```
 10 0000          ;************************************************
 20 0000          ;
 30 0000          ;              PET FILE SYSTEM
 40 0000          ;                 SYMBOLS
 50 0000          ;
 60 0000          ;************************************************
 70 0000          ; COPYRIGHT L J SHUSTEK AND H J SAAL, 1978,1979,1980
 80 0000          ;----------------------------------------------
 90 0000          ;
100 0000          ;       L O A D   M A P
110 0000          ;
120 0000          ;----------------------------------------------
130 0000          B        =$9000
140 0000          VECTOR   =$0000+B   JUMP VECTOR
150 0000          FILSYS   =$0080+B   FILE SYSTEM MAIN RTNS
160 0000          FILUTL   =$0600+B   FILE SYSTEM UTILITY RTNS
170 0000          DSKRTN   =$0840+B   LOW LEVEL FLOPPY DISK RTNS
180 0000          DIMMON   =$0B20+B   "DIM" MONITOR
190 0000          DISASM   =$11D0+B   DISASSEMBLER
200 0000          PRTRTN   =$1400+B   LOCAL KEYBOARD/PRINTER RTNS
210 0000          HDKRTN   =$15C0+B   LOW LEVEL HARD DISK RTNS
220 0000          CHKSMB   =$18FE+B   CHECKSUM BYTES
230 0000          ENDSYS   =$1900+B   END OF THE FILE SYSTEM
240 0000          ;
250 0000          SYSVAR   =$1A00+B   START OF SYSTEM VARIABLES
260 0000          ;
270 0000          ;----------------------------------------------
280 0000          ;
290 0000          ;    CONTROL BLOCK DESCRIPTIONS
300 0000          ;
310 0000          ;----------------------------------------------
320 0000          *=0
330 0000          ;
340 0000          ; DIRECTORY ENTRY (DE)     [ORDER DEPENDENT]
350 0000          ;
360 0010          DENAM  *=*+16  FILENAME
370 0010          DENAML  =*     SIZE OF FILENAMES
380 0011          DETYP  *=*+1   TYPE
390 0013          DEBLK  *=*+2   STARTING BLOCK NUMBER
400 0015          DESIZ  *=*+2   SIZE IN BYTES (LOW 2 BYTES)
410 0017          DEADR  *=*+2   MEMORY ADDRESS (L,H)
420 0018          DESIZM *=*+1   SIZE IN BYTES (HIGH OF 3 BYTES)
430 0019          DEFLGS *=*+1   FLAGS
440 001B          DEPASS *=*+2   PASSWORD
450 0020                 *=*+5   UNUSED
460 0020          DELEN   =*     SIZE OF DIRECTORY ENTRY
470 0020          ;
480 0020          DENUM  =256/DELEN  #DE/BLOCK
490 0020          ;
500 0020          TBNUMS =16*77      TOTAL BLOCKS, SINGLE SIDED
510 0020          TBNUMD =32*77      TOTAL BLOCKS, DOUBLE SIDED
520 0020          DBNUMS =16         #DIR BLKS, SINGLE SIDED DISKS
530 0020          DBNUMD =32         #DIR BLKS, DOUBLE SIDED DISKS
540 0020          DBLKSS =TBNUMS-DBNUMS  #DATA BLKS, SINGLE SIDED
550 0020          DBLKSD =TBNUMD-DBNUMD  #DATA BLKS, DOUBLE SIDED
560 0020          ; NOTE: THE SIZE OF THE DIRECTORY ENTRY AND THE NUMBER OF DIRE
CTORY
570 0020          ; BLOCKS CAN BE CHANGED WITHOUT CHANGING ANY CODE.
580 0020          ;
590 0020          ;    FILE TYPES
600 0020          ;
```

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 610 0020                 FLAST   =0       LAST ENTRY
 620 0020                 FEMPTY  =1       EMPTY ENTRY
 630 0020                 FVDESC  =$10 VOLUME DESCRIPTOR
 640 0020                 FASM    =$A0 ASSEMBLER PGM
 650 0020                 FBASIC  =$B0 BASIC PGM
 660 0020                 FSYMBL  =$C0 SYMBOL TABLE
 670 0020                 FWILD   =$F0 WILDCARD PGM (LOAD ANYWHERE)
 680 0020               ;
 690 0020               ; VOLUME DESCRIPTOR (VD)
 700 0020               ;
 710 0020               ;       THE VD IS A SPECIAL KIND OF DE WHICH MUST BE THE
 720 0020               ;       FIRST IN THE DIRECTORY.  ONLY THE NAME AND TYPE
 730 0020               ;       FIELDS ARE THE SAME.
