405          7915  4              BEGIN
; 6406          7916  4              CURRENT_MTL = .INPUT_MTL;
; 6407          7917  4              .CURRENT_MTL EQL 0
; 6408          7918  3              END;
; 6409          7919  3
; 6410          7920  3          [STA_OUT_CHAN]:
; 6411          7921  4              BEGIN
; 6412          7922  4              CURRENT_MTL = .OUTPUT_MTL;
; 6413          7923  4              .CURRENT_MTL EQL 0
; 6414          7924  3              END;
; 6415          7925  3
; 6416          7926  3          [OTHERWISE]:
; 6417          7927  3              TRUE;
; 6418          7928  3
; 6419          7929  3          TES
; 6420          7930  3      END
; 6421          7931  2  THEN
; 6422          7932  2      RETURN SS$_IVCHAN;
; 6423          7933  2
; 6424          7934  2
; 6425          7935  2  ! Dispatch to the function code specific processing routine.
; 6426          7936  2  !
; 6427          7937  2  CASE .FUNC[IO$V_FCODE] FROM IO$_WRITEVBLK TO IO$_MODIFY OF
; 6428          7938  2      SET
; 6429          7939  2
; 6430          7940  2      [IO$_WRITEVBLK, IO$_READVBLK]:
; 6431          7941  3          BEGIN
; 6432          7942  3          STATUS = CALLG(.AP, STA_RDWRVBLK);
; 6433          7943  3          IF .STATUS THEN RETURN .STATUS;
; 6434          7944  2          END;
; 6435          7945  2
; 6436          7946  2      [IO$_ACCESS]:
; 6437          7947  2          STATUS = CALLG(.AP, STA_ACCESS);
; 6438          7948  2
; 6439          7949  2      [IO$_CREATE]:
; 6440          7950  2          STATUS = CALLG(.AP, STA_CREATE);
; 6441          7951  2
; 6442          7952  2      [IO$_DEACCESS]:
; 6443          7953  2          STATUS = CALLG(.AP, STA_DEACCESS);
; 6444          7954  2
; 6445          7955  2      [IO$_MODIFY]:
; 6446          7956  2          STATUS = CALLG(.AP, STA_MODIFY);
; 6447          7957  2
; 6448          7958  2      [INRANGE, OUTRANGE]:
; 6449          7959  2          STATUS = SS$_ILLIOFUNC;
; 6450          7960  2
; 6451          7961  2      TES;
; 6452          7962  2
; 6453          7963  2
; 6454          7964  2  ! Return status in IOSB.
; 6455          7965  2  !
; 6456          7966  2  IF .IOSB NEQ 0
; 6457          7967  2  THEN
; 6458          7968  3      BEGIN
```

```
; 6459        7969  3      IOSB[0] = .STATUS<0,16>;
; 6460        7970  2      END;
; 6461        7971  2
; 6462        7972  2
; 6463        7973  2 ! Set the specified event flag and return success.
; 6464        7974  2 !
; 6465        7975  2 $SETEF(EFN=.EFN);
; 6466        7976  2 SS$_NORMAL
; 6467        7977  1 END;


                                                  001C 00000          .ENTRY  STA_QIO, Save R2,R3,R4                  ; 7856
                                 54 00000000'  EF   9E 00002          MOVAB   CURRENT_MTL, R4                         ;
                                 50        10  AC   D0 00009          MOVL    IOSB, R0                                ; 7894
                                                02   13 0000D          BEQL    1$                                      ;
                                                60   7C 0000F          CLRQ    (R0)                                    ; 7897
                                 50        08  AC   D0 00011 1$:      MOVL    CHAN, R0                                ; 7911
                       0001FFFF  8F            50   D1 00015          CMPL    R0, #131071                             ; 7914
                                                06   12 0001C          BNEQ    2$                                      ;
                                 64        F8  A4   D0 0001E          MOVL    INPUT_MTL, CURRENT_MTL                  ; 7916
                                                0D   11 00022          BRB     3$                                      ; 7917
                       0002FFFF  8F            50   D1 00024 2$:      CMPL    R0, #196607                             ; 7920
                                                06   12 0002B          BNEQ    4$                                      ;
                                 64        FC  A4   D0 0002D          MOVL    OUTPUT_MTL, CURRENT_MTL                 ; 7922
                                                06   12 00031 3$:      BNEQ    5$                                      ; 7923
                                 50      013C  8F   3C 00033 4$:      MOVZWL  #316, R0                                ; 7932
                                                     04 00038          RET                                             ;
   53        0C    AC            06            00   EF 00039 5$:      EXTZV   #0, #6, FUNC, R3                        ; 7937
                   06            30            53   CF 0003F          CASEL   R3, #48, #6                             ;
 002A          0023          0014          0014      00043 6$:      .WORD   8$-6$,-                                 ;
               0038          000E          0031      0004B                  8$-6$,-                                 ;
                                                                              9$-6$,-                                 ;
                                                                              10$-6$,-                                ;
                                                                              11$-6$,-                                ;
                                                                              7$-6$,-                                 ;
                                                                              12$-6$                                  ;
                                 52        F4  8F   9A 00051 7$:      MOVZBL  #244, STATUS                            ; 7959
                                                2C   11 00055          BRB     14$                                     ;
                       F2CB      CF            6C   FA 00057 8$:      CALLG   (AP), STA_RDWRVBLK                      ; 7942
                                 52            50   D0 0005C          MOVL    R0, STATUS                              ;
                                 21            52   E9 0005F          BLBC    STATUS, 14$                             ; 7943
                                 50            52   D0 00062          MOVL    STATUS, R0                              ;
                                                     04 00065          RET                                             ;
                       F2DA      CF            6C   FA 00066 9$:      CALLG   (AP), STA_ACCESS                        ; 7947
                                                13   11 0006B          BRB     13$                                     ;
                       F5F3      CF            6C   FA 0006D 10$:     CALLG   (AP), STA_CREATE                        ; 7950
                                                0C   11 00072          BRB     13$                                     ;
                       FBBE      CF            6C   FA 00074 11$:     CALLG   (AP), STA_DEACCESS                      ; 7953
                                                05   11 00079          BRB     13$                                     ;
                       FE75      CF            6C   FA 0007B 12$:     CALLG   (AP), STA_MODIFY                        ; 7956
                                 52            50   D0 00080 13$:     MOVL    R0, STATUS                              ;
                                         10    AC   D5 00083 14$:     TSTL    IOSB                                    ; 7966
                                                04   13 00086          BEQL    15$                                     ;
                          10     BC            52   B0 00088          MOVW    STATUS, @IOSB                           ; 7969
```

```
                                  04   AC  DD 0008C 15$:    PUSHL   EFN                                  ; 7975
                00000000G  00          01  FB 0008F         CALLS   #1, SYS$SETEF                        ;
                           50          01  D0 00096         MOVL    #1, R0                               ; 7977
                                           04 00099         RET                                          ;

; Routine Size:  154 bytes,    Routine Base:  CODE + 37A9
```

```
1 %SBTTL 'STA_QIOW - stand-alone QIOW dispatcher'
1 GLOBAL ROUTINE STA_QIOW (EFN,CHAN,FUNC,IOSB,ASTADR,ASTPRM,P1,P2,P3,P4,P5,P6)=
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !       This routine executes the $QIOW service for standalone functions.
1 !
1 ! INPUT PARAMETERS:
1 !       As for $QIOW system service.
1 !
1 ! IMPLICIT INPUTS:
1 !       NONE
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       Completion status.
1 !
1 ! SIDE EFFECTS:
1 !       NONE
1 !
1 !--
1
2 BEGIN
2 LOCAL
2         STATUS;
2 BUILTIN
2         AP;
2
2
2 STATUS = CALLG(.AP, STA_QIO);
2 IF NOT .STATUS THEN RETURN .STATUS;
3 $WAITFR(EFN=.EFN)
1 END;
```

```
                                  0000 00000        .ENTRY  STA_QIOW, Save nothing                  ; 7979
          FF5F   CF            6C  FA 00002        CALLG   (AP), STA_QIO                           ; 8013
                 0A            50  E9 00007        BLBC    STATUS, 1$                              ; 8014
                         04    AC  DD 0000A        PUSHL   EFN                                     ; 8015
     00000000G   00            01  FB 0000D        CALLS   #1, SYS$WAITFR                          ;
                                   04 00014 1$:    RET                                             ; 8016

; Routine Size:  21 bytes,    Routine Base:  CODE + 3843
```

```
; 6509          %SBTTL 'READ_ATTRIBUTES - read file attributes'
; 6510          ROUTINE READ_ATTRIBUTES (HEADER,ATRLIST,FIB)=
; 6511
; 6512          !++
; 6513          !
; 6514          ! FUNCTIONAL DESCRIPTION:
; 6515          !       This routine processes an ACP attributes list, returning the specified
; 6516          !       attributes to the user.  Only attributes that are required by BACKUP
; 6517          !       are processed.
; 6518          !
; 6519          ! INPUT PARAMETERS:
; 6520          !       HEADER          - Pointer to file header.
; 6521          !       ATRLIST         - Pointer to ACP attributes list.
; 6522          !       FIB             - Address of the FIB
; 6523          !
; 6524          ! IMPLICIT INPUTS:
; 6525          !       CURRENT_MTL     - Pointer to MTL for selected volume set.
; 6526          !
; 6527          ! OUTPUT PARAMETERS:
; 6528          !       NONE
; 6529          !
; 6530          ! IMPLICIT OUTPUTS:
; 6531          !       NONE
; 6532          !
; 6533          ! ROUTINE VALUE:
; 6534          !       Completion status, SS$_NORMAL or SS$_BADATTRIB.
; 6535          !
; 6536          ! SIDE EFFECTS:
; 6537          !       NONE
; 6538          !
; 6539          !--
; 6540
; 6541          BEGIN
; 6542          MAP
; 6543                  HEADER:         REF BBLOCK;             ! Pointer to file header
; 6544          LOCAL
; 6545                  ATR:            REF BBLOCK;             ! Pointer to attribute list
; 6546
; 6547
; 6548          ATR = .ATRLIST;
; 6549          WHILE .ATR[ATR$W_TYPE] NEQ 0 DO
; 6550              BEGIN
; 6551              LOCAL
; 6552                  S_LEN,                                  ! Source length for move
; 6553                  S_ADR,                                  ! Source address for move
; 6554                  TEMP_AREA:      BBLOCK[10],             ! Temporary buffer
; 6555                  ACL_ATR;                                ! True if an ACL attribute
; 6556
; 6557
; 6558              ACL_ATR = FALSE;
; 6559              SELECTONE .ATR[ATR$W_TYPE] OF
; 6560                  SET
; 6561
; 6562
; 6563                  [ATR$C_RECATTR]:
; 6564                      BEGIN
; 6565                      S_LEN = FAT$C_LENGTH;
```

```
; 6566    8074  4            S_ADR = HEADER[FH2$W_RECATTR];
; 6567    8075  4            IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6568    8076  4            THEN
; 6569    8077  4                S_ADR = HEADER[FH1$W_RECATTR];
; 6570    8078  3            END;
; 6571    8079  3
; 6572    8080  3
; 6573    8081  3        [ATR$C_STATBLK]:
; 6574    8082  4            BEGIN
; 6575    8083  4            LOCAL
; 6576    8084  4                WCB:    REF BBLOCK;
; 6577    8085  4
; 6578    8086  4            S_LEN = 8;
; 6579    8087  4            S_ADR = TEMP_AREA;
; 6580    8088  4            TEMP_AREA[0,0,32,0] = 0;
; 6581    8089  4            WCB = .CURRENT_MTL[MTL_WINDOW];
; 6582    8090  4            IF .WCB EQL 0 THEN RETURN SS$_BADATTRIB;
; 6583    8091  4            IF .WCB[WCB_LINK] EQL 0 AND .WCB[WCB_SIZE] EQL 1
; 6584    8092  4            THEN
; 6585    8093  4                TEMP_AREA[0,0,32,0] =
; 6586    8094  4                    ROT(.BBLOCK[WCB[WCB_S_HEADER,0,0,0], WCB_LBN], 16);
; 6587    8095  4            TEMP_AREA[4,0,32,0] = ROT(.CURRENT_MTL[MTL_FILESIZE], 16);
; 6588    8096  3            END;
; 6589    8097  3
; 6590    8098  3
; 6591    8099  3        [ATR$C_HEADER]:
; 6592    8100  4            BEGIN
; 6593    8101  4            S_LEN = 512;
; 6594    8102  4            S_ADR = .HEADER;
; 6595    8103  3            END;
; 6596    8104  3
; 6597    8105  3
; 6598    8106  3        [ATR$C_UIC]:
; 6599    8107  4            BEGIN
; 6600    8108  4            S_LEN = 4;
; 6601    8109  4            S_ADR = HEADER[FH2$L_FILEOWNER];
; 6602    8110  4            IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6603    8111  4            THEN
; 6604    8112  5                BEGIN
; 6605    8113  5                TEMP_AREA<0,16> = .HEADER[FH1$B_UICMEMBER];
; 6606    8114  5                TEMP_AREA<16,16> = .HEADER[FH1$B_UICGROUP];
; 6607    8115  5                S_ADR = TEMP_AREA;
; 6608    8116  4                END;
; 6609    8117  3            END;
; 6610    8118  3
; 6611    8119  3
; 6612    8120  3        [ATR$C_UCHAR]:
; 6613    8121  4            BEGIN
; 6614    8122  4            S_LEN = 4;
; 6615    8123  4            S_ADR = HEADER[FH2$L_FILECHAR];
; 6616    8124  4            IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6617    8125  4            THEN
; 6618    8126  5                BEGIN
; 6619    8127  5                TEMP_AREA<0,32> = .HEADER[FH1$W_FILECHAR];
; 6620    8128  5                S_ADR = TEMP_AREA;
; 6621    8129  4                END;
; 6622    8130  3            END;
```

```
3
3
3          [ATR$C_EXTFID]:
4              BEGIN
4              IF .HEADER[FH2$B_STRUCLEV] NEQ 2
4              THEN RETURN SS$_BADATTRIB;
4              S_LEN = 6;
4              S_ADR = HEADER[FH2$W_EXT_FID];
3              END;
3
3
3          [ATR$C_SEGNUM]:
4              BEGIN
4              IF .HEADER[FH2$B_STRUCLEV] NEQ 2
4              THEN RETURN SS$_BADATTRIB;
4              S_LEN = 2;
4              S_ADR = HEADER[FH2$W_SEG_NUM];
3              END;
3
3          [ATR$C_ADDACLENT, ATR$C_DELETEACL,
3           ATR$C_READACL, ATR$C_ACLLENGTH]:
3              IF .HEADER[FH2$B_STRUCLEV] EQL 2
3              THEN
4                  BEGIN
4                  ACL_DISPATCH (.ATR[ATR$W_TYPE], .ATR[ATR$W_SIZE],
4                                .ATR[ATR$L_ADDR], .FIB);
4                  ACL_ATR = TRUE;
4                  END
3              ELSE S_LEN = 0;
3
3
3          [OTHERWISE]:
3              RETURN SS$_BADATTRIB;
3
3
3          TES;
3
3
3      IF NOT .ACL_ATR
3      THEN CH$COPY(.S_LEN, .S_ADR, 0, .ATR[ATR$W_SIZE], .ATR[ATR$L_ADDR]);
3      ATR = .ATR + 8;
2      END;
2
2
2  SS$_NORMAL
1  END;
```

```
                                  007C 00000 READ_ATTRIBUTES:
                                                  .WORD   Save R2,R3,R4,R5,R6                  ; 8018
        5E          0C  C2 00002                  SUBL2   #12, SP                              ;
        56      08  AC  D0 00005                  MOVL    ATRLIST, ATR                         ; 8056
        51      02  A6  3C 00009 1$:              MOVZWL  2(ATR), R1                           ; 8057
                    03  12 0000D                  BNEQ    2$                                   ;
```