 740 0020               ;
 750 0000                         *=0
 760 0010                 VDNAM   *=*+DENAML  VOLUME NAME
 770 0011                 VDTYP   *=*+1       TYPE ("FVDESC" ALWAYS)
 780 0012                 VDVERS  *=*+1       DOS VERSION#
 790 0013                 VDFLAG  *=*+1       FLAGS:
 800 0013                 VDF2SI          =$80            2 SIDED
 810 0014                 VDDSIZ  *=*+1       SIZE OF DIRECTORY IN BLOCKS
 820 0020                 VDLEN   *=DELEN
 830 0020               ;
 840 0020               ;       DIRECTORY LIST OPTIONS
 850 0020               ;
 860 0020                 LSTSHT  =$01        SHORT (DRONE) LISTING
 870 0020                 LSTVIR  =$02        VIRTUAL (MAPPED) LISTING
 880 0020               ;
 890 0020               ; DISK HARDWARE ADDRESSES
 900 0020               ;
 910 BFFB                         *=$BFFB
 920 BFFC                 DDSEL  *=*+1   DRIVE SELECT REG
 930 BFFD                 DDCMD  *=*+1   DRIVE CMD/STATUS REG
 940 BFFE                 DDTRK  *=*+1   DRIVE TRACK REG
 950 BFFF                 DDSEC  *=*+1   DRIVE SECTOR REG
 960 C000                 DDATA  *=*+1   DRIVE DATA REG
 970 C000               ;
 980 C000                 DDREST=255-$00   6 MS. RESTORE COMMAND
 990 C000               ;
1000 C000               ;------------------------------------------
1010 C000               ;
1020 C000               ; ZERO PAGE VARIABLES
1030 C000               ;
1040 C000               ;------------------------------------------
1050 0023                 *=$23   ; (0A-22 IS USED BY THE MONITOR)
1060 0023               ;
1070 0023               ; FPARM: FILESYS PARAMETERS (OVERLAY WITH FCB)
1080 0023               ;
1090 0023                 FPARM   =*
1100 0033                 FNAME   *=*+DENAML FILENAME     (MONITOR ASSUMES IS AT $23)
1110 0034                 FTYPE   *=*+1   FILE TYPE
1120 0035                 DRIVE   *=*+1   DRIVE (1 OR 2)
1130 0038                 MEMSIZ  *=*+3   SIZE IN BYTES
1140 003A                 MEMAD   *=*+2   PERMANENT MEMORY ADDRESS
1150 003C                 CMEMAD  *=*+2   CURRENT MEMORY ADDRESS
1160 003D                 REPFLG  *=*+1   REPLACE FLAG
1170 003E                 LSTFLG  *=*+1   LIST FLAG
1180 003F                 RCODE   *=*+1   RETURN CODE
1190 003F                 FPARMZ  =*
1200 003F               ;
1210 003F               ; FCB: FILE CONTROL BLOCK  (OVERLAY WITH FPARM)
1220 003F               ;
1230 0023                         *=FPARM
1240 0023                 FCB     *=*
1250 0033                         *=*+DENAML   (FNAME)
1260 0034                         *=*+1        (FTYPE)
```

```
1270 0035                       *=*+1        (DRIVE)
1280 0035        FCBVIS  =*-FCB    VISIBLE PARTS OF FCB
1290 0038        FTSIZ   *=*+3    TOTAL FILE SIZE
1300 003A        FSTBLK  *=*+2    STARTING RELATIVE BLOCK  ← 00 10
1310 003A         FCBL   =*-FCB
1320 003A        ;
1330 003A        ;EXTERNALLY VISIBLE FCB FIELD OFFSETS
1340 003A        ;
1350 003A        FCBNAM =FNAME-FCB
1360 003A        FCBFTP =FTYPE-FCB
1370 003A        FCBDSK =DRIVE-FCB
1380 003A        ;
1390 003A        ;
1400 003A        ; DISK ROUTINE PARAMETERS
1410 003A        ; (ORDER DEPENDENT; MATCHES DE)
1420 003A        ;
1430 003F                *=FPARMZ
1440 0040        DDRV    *=*+1    DRIVE (1 OR 2)
1450 0041        DSID    *=*+1    #SIDES (0 OR 1)