```
                                  0117  31 0000F          BRW     21$                                  ;
                                    55  D4 00012 2$:      CLRL    ACL_ATR                              ; 8066
                      04            51  B1 00014          CMPW    R1, #4                               ; 8071
                                    14  12 00017          BNEQ    3$                                   ;
                      54            20  D0 00019          MOVL    #32, S_LEN                           ; 8073
                      50      04    AC  D0 0001C          MOVL    HEADER, R0                           ; 8074
                      52      14    A0  9E 00020          MOVAB   20(R0), S_ADR                        ;
                      01      07    A0  91 00024          CMPB    7(R0), #1                            ; 8075
                                    7C  12 00028          BNEQ    9$                                   ;
                                  0096  31 0002A          BRW     12$                                  ; 8077
                      09            51  B1 0002D 3$:      CMPW    R1, #9                               ; 8081
                                    2F  12 00030          BNEQ    6$                                   ;
                      54            08  D0 00032          MOVL    #8, S_LEN                            ; 8086
                      52            6E  9E 00035          MOVAB   TEMP_AREA, S_ADR                     ; 8087
                                    6E  D4 00038          CLRL    TEMP_AREA                            ; 8088
                      53 00000000'  EF  D0 0003A          MOVL    CURRENT_MTL, R3                      ; 8089
                      50      08    A3  D0 00041          MOVL    8(R3), WCB                           ;
                                    03  12 00045          BNEQ    4$                                   ; 8090
                                  00CB  31 00047          BRW     18$                                  ;
                                    60  D5 0004A 4$:      TSTL    (WCB)                                ; 8091
                                    0B  12 0004C          BNEQ    5$                                   ;
                      01      08    A0  91 0004E          CMPB    8(WCB), #1                           ;
                                    05  12 00052          BNEQ    5$                                   ;
          6E      18  A0            10  9C 00054          ROTL    #16, 24(WCB), TEMP_AREA              ; 8094
    04    AE      20  A3            10  9C 00059 5$:      ROTL    #16, 32(R3), TEMP_AREA+4             ; 8095
                                    7E  11 0005F          BRB     14$                                  ; 8067
                      0A            51  B1 00061 6$:      CMPW    R1, #10                              ; 8099
                                    0B  12 00064          BNEQ    7$                                   ;
                      54    0200    8F  3C 00066          MOVZWL  #512, S_LEN                          ; 8101
                      52      04    AC  D0 0006B          MOVL    HEADER, S_ADR                        ; 8102
                                    6E  11 0006F          BRB     14$                                  ; 8067
                      15            51  B1 00071 7$:      CMPW    R1, #21                              ; 8106
                                    1C  12 00074          BNEQ    8$                                   ;
                      54            04  D0 00076          MOVL    #4, S_LEN                            ; 8108
                      50      04    AC  D0 00079          MOVL    HEADER, R0                           ; 8109
                      52      3C    A0  9E 0007D          MOVAB   60(R0), S_ADR                        ;
                      01      07    A0  91 00081          CMPB    7(R0), #1                            ; 8110
                                    58  12 00085          BNEQ    14$                                  ;
                      6E      08    A0  9B 00087          MOVZBW  8(R0), TEMP_AREA                     ; 8113
                02    AE      09    A0  9B 0008B          MOVZBW  9(R0), TEMP_AREA+2                   ; 8114
                                    1A  11 00090          BRB     10$                                  ; 8115
                      03            51  B1 00092 8$:      CMPW    R1, #3                               ; 8120
                                    1A  12 00095          BNEQ    11$                                  ;
                      54            04  D0 00097          MOVL    #4, S_LEN                            ; 8122
                      50      04    AC  D0 0009A          MOVL    HEADER, R0                           ; 8123
                      52      34    A0  9E 0009E          MOVAB   52(R0), S_ADR                        ;
                      01      07    A0  91 000A2          CMPB    7(R0), #1                            ; 8124
                                    71  12 000A6 9$:      BNEQ    19$                                  ;
                      6E      0C    A0  3C 000A8          MOVZWL  12(R0), TEMP_AREA                    ; 8127
                      52            6E  9E 000AC 10$:     MOVAB   TEMP_AREA, S_ADR                     ; 8128
                                    68  11 000AF          BRB     19$                                  ; 8067
                      27            51  B1 000B1 11$:     CMPW    R1, #39                              ; 8133
                                    13  12 000B4          BNEQ    13$                                  ;
                      50      04    AC  D0 000B6          MOVL    HEADER, R0                           ; 8135
                      02      07    A0  91 000BA          CMPB    7(R0), #2                            ;
                                    55  12 000BE          BNEQ    18$                                  ;
                      54            06  D0 000C0          MOVL    #6, S_LEN                            ; 8137
```

```
                        52      0E   A0  9E 000C3 12$:   MOVAB   14(R0), S_ADR                        ; 8138
                                     50  11 000C7        BRB     19$                                  ; 8067
                        28           51  B1 000C9 13$:   CMPW    R1, #40                              ; 8142
                                     13  12 000CC        BNEQ    15$                                  ;
                        50      04   AC  D0 000CE        MOVL    HEADER, R0                           ; 8144
                        02      07   A0  91 000D2        CMPB    7(R0), #2                            ;
                                     3D  12 000D6        BNEQ    18$                                  ;
                        54           02  D0 000D8        MOVL    #2, S_LEN                            ; 8146
                        52      04   A0  9E 000DB        MOVAB   4(R0), S_ADR                         ; 8147
                                     38  11 000DF 14$:   BRB     19$                                  ; 8067
                        1F           51  B1 000E1 15$:   CMPW    R1, #31                              ; 8150
                                     0A  13 000E4        BEQL    16$                                  ;
                        24           51  B1 000E6        CMPW    R1, #36                              ;
                                     2A  1F 000E9        BLSSU   18$                                  ;
                        26           51  B1 000EB        CMPW    R1, #38                              ;
                                     25  1A 000EE        BGTRU   18$                                  ;
                        50      04   AC  D0 000F0 16$:   MOVL    HEADER, R0                           ; 8152
                        02      07   A0  91 000F4        CMPB    7(R0), #2                            ;
                                     17  12 000F8        BNEQ    17$                                  ;
                                0C   AC  DD 000FA        PUSHL   FIB                                  ; 8156
                                04   A6  DD 000FD        PUSHL   4(ATR)                               ;
                        7E           66  3C 00100        MOVZWL  (ATR), -(SP)                         ; 8155
                                     51  DD 00103        PUSHL   R1                                   ;
              00000000G 00           04  FB 00105        CALLS   #4, ACL_DISPATCH                     ;
                        55           01  D0 0010C        MOVL    #1, ACL_ATR                          ; 8157
                                     08  11 0010F        BRB     19$                                  ; 8152
                                     54  D4 00111 17$:   CLRL    S_LEN                                ; 8159
                                     04  11 00113        BRB     19$                                  ; 8152
                        50           34  D0 00115 18$:   MOVL    #52, R0                              ; 8163
                                         04 00118        RET                                          ;
                        07           55  E8 00119 19$:   BLBS    ACL_ATR, 20$                         ; 8169
        66      00      62           54  2C 0011C        MOVC5   S_LEN, (S_ADR), #0, (ATR), @4(ATR)   ; 8170
                                04   B6     00121                                                    ;
                        56           08  C0 00123 20$:   ADDL2   #8, ATR                              ; 8171
                                   FEE0  31 00126        BRW     1$                                   ; 8057
                        50           01  D0 00129 21$:   MOVL    #1, R0                               ; 8176
                                         04 0012C        RET                                          ;