1460 0042        DTYP    *=*+1    FILETYPE (USED ONLY BY FILSYS)
1470 0044        DBLK    *=*+2    STARTING BLOCK#  0102
1480 0044        FBLKNO =DBLK     --ALIAS--
1490 0046        DSIZ    *=*+2    SIZE IN BYTES (LOW 2 BYTES)
1500 0046        FBSIZ   =DSIZ    --ALIAS--
1510 0048        DADR    *=*+2    STARTING ADDRESS
1520 0048        FBADR   =DADR    --ALIAS--
1530 0049        DSIZM   *=*+1    MSB OF FILE SIZE
1540 0049        ;
1550 0049        ;   VARIABLES
1560 0049        ;
1570 004A        PNTL    *=*+1    DISK ROUTINE POINTER
1580 004B        PNTH    *=*+1
1590 004D        NBLKS   *=*+2    NUMBER OF DISK BLKS
1600 004F        PBMAP   *=*+2    PTR TO BIT MAP (NOW LOCAL TO UTIL RTNS)
1610 0051        PDBLK   *=*+2    PTR TO DIREC. BLK
1620 0051        ;
1630 0053        SPTR    *=*+2    PTR FOR WMOVE, PRSTR
1640 0053        ;
1650 0054        DIROFF  *=*+1    OFFSET IN DIR BLK       (ORDER DEPENDENT)
1660 0056        DIRBLK  *=*+2    BLOCK # OF   "   "      (ORDER DEPENDENT)
1670 0056        ;
1680 0057        K0      *=*+1    (ALSO WORD WITH K100)
1690 0059        K100    *=*+2
1700 005B        K400    *=*+2
1710 005B        ;
1720 005B        ;   THE END OF USABLE PAGE ZERO IS 5A
1730 005B        ;
1740 005B        ;----------------------------------------
1750 005B        ;
1760 005B        ;    NON-ZERO-PAGE VARIABLES,
1770 005B        ;    INCLUDING DIRECTORY BUFFERS AND BIT MAPS
1780 005B        ;
1790 005B        ;----------------------------------------
1800 AA00                *=SYSVAR
1810 AA00        ;
1820 AE00        DBUF    *=*+$400  4-PAGE DIRECTORY BUFFER
1830 AF34        BMAP    *=TBNUMD/8+*   ALLOCATION BIT MAP
1840 AF34        ;          (DBUF AND BMAP MUST BE ON PAGE BOUNDARIES)
1850 AF34        ;
1860 AF36        TEMP    *=*+2    A LOCAL TEMPORARY FOR ANYBODY
1870 AF38        DSKERC  *=*+2    DSKRTN: COUNT OF RETRIES ON DISK
1880 AF38        ;                        CLEARED BY BOOTSTRAP
1890 AF39        DRETRY  *=*+1    DSKRTN: #RETRIES FOR THIS OPERATION
1900 AF3A        CUROP   *=*+1    DSKRTN: FAILING OPERATION
1910 AF3B        MAXY    *=*+1    DSKRTN: MAX BYTES IN SECTOR
1920 AF3B        ;
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```
1930 AF3C          SPSAVE *=*+1     FILSYS: SAVED STACK PTR
1940 AF3D          SRCHCB *=*+1     FILSYS: COUNT DIR BLKS
1950 AF3E          DSKERR *=*+1     FILSYS: DISK ERROR CODE
1960 AF3E          ;
1970 AF40          BLKCNT *=*+2      DLIST: BLOCK CNT
1980 AF41          DALLOS *=*+1     FILUTL: COUNT ALLOCATED BLKS
1990 AF42          WMOVEY *=*+1     FILUTL: WMOVE INDEX
2000 AF43          DIRCOD *=*+1     FILUTL: DIR ERR SUBCODE
2010 AF46          DECNN  *=*+3     FILUTL: ACCUMULATOR FOR PRDEC
2020 AF46          ;
2030 AF49          DLSTRK *=*+3     DISK LAST TRACK
2040 AF49          DSIDES  =*-1     DISK # SIDES
2050 AF4B                 *=*+2     DSIDES(1..2)=0..1, FF TO FORCE INIT
2060 AF4B          ;
2070 AF5B          FNAME2 *=*+DENAML  FRENAM: OLD FILE NAME
2080 AF5C          FTYPE2 *=*+1               FRENAM: OLD FILE TYPE
2090 AF5C          ;
2100 AF5D          FALOFL *=*+1     FILSYS: "ALLOCATE" FLAG
2110 AF5E          FDIROF *=*+1     FILSYS: OFFSET OF DE TO USE  (ORDER DEPENDENT)
2120 AF60          FDIRBL *=*+2     FILSYS: BLOCK# OF DE TO USE  (ORDER DEPENDENT)
2130 AF61          FDIRFL *=*+1     FILSYS: FWRITE FLAGS          (ORDER DEPENDENT)