; Routine Size:  301 bytes,    Routine Base:  CODE + 3858
```

```
; 6670    8177  1 %SBTTL 'TO_ODS1_DATE - format ODS-1 date'
; 6671    8178  1 GLOBAL ROUTINE TO_ODS1_DATE (SRC,DST): NOVALUE=
; 6672    8179  1
; 6673    8180  1 !++
; 6674    8181  1 !
; 6675    8182  1 ! FUNCTIONAL DESCRIPTION:
; 6676    8183  1 !       This routine converts a date in 64-bit format to ODS-1 format.
; 6677    8184  1 !
; 6678    8185  1 ! INPUT PARAMETERS:
; 6679    8186  1 !       SRC             - Address of quadword time value.
; 6680    8187  1 !       DST             - Address of 13-byte output buffer.
; 6681    8188  1 !
; 6682    8189  1 ! IMPLICIT INPUTS:
; 6683    8190  1 !       NONE
; 6684    8191  1 !
; 6685    8192  1 ! OUTPUT PARAMETERS:
; 6686    8193  1 !       NONE
; 6687    8194  1 !
; 6688    8195  1 ! IMPLICIT OUTPUTS:
; 6689    8196  1 !       NONE
; 6690    8197  1 !
; 6691    8198  1 ! ROUTINE VALUE:
; 6692    8199  1 !       NONE
; 6693    8200  1 !
; 6694    8201  1 ! SIDE EFFECTS:
; 6695    8202  1 !       NONE
; 6696    8203  1 !
; 6697    8204  1 !--
; 6698    8205  1
; 6699    8206  2 BEGIN
; 6700    8207  2 MAP
; 6701    8208  2         DST:            REF BBLOCK;             ! Pointer to destination
; 6702    8209  2 LOCAL
; 6703    8210  2         DESC:           VECTOR[2],              ! Descriptor for buffer
; 6704    8211  2         BUFFER:         BBLOCK[23];             ! Buffer for converted time
; 6705    8212  2
; 6706    8213  2
; 6707    8214  2 ! If the time value is 0, return the output area filled with binary zeros.
; 6708    8215  2 !
; 6709    8216  2 IF ..SRC EQL 0
; 6710    8217  2 THEN
; 6711    8218  3     BEGIN
; 6712    8219  3     CH$FILL(0, 13, .DST);
; 6713    8220  3     RETURN;
; 6714    8221  2     END;
; 6715    8222  2
; 6716    8223  2
; 6717    8224  2 ! Convert the value.
; 6718    8225  2 !
; 6719    8226  2 DESC[0] = 23;                           ! Make descriptor
; 6720    8227  2 DESC[1] = BUFFER;
; 6721    8228  2 $ASCTIM(TIMBUF=DESC, TIMADR=.SRC);      ! Convert time value
; 6722    8229  2 DST[0,0,16,0] = .BUFFER[0,0,16,0];      ! Output DD
; 6723    8230  2 DST[2,0,24,0] = .BUFFER[3,0,24,0];      ! Output MMM
; 6724    8231  2 DST[5,0,16,0] = .BUFFER[9,0,16,0];      ! Output YY
; 6725    8232  2 DST[7,0,16,0] = .BUFFER[12,0,16,0];     ! Output HH
; 6726    8233  2 DST[9,0,16,0] = .BUFFER[15,0,16,0];     ! Output MM
```

```
; 6727          8234  2 DST[11,0,16,0] = .BUFFER[18,0,16,0];     ! Output SS
; 6728          8235  1 END;


                                                                  .EXTRN  SYS$ASCTIM

                                                  003C 00000      .ENTRY  TO_ODS1_DATE, Save R2,R3,R4,R5          ; 8178
                                  5E          20  C2 00002        SUBL2   #32, SP                                 ;
                                          04  BC  D5 00005        TSTL    @SRC                                    ; 8216
                                              08  12 00008        BNEQ    1$                                      ;
        0D          00            6E          00  2C 0000A        MOVC5   #0, (SP), #0, #13, @DST                 ; 8219
                                          08  BC     0000F                                                        ;
                                                  04 00011        RET                                             ; 8218
                          18    AE          17  D0 00012 1$:    MOVL    #23, DESC                               ; 8226
                          1C    AE          6E  9E 00016        MOVAB   BUFFER, DESC+4                          ; 8227
                                              7E  D4 0001A        CLRL    -(SP)                                   ; 8228
                                          04  AC  DD 0001C        PUSHL   SRC                                     ;
                                          20  AE  9F 0001F        PUSHAB  DESC                                    ;
                                              7E  D4 00022        CLRL    -(SP)                                   ;
                      00000000G   00          04  FB 00024        CALLS   #4, SYS$ASCTIM                          ;
                                  50      08  AC  D0 0002B        MOVL    DST, R0                                 ; 8229
                                  60          6E  B0 0002F        MOVW    BUFFER, (R0)                            ;
    02  A0          18            00      03  AE  F0 00032        INSV    BUFFER+3, #0, #24, 2(R0)                ; 8230
                          05    A0      09  AE  B0 00039        MOVW    BUFFER+9, 5(R0)                         ; 8231
                          07    A0      0C  AE  B0 0003E        MOVW    BUFFER+12, 7(R0)                        ; 8232
                          09    A0      0F  AE  B0 00043        MOVW    BUFFER+15, 9(R0)                        ; 8233
                          0B    A0      12  AE  B0 00048        MOVW    BUFFER+18, 11(R0)                       ; 8234
                                                  04 0004D        RET                                             ; 8235

; Routine Size:  78 bytes,    Routine Base:  CODE + 3985
```

```
; 6730   %SBTTL 'WRITE_ATTRIBUTES - write file attributes'
; 6731   ROUTINE WRITE_ATTRIBUTES (HEADER,ATR_LIST,FIB)=
; 6732
; 6733   !++
; 6734   !
; 6735   ! FUNCTIONAL DESCRIPTION:
; 6736   !       This routine processes an ACP attributes list, writing the specified
; 6737   !       attributes to the header.  Only attributes that are required by BACKUP
; 6738   !       are processed.
; 6739   !
; 6740   ! INPUT PARAMETERS:
; 6741   !       HEADER          - Pointer to file header.
; 6742   !       ATR_LIST        - Pointer to ACP attributes list.
; 6743   !       FIB             - Address of the FIB
; 6744   !
; 6745   ! IMPLICIT INPUTS:
; 6746   !       NONE
; 6747   !
; 6748   ! OUTPUT PARAMETERS:
; 6749   !       NONE
; 6750   !
; 6751   ! IMPLICIT OUTPUTS:
; 6752   !       NONE
; 6753   !
; 6754   ! ROUTINE VALUE:
; 6755   !       Completion status, SS$_NORMAL or SS$_BADATTRIB.
; 6756   !
; 6757   ! SIDE EFFECTS:
; 6758   !       NONE
; 6759   !
; 6760   !--
; 6761
; 6762   BEGIN
; 6763   MAP
; 6764           HEADER:         REF BBLOCK;             ! Pointer to file header
; 6765   LOCAL
; 6766           ATR:            REF BBLOCK,             ! Pointer to attribute list
; 6767           IDENT_AREA:     REF BBLOCK,             ! Pointer to ident area of header
; 6768           IDENT_LEN;                              ! Length of ident area
; 6769
; 6770
; 6771   ATR = .ATR_LIST;
; 6772   IDENT_AREA = .HEADER + .HEADER[FH2$B_IDOFFSET] * 2;
; 6773   IDENT_LEN = (.HEADER[FH2$B_MPOFFSET] - .HEADER[FH2$B_IDOFFSET]) * 2;
; 6774   WHILE .ATR[ATR$W_TYPE] NEQ 0 DO
; 6775       BEGIN
; 6776       LOCAL
; 6777           S_LEN,                                  ! Source length for move
; 6778           S_ADR,                                  ! Source address for move
; 6779           D_LEN,                                  ! Destination length for move
; 6780           D_ADR,                                  ! Destination address for move
; 6781           TEMP_AREA:      BBLOCK[13],             ! Temporary buffer
; 6782           ACL_ATR;                                ! True if ACL attribute
; 6783
; 6784
; 6785       S_LEN = .ATR[ATR$W_SIZE];
; 6786       S_ADR = .ATR[ATR$L_ADDR];
```

```
; 6787    8293  3
; 6788    8294  3
; 6789    8295  3     ACL_ATR = FALSE;
; 6790    8296  3     CASE .ATR[ATR$W_TYPE] FROM ATR$C_UCHAR TO ATR$C_SEGNUM OF
; 6791    8297  3         SET
; 6792    8298  3
; 6793    8299  3
; 6794    8300  3         [ATR$C_UCHAR]:
; 6795    8301  4             BEGIN
; 6796    8302  4             LITERAL
; 6797    8303  4                 PROTECTED_CHAR=
; 6798    8304  4                     FCH$M_CONTIG OR
; 6799    8305  4                     FCH$M_SPOOL OR
; 6800    8306  4                     FCH$M_BADBLOCK OR
; 6801    8307  4                     FCH$M_MARKDEL,
; 6802    8308  4                 ODS1_CHAR=
; 6803    8309  4                     FCH$M_NOBACKUP OR
; 6804    8310  4                     FCH$M_READCHECK OR
; 6805    8311  4                     FCH$M_WRITCHECK OR
; 6806    8312  4                     FCH$M_CONTIGB OR
; 6807    8313  4                     FCH$M_LOCKED OR
; 6808    8314  4                     FCH$M_CONTIG OR
; 6809    8315  4                     FCH$M_SPOOL OR
; 6810    8316  4                     FCH$M_BADBLOCK OR
; 6811    8317  4                     FCH$M_MARKDEL;
; 6812    8318  4
; 6813    8319  4
; 6814    8320  4             D_LEN = 4;
; 6815    8321  4             D_ADR = HEADER[FH2$L_FILECHAR];
; 6816    8322  4             IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6817    8323  4             THEN
; 6818    8324  5                 BEGIN
; 6819    8325  5                 D_LEN = 2;
; 6820    8326  5                 D_ADR = HEADER[FH1$W_FILECHAR];
; 6821    8327  4                 END;
; 6822    8328  4
; 6823    8329  4
; 6824    8330  4             ! Get value from user attribute list.
; 6825    8331  4             !
; 6826    8332  4             CH$COPY(.S_LEN, .S_ADR, 0, .D_LEN, TEMP_AREA);
; 6827    8333  4
; 6828    8334  4
; 6829    8335  4             ! Get protected characteristics from file header.
; 6830    8336  4             !
; 6831    8337  4             TEMP_AREA =
; 6832    8338  4                 (.TEMP_AREA AND NOT PROTECTED_CHAR) OR
; 6833    8339  4                 (.(.D_ADR)<0,.D_LEN*8> AND PROTECTED_CHAR);
; 6834    8340  4
; 6835    8341  4
; 6836    8342  4             ! Make sure characteristics bits not used in ODS-1 are clear.
; 6837    8343  4             !
; 6838    8344  4             IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6839    8345  4             THEN
; 6840    8346  4                 TEMP_AREA = .TEMP_AREA AND ODS1_CHAR;
; 6841    8347  4
; 6842    8348  4
; 6843    8349  4             S_LEN = .D_LEN;
```

```
; 6844          8350  4             S_ADR = TEMP_AREA;
; 6845          8351  3             END;
; 6846          8352  3
; 6847          8353  3
; 6848          8354  3         [ATR$C_RECATTR]:
; 6849          8355  4             BEGIN
; 6850          8356  4             D_LEN = FAT$C_LENGTH;
; 6851          8357  4             D_ADR = HEADER[FH2$W_RECATTR];
; 6852          8358  4             IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6853          8359  4             THEN
; 6854          8360  4                 D_ADR = HEADER[FH1$W_RECATTR];
; 6855          8361  3             END;
; 6856          8362  3
; 6857          8363  3
; 6858          8364  3         [ATR$C_ASCDATES]:
; 6859          8365  4             BEGIN
; 6860          8366  4             D_LEN = 2;
; 6861          8367  4             D_ADR = IDENT_AREA[FI2$W_REVISION];
; 6862          8368  4             IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6863          8369  4             THEN
; 6864          8370  4                 D_ADR = IDENT_AREA[FI1$W_REVISION]
; 6865          8371  4             ELSE
; 6866          8372  4                 IF .IDENT_LEN LSSU $BYTEOFFSET(FI2$W_REVISION) + 2
; 6867          8373  4                 THEN
; 6868          8374  4                     D_LEN = 0;
; 6869          8375  3             END;
; 6870          8376  3
; 6871          8377  3
; 6872          8378  3         [ATR$C_CREDATE]:
; 6873          8379  4             BEGIN
; 6874          8380  4             D_LEN = 8;
; 6875          8381  4             D_ADR = IDENT_AREA[FI2$Q_CREDATE];
; 6876          8382  4             IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6877          8383  4             THEN
; 6878          8384  5                 BEGIN
; 6879          8385  5                 D_ADR = IDENT_AREA[FI1$T_CREDATE];
; 6880          8386  5                 TO_ODS1_DATE(.S_ADR, TEMP_AREA);
; 6881          8387  5                 S_LEN = 13;
; 6882          8388  5                 S_ADR = TEMP_AREA;
; 6883          8389  5                 D_LEN = 13;
; 6884          8390  5                 END
; 6885          8391  4             ELSE
; 6886          8392  4                 IF .IDENT_LEN LSSU $BYTEOFFSET(FI2$Q_CREDATE) + 8
; 6887          8393  4                 THEN
; 6888          8394  4                     D_LEN = 0;
; 6889          8395  3             END;
; 6890          8396  3
; 6891          8397  3
; 6892          8398  3         [ATR$C_REVDATE]:
; 6893          8399  4             BEGIN
; 6894          8400  4             D_LEN = 8;
; 6895          8401  4             D_ADR = IDENT_AREA[FI2$Q_REVDATE];
; 6896          8402  4             IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6897          8403  4             THEN
; 6898          8404  5                 BEGIN
; 6899          8405  5                 D_ADR = IDENT_AREA[FI1$T_REVDATE];
; 6900          8406  5                 TO_ODS1_DATE(.S_ADR, TEMP_AREA);
```

```
; 6901   8407  5                S_LEN = 13;
; 6902   8408  5                S_ADR = TEMP_AREA;
; 6903   8409  5                D_LEN = 13;
; 6904   8410  5                END
; 6905   8411  4            ELSE
; 6906   8412  4                IF .IDENT_LEN LSSU $BYTEOFFSET(FI2$Q_REVDATE) + 8
; 6907   8413  4                THEN
; 6908   8414  4                    D_LEN = 0;
; 6909   8415  3            END;
; 6910   8416  3
; 6911   8417  3
; 6912   8418  3        [ATR$C_EXPDATE]:
; 6913   8419  4            BEGIN
; 6914   8420  4            D_LEN = 8;
; 6915   8421  4            D_ADR = IDENT_AREA[FI2$Q_EXPDATE];
; 6916   8422  4            IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6917   8423  4            THEN
; 6918   8424  5                BEGIN
; 6919   8425  5                D_ADR = IDENT_AREA[FI1$T_EXPDATE];
; 6920   8426  5                TO_ODS1_DATE(.S_ADR, TEMP_AREA);
; 6921   8427  5                S_LEN = 13;
; 6922   8428  5                S_ADR = TEMP_AREA;
; 6923   8429  5                D_LEN = 7;
; 6924   8430  5                END
; 6925   8431  4            ELSE
; 6926   8432  4                IF .IDENT_LEN LSSU $BYTEOFFSET(FI2$Q_EXPDATE) + 8
; 6927   8433  4                THEN
; 6928   8434  4                    D_LEN = 0;
; 6929   8435  3            END;
; 6930   8436  3
; 6931   8437  3
; 6932   8438  3        [ATR$C_BAKDATE]:
; 6933   8439  4            BEGIN
; 6934   8440  4            D_LEN = 8;
; 6935   8441  4            D_ADR = IDENT_AREA[FI2$Q_BAKDATE];
; 6936   8442  4            IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6937   8443  4            THEN
; 6938   8444  4                D_LEN = 0
; 6939   8445  4            ELSE
; 6940   8446  4                IF .IDENT_LEN LSSU $BYTEOFFSET(FI2$Q_BAKDATE) + 8
; 6941   8447  4                THEN
; 6942   8448  4                    D_LEN = 0;
; 6943   8449  3            END;
; 6944   8450  3
; 6945   8451  3
; 6946   8452  3        [ATR$C_UIC]:
; 6947   8453  4            BEGIN
; 6948   8454  4            D_LEN = 4;
; 6949   8455  4            D_ADR = HEADER[FH2$L_FILEOWNER];
; 6950   8456  4            IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6951   8457  4            THEN
; 6952   8458  5                BEGIN
; 6953   8459  5                TEMP_AREA<0,8> = .(.S_ADR)<0,16>;
; 6954   8460  5                TEMP_AREA<8,8> = .(.S_ADR)<16,16>;
; 6955   8461  5                S_LEN = 2;
; 6956   8462  5                S_ADR = TEMP_AREA;
; 6957   8463  5                D_LEN = 2;
```

```
; 6958          8464  5                 D_ADR = HEADER[FH1$W_FILEOWNER];
; 6959          8465  4                 END;
; 6960          8466  3             END;
; 6961          8467  3
; 6962          8468  3
; 6963          8469  3         [ATR$C_FPRO]:
; 6964          8470  4             BEGIN
; 6965          8471  4             D_LEN = 2;
; 6966          8472  4             D_ADR = HEADER[FH2$W_FILEPROT];
; 6967          8473  4             IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6968          8474  4             THEN
; 6969          8475  4                 D_ADR = HEADER[FH1$W_FILEPROT];
; 6970          8476  3             END;
; 6971          8477  3
; 6972          8478  3
; 6973          8479  3         [ATR$C_RPRO]:
; 6974          8480  4             BEGIN
; 6975          8481  4             D_LEN = 2;
; 6976          8482  4             D_ADR = HEADER[FH2$W_RECPROT];
; 6977          8483  4             IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6978          8484  4             THEN
; 6979          8485  4                 D_LEN = 0;
; 6980          8486  3             END;
; 6981          8487  3
; 6982          8488  3
; 6983          8489  3         [ATR$C_JOURNAL]:
; 6984          8490  4             BEGIN
; 6985          8491  4             D_LEN = 2;
; 6986          8492  4             D_ADR = HEADER[FH2$W_JOURNAL];
; 6987          8493  4             IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6988          8494  4             THEN
; 6989          8495  4                 D_LEN = 0;
; 6990          8496  3             END;
; 6991          8497  3
; 6992          8498  3
; 6993          8499  3         [ATR$C_ACLEVEL]:
; 6994          8500  4             BEGIN
; 6995          8501  4             D_LEN = 1;
; 6996          8502  4             D_ADR = HEADER[FH2$B_ACC_MODE];
; 6997          8503  4             IF .HEADER[FH2$B_STRUCLEV] EQL 1
; 6998          8504  4             THEN
; 6999          8505  4                 D_LEN = 0;
; 7000          8506  3             END;
; 7001          8507  3
; 7002          8508  3
; 7003          8509  3         [ATR$C_EXTFID]:
; 7004          8510  4             BEGIN
; 7005          8511  4             IF .HEADER[FH2$B_STRUCLEV] NEQ 2
; 7006          8512  4             THEN RETURN SS$_BADATTRIB;
; 7007          8513  4             D_LEN = 6;
; 7008          8514  4             D_ADR = HEADER[FH2$W_EXT_FID];
; 7009          8515  3             END;
; 7010          8516  3
; 7011          8517  3
; 7012          8518  3         [ATR$C_SEGNUM]:
; 7013          8519  4             BEGIN
; 7014          8520  4             IF .HEADER[FH2$B_STRUCLEV] NEQ 2
```

```
; 7015        8521  4              THEN RETURN SS$_BADATTRIB;
; 7016        8522  4              D_LEN = 2;
; 7017        8523  4              D_ADR = HEADER[FH2$W_SEG_NUM];
; 7018        8524  3              END;
; 7019        8525  3
; 7020        8526  3
; 7021        8527  3          [ATR$C_ADDACLENT, ATR$C_DELETEACL,
; 7022        8528  3           ATR$C_READACL, ATR$C_ACLLENGTH]:
; 7023        8529  4              BEGIN
; 7024        8530  4              IF .HEADER[FH2$B_STRUCLEV] EQL 2
; 7025        8531  4              THEN ACL_DISPATCH (.ATR[ATR$W_TYPE], .ATR[ATR$W_SIZE],
; 7026        8532  4                                 .ATR[ATR$L_ADDR], .FIB);
; 7027        8533  4              ACL_ATR = TRUE;
; 7028        8534  3              END;
; 7029        8535  3
; 7030        8536  3
; 7031        8537  3          [INRANGE, OUTRANGE]:
; 7032        8538  3              RETURN SS$_BADATTRIB;
; 7033        8539  3
; 7034        8540  3
; 7035        8541  3          TES;
; 7036        8542  3
; 7037        8543  3
; 7038        8544  3      IF NOT .ACL_ATR THEN CH$COPY(.S_LEN, .S_ADR, 0, .D_LEN, .D_ADR);
; 7039        8545  3      ATR = .ATR + 8;
; 7040        8546  2      END;
; 7041        8547  2
; 7042        8548  2
; 7043        8549  2 SS$_NORMAL
; 7044        8550  1 END;


                                        0FFC 00000 WRITE_ATTRIBUTES:
                                                          .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10,R11      ; 8237
                        5E          20  C2 00002          SUBL2   #32, SP                                   ;
                  08    AE    08    AC  D0 00005          MOVL    ATR_LIST, ATR                             ; 8277
                        59    04    AC  D0 0000A          MOVL    HEADER, R9                                ; 8278
                        50          69  9A 0000E          MOVZBL  (R9), R0                                  ;
                        58        6940  3E 00011          MOVAW   (R9)[R0], IDENT_AREA                      ;
                        57    01    A9  9A 00015          MOVZBL  1(R9), R7                                 ; 8279
                        57          50  C2 00019          SUBL2   R0, R7                                    ;
          04    AE      57          01  78 0001C          ASHL    #1, R7, IDENT_LEN                         ;
                50    08    AE      02  C1 00021 1$:      ADDL3   #2, ATR, R0                               ; 8280
                        51          60  3C 00026          MOVZWL  (R0), R1                                  ;
                                    03  12 00029          BNEQ    2$                                        ;
                                  0216  31 0002B          BRW     41$                                       ;
                        5B    08    BE  3C 0002E 2$:      MOVZWL  @ATR, S_LEN                               ; 8291
                50    08    AE      04  C1 00032          ADDL3   #4, ATR, R0                               ; 8292
                        5A          60  D0 00037          MOVL    (R0), S_ADR                               ;
                                    6E  D4 0003A          CLRL    ACL_ATR                                   ; 8295
                25      03          51  AF 0003C          CASEW   R1, #3, #37                               ; 8296
01C7          01C7    00A3        004F     00040 3$:      .WORD   4$-3$,-                                   ;
01C7          01C7    01C7        01C7     00048                  7$-3$,-                                   ;
01C7          00B3    01C7        01C7     00050                  34$-3$,-                                  ;
```

```
        00E5        00CC        01C7        01C7    00058                34$-3$,-                                        ;
        017C        0156        0141        0112    00060                34$-3$,-                                        ;
        01C7        01C7        01A1        018F    00068                34$-3$,-                                        ;
        01C7        0198        01C7        01C7    00070                34$-3$,-                                        ;
        01C7        01C7        01C7        01D4    00078                34$-3$,-                                        ;
        01D4        01D4        01D4        01C7    00080                34$-3$,-                                        ;
                                01C1        01B2    00088                34$-3$,-                                        ;
                                                                         8$-3$,-                                         ;
                                                                         34$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         10$-3$,-                                        ;
                                                                         12$-3$,-                                        ;
                                                                         16$-3$,-                                        ;
                                                                         20$-3$,-                                        ;
                                                                         22$-3$,-                                        ;
                                                                         24$-3$,-                                        ;
                                                                         25$-3$,-                                        ;
                                                                         27$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         26$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         37$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         34$-3$,-                                        ;
                                                                         37$-3$,-                                        ;
                                                                         37$-3$,-                                        ;
                                                                         37$-3$,-                                        ;
                                                                         31$-3$,-                                        ;
                                                                         33$-3$                                          ;
                                        0178  31 0008C          BRW      34$                                             ; 8538
                        56                04  D0 0008F 4$:      MOVL     #4, D_LEN                                       ; 8320
                        57          34    A9  9E 00092          MOVAB    52(R9), D_ADR                                   ; 8321
                                    0C    AE  D4 00096          CLRL     12(SP)                                          ; 8322
                        01          07    A9  91 00099          CMPB     7(R9), #1                                       ;
                                          0A  12 0009D          BNEQ     5$                                              ;
                                    0C    AE  D6 0009F          INCL     12(SP)                                          ;
                        56                02  D0 000A2          MOVL     #2, D_LEN                                       ; 8325
                        57          0C    A9  9E 000A5          MOVAB    12(R9), D_ADR                                   ; 8326
56          00          6A                5B  2C 000A9 5$:      MOVC5    S_LEN, (S_ADR), #0, D_LEN, TEMP_AREA            ; 8332
                                    10    AE     000AE                                                                    ;
            52      10  AE  0000D080      8F  CB 000B0          BICL3    #53376, TEMP_AREA, R2                           ; 8338
            51          56                03  78 000B9          ASHL     #3, D_LEN, R1                                   ; 8339
50          67          51                00  EF 000BD          EXTZV    #0, R1, (D_ADR), R0                             ;
                        50  FFFF2F7F      8F  CA 000C2          BICL2    #-53377, R0                                     ;
        10  AE          50                52  C9 000C9          BISL3    R2, R0, TEMP_AREA                               ;
                        08          0C    AE  E9 000CE          BLBC     12(SP), 6$                                      ; 8344
                    10  AE  FFFF2F05      8F  CA 000D2          BICL2    #-53499, TEMP_AREA                              ; 8346
                        5B                56  D0 000DA 6$:      MOVL     D_LEN, S_LEN                                    ; 8349
                        5A          10    AE  9E 000DD          MOVAB    TEMP_AREA, S_ADR                                ; 8350
                                          67  11 000E1          BRB      14$                                             ; 8296
                        56                20  D0 000E3 7$:      MOVL     #32, D_LEN                                      ; 8356
```

```
                 57      14   A9  9E 000E6          MOVAB   20(R9), D_ADR                  ; 8357
                 01      07   A9  91 000EA          CMPB    7(R9), #1                      ; 8358
                              5A  12 000EE          BNEQ    14$                            ;
                            0108  31 000F0          BRW     32$                            ; 8360
                 56           02  D0 000F3 8$:      MOVL    #2, D_LEN                      ; 8366
                 57      14   A8  9E 000F6          MOVAB   20(R8), D_ADR                  ; 8367
                 01      07   A9  91 000FA          CMPB    7(R9), #1                      ; 8368
                              06  12 000FE          BNEQ    9$                             ;
                 57      0A   A8  9E 00100          MOVAB   10(R8), D_ADR                  ; 8370
                              73  11 00104          BRB     17$                            ;
                 16      04   AE  D1 00106 9$:      CMPL    IDENT_LEN, #22                 ; 8372
                              73  11 0010A          BRB     19$                            ;
                 56           08  D0 0010C 10$:     MOVL    #8, D_LEN                      ; 8380
                 57      16   A8  9E 0010F          MOVAB   22(R8), D_ADR                  ; 8381
                 01      07   A9  91 00113          CMPB    7(R9), #1                      ; 8382
                              06  12 00117          BNEQ    11$                            ;
                 57      19   A8  9E 00119          MOVAB   25(R8), D_ADR                  ; 8385
                              17  11 0011D          BRB     13$                            ; 8386
                 1E      04   AE  D1 0011F 11$:     CMPL    IDENT_LEN, #30                 ; 8392
                              6D  11 00123          BRB     21$                            ;
                 56           08  D0 00125 12$:     MOVL    #8, D_LEN                      ; 8400
                 57      1E   A8  9E 00128          MOVAB   30(R8), D_ADR                  ; 8401
                 01      07   A9  91 0012C          CMPB    7(R9), #1                      ; 8402
                              1A  12 00130          BNEQ    15$                            ;
                 57      0C   A8  9E 00132          MOVAB   12(R8), D_ADR                  ; 8405
                         10   AE  9F 00136 13$:     PUSHAB  TEMP_AREA                      ; 8406
                              5A  DD 00139          PUSHL   S_ADR                          ;
          FE72   CF           02  FB 0013B          CALLS   #2, TO_ODS1_DATE               ;
                 5B           0D  D0 00140          MOVL    #13, S_LEN                     ; 8407
                 5A      10   AE  9E 00143          MOVAB   TEMP_AREA, S_ADR               ; 8408
                 56           0D  D0 00147          MOVL    #13, D_LEN                     ; 8409
                              6E  11 0014A 14$:     BRB     23$                            ; 8402
                 26      04   AE  D1 0014C 15$:     CMPL    IDENT_LEN, #38                 ; 8412
                              40  11 00150          BRB     21$                            ;
                 56           08  D0 00152 16$:     MOVL    #8, D_LEN                      ; 8420
                 50      26   A8  9E 00155          MOVAB   38(R8), R0                     ; 8421
                 57           50  D0 00159          MOVL    R0, D_ADR                      ;
                 01      07   A9  91 0015C          CMPB    7(R9), #1                      ; 8422
                              19  12 00160          BNEQ    18$                            ;
                 57           50  D0 00162          MOVL    R0, D_ADR                      ; 8425
                         10   AE  9F 00165          PUSHAB  TEMP_AREA                      ; 8426
                              5A  DD 00168          PUSHL   S_ADR                          ;
          FE43   CF           02  FB 0016A          CALLS   #2, TO_ODS1_DATE               ;
                 5B           0D  D0 0016F          MOVL    #13, S_LEN                     ; 8427
                 5A      10   AE  9E 00172          MOVAB   TEMP_AREA, S_ADR               ; 8428
                 56           07  D0 00176          MOVL    #7, D_LEN                      ; 8429
                              75  11 00179 17$:     BRB     30$                            ; 8422
                 2E      04   AE  D1 0017B 18$:     CMPL    IDENT_LEN, #46                 ; 8432
                              11  11 0017F 19$:     BRB     21$                            ;
                 56           08  D0 00181 20$:     MOVL    #8, D_LEN                      ; 8440
                 57      2E   A8  9E 00184          MOVAB   46(R8), D_ADR                  ; 8441
                 01      07   A9  91 00188          CMPB    7(R9), #1                      ; 8442
                              60  13 0018C          BEQL    29$                            ;
                 36      04   AE  D1 0018E          CMPL    IDENT_LEN, #54                 ; 8446
                              7E  1E 00192 21$:     BGEQU   36$                            ;
                              58  11 00194          BRB     29$                            ; 8448
                 56           04  D0 00196 22$:     MOVL    #4, D_LEN                      ; 8454
```

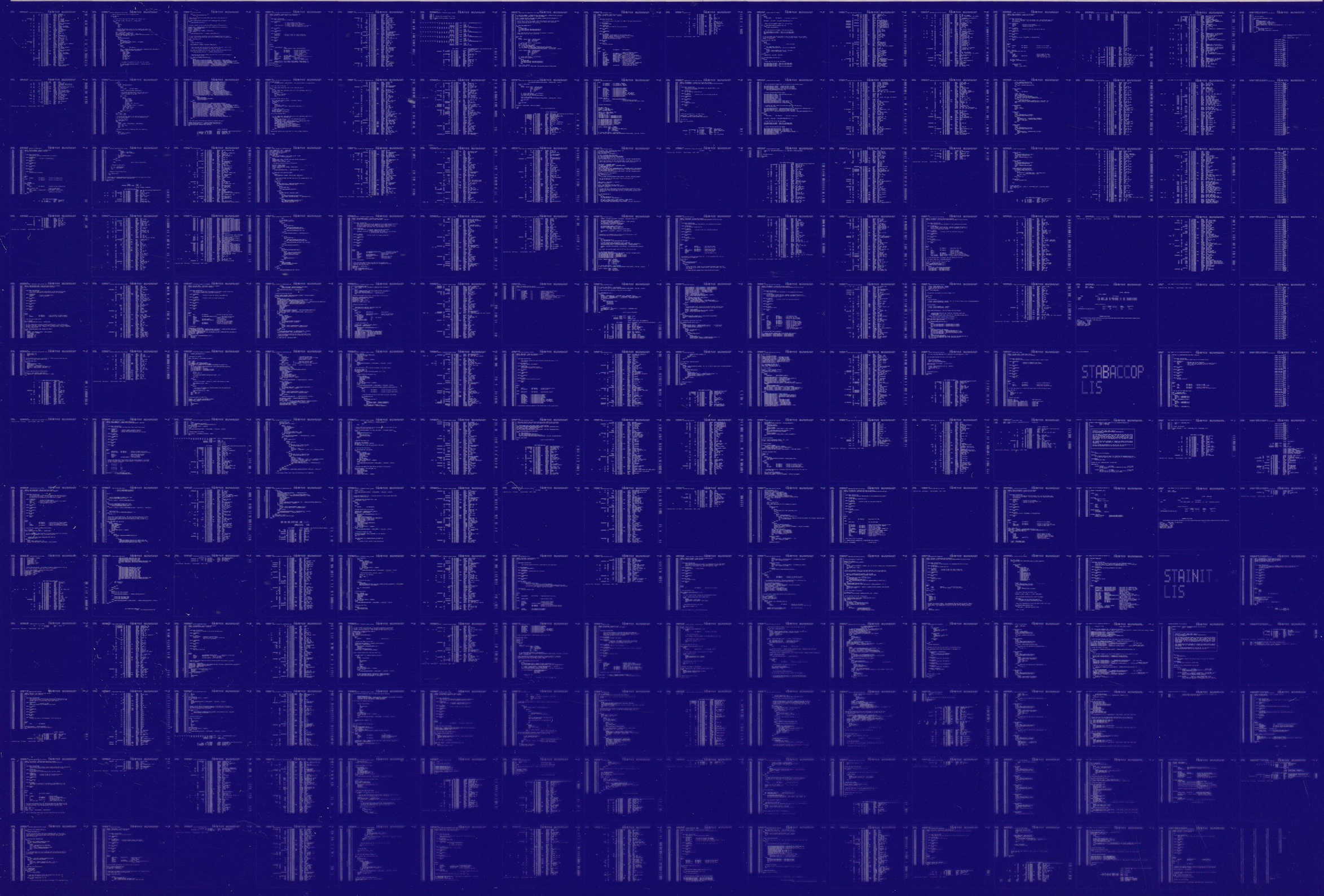
```
                    57      3C   A9  9E 00199          MOVAB   60(R9), D_ADR                          ; 8455
                    01      07   A9  91 0019D          CMPB    7(R9), #1                              ; 8456
                                 6F  12 001A1          BNEQ    36$                                    ;
              10    AE           6A  90 001A3          MOVB    (S_ADR), TEMP_AREA                     ; 8459
              11    AE      02   AA  90 001A7          MOVB    2(S_ADR), TEMP_AREA+1                  ; 8460
                    5B           02  D0 001AC          MOVL    #2, S_LEN                              ; 8461
                    5A      10   AE  9E 001AF          MOVAB   TEMP_AREA, S_ADR                       ; 8462
                    56           02  D0 001B3          MOVL    #2, D_LEN                              ; 8463
                    57      08   A9  9E 001B6          MOVAB   8(R9), D_ADR                           ; 8464
                                 78  11 001BA 23$:     BRB     39$                                    ; 8296
                    56           02  D0 001BC 24$:     MOVL    #2, D_LEN                              ; 8471
                    57      40   A9  9E 001BF          MOVAB   64(R9), D_ADR                          ; 8472
                    01      07   A9  91 001C3          CMPB    7(R9), #1                              ; 8473
                                 6B  12 001C7          BNEQ    39$                                    ;
                    57      0A   A9  9E 001C9          MOVAB   10(R9), D_ADR                          ; 8475
                                 65  11 001CD          BRB     39$                                    ; 8296
                    56           02  D0 001CF 25$:     MOVL    #2, D_LEN                              ; 8481
                    57      38   A9  9E 001D2          MOVAB   56(R9), D_ADR                          ; 8482
                                 10  11 001D6          BRB     28$                                    ; 8483
                    56           02  D0 001D8 26$:     MOVL    #2, D_LEN                              ; 8491
                    57      48   A9  9E 001DB          MOVAB   72(R9), D_ADR                          ; 8492
                                 07  11 001DF          BRB     28$                                    ; 8493
                    56           01  D0 001E1 27$:     MOVL    #1, D_LEN                              ; 8501
                    57      3B   A9  9E 001E4          MOVAB   59(R9), D_ADR                          ; 8502
                    01      07   A9  91 001E8 28$:     CMPB    7(R9), #1                              ; 8503
                                 46  12 001EC          BNEQ    39$                                    ;
                                 56  D4 001EE 29$:     CLRL    D_LEN                                  ; 8505
                                 42  11 001F0 30$:     BRB     39$                                    ; 8296
                    02      07   A9  91 001F2 31$:     CMPB    7(R9), #2                              ; 8511
                                 0F  12 001F6          BNEQ    34$                                    ;
                    56           06  D0 001F8          MOVL    #6, D_LEN                              ; 8513
                    57      0E   A9  9E 001FB 32$:     MOVAB   14(R9), D_ADR                          ; 8514
                                 33  11 001FF          BRB     39$                                    ; 8296
                    02      07   A9  91 00201 33$:     CMPB    7(R9), #2                              ; 8520
                                 04  13 00205          BEQL    35$                                    ;
                    50           34  D0 00207 34$:     MOVL    #52, R0                                ; 8521
                                     04 0020A          RET                                            ;
                    56           02  D0 0020B 35$:     MOVL    #2, D_LEN                              ; 8522
                    57      04   A9  9E 0020E          MOVAB   4(R9), D_ADR                           ; 8523
                                 20  11 00212 36$:     BRB     39$                                    ; 8296
                    02      07   A9  91 00214 37$:     CMPB    7(R9), #2                              ; 8530
                                 17  12 00218          BNEQ    38$                                    ;
                            0C   AC  DD 0021A          PUSHL   FIB                                    ; 8532
          52      0C    AE         04  C1 0021D          ADDL3   #4, ATR, R2                            ;
                                 62  DD 00222          PUSHL   (R2)                                   ;
                    7E      10   BE  3C 00224          MOVZWL  @ATR, -(SP)                            ; 8531
                                 51  DD 00228          PUSHL   R1                                     ;
          00000000G 00           04  FB 0022A          CALLS   #4, ACL_DISPATCH                       ;
                    6E           01  D0 00231 38$:     MOVL    #1, ACL_ATR                            ; 8533
                    06           6E  E8 00234 39$:     BLBS    ACL_ATR, 40$                           ; 8544
56        00        6A           5B  2C 00237          MOVC5   S_LEN, (S_ADR), #0, D_LEN, (D_ADR)     ;
                                 67     0023C                                                         ;
              08    AE           08  C0 0023D 40$:     ADDL2   #8, ATR                                ; 8545
                               FDDD  31 00241          BRW     1$                                     ; 8280
                    50           01  D0 00244 41$:     MOVL    #1, R0                                 ; 8550
                                     04 00247          RET                                            ;
```

; Routine Size: 584 bytes, Routine Base: CODE + 39D3

```
; 7046          8551  1 END
; 7047          8552  0 ELUDOM


                                                                    .EXTRN  LIB$SIGNAL

;                                   PSECT SUMMARY
;
;       Name                    Bytes                       Attributes
;
;  COMMON                          2124  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  OVR,NOPIC,ALIGN(2)
;  DATA                              48  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;  CODE                           15387  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]LIB.L32;1         18619       328         1      1000          00:02.2



;                                   COMMAND QUALIFIERS

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

; Size:          15119 code + 2440 data bytes
; Run Time:         04:26.5
; Elapsed Time:     14:37.3
; Lines/CPU Min:     1925
; Lexemes/CPU-Min: 21788
; Memory Used:  802 pages
; Compilation Complete
```

DIGITAL EQUIPMENT CORPORATION
CONFIDENTIAL AND PROPRIETARY

STAACP
LIS

STAACCTL
LIS

DIGITAL EQUIPMENT CORPORATION
CONFIDENTIAL AND PROPRIETARY