2140 AF61          ;                $80=FILE FOUND TO REPLACE, $01=EMPTY SLOT FOUND
2150 AF61          ;                (ALSO USED BY SETUP TO INDICATE DISK CHANGED)
2160 AF61          ;
2170 AF62          DTIMER *=*+1     DSKRTN: JIFFY COUNTDOWN FOR DESELECT
2180 AF62          ;
2190 AF63          HDCYL  *=*+1     HDKRTN: CYLINDER #
2200 AF64          HDHEAD *=*+1     HDKRTN: HEAD #
2210 AF65          HDSECT *=*+1     HDKRTN: SECTOR #
2220 AF67          HDSIZ  *=*+2     HDKRTN: SIZE OF TRANSFER
2230 AF67          ;
2240 AF6B          DIVDND *=*+4      MLTPLY, DIVIDE
2250 AF6D          DIVISR *=*+2      MLTPLY, DIVIDE
2260 AF6D          ;
2270 AF6D          ;MAPDRV *=*+1     MAPPER: VIRTUAL DRIVE #
2280 AF6D          ;MAPNDX *=*+1     MAPPER: MAP INDEX
2290 AF6D          ;MAPFL  *=*+1     MAPPER: MISC FLAGS
2300 AF6D          ;MAPNAT *=*+DENAML+2 : SAVE TYPE,NAME,DRIVE
2310 AF6D          ;MAP    *=* +N  MAPPER: FILE MAP (TO END OF PAGE)
2320 AF6D          ;
2330 AF6D          ;------------------------------------
2340 AF6D          ;
2350 AF6D          ;    J U M P    V E C T O R
2360 AF6D          ;
2370 AF6D          ;------------------------------------
2380 AF6D          ;
2390 9000                 *=VECTOR
2400 9000          ;
2410 9003          JMON   *=*+3     MONITOR
2420 9006          JDSASM *=*+3     DISASSEMBLER
2430 9006          ;
2440 9009          FREAD  *=*+3     FILE READ
2450 900C          FWRITE *=*+3     FILE WRITE
2460 900F          FWRITD *=*+3     FILE WRITE (DISPLACED)
2470 9012          FDELET *=*+3     FILE DELETE
2480 9015          FRENAM *=*+3     FILE RENAME
2490 9018          FALLO  *=*+3     FILE ALLOCATE
2500 901B          FOPEN  *=*+3     FILE OPEN FOR BLOCK I/O
2510 901E          FBLKRD *=*+3     FILE BLOCK READ
2520 9021          FBLKWR *=*+3     FILE BLOCK WRITE
2530 9024          FDLIST *=*+3     DIRECTORY LIST
2540 9024          ;
2550 9027          DALLO  *=*+3     BITMAP ALLOCATE
2560 902A          DFREE  *=*+3     BITMAP FREE
2570 902D          DMARK  *=*+3     BITMAP MARK
2580 9030          DIRERR *=*+3     DIRECTORY ERROR
```

```
2590 9033          WMOVE  *=*+3   PAGE ZERO WORD MOVE RTN
2600 9033          ;
2610 9036          DREAD  *=*+3   LOW LEVEL DISK READ RTN
2620 9039          DWRITE *=*+3   LOW LEVEL DISK WRITE RTN
2630 903C          DVERIF *=*+3   LOW LEVEL DISK VERIFY RTN
2640 903F          D2STST *=*+3   2-SIDED DISKETTE TEST
2650 9042          DCHTST *=*+3   DISK CHANGE TEST
2660 9042          ;
2670 9045          PRBYTE *=*+3   PRINT BYTE FROM A IN HEX
2680 9048          PRWORD *=*+3   PRINT WORD AT $11 IN HEX
2690 904B          PRSTR  *=*+3   PRINT INLINE STRING UNTIL 0
2700 904E          PRCHAR *=*+3   PRINT CHAR FROM A
2710 9051          PRMSG  *=*+3   PRINT STRING AT ($17) UNTIL 0
2720 9054          PRDEC  *=*+3   PRINT WORD AT $11 IN DECIMAL
2730 9057          PRDECF *=*+3   PRINT WORD "  "  "        ", FIXED FIELD OF 5
2740 9057          ;
2750 905A          DINTRH *=*+3   LOW LEVEL INT. HANDLER (COUNT DOWN DESELECT)
2760 905D          PRTENB *=*+3   LOCAL PRINTER ENABLE RTN
2770 9060          HDSKOP *=*+3   HARD DISK OPERATION
2780 9063          MLTPLY *=*+3   MULTIPLY (IN HDKRTN)
2790 9066          DIVIDE *=*+3   DIVIDE   (IN HDKRTN)
2800 9066          ;
2810 9069          RDSCRN *=*+3   GET INPUT LINE
2820 906C          RDKEY  *=*+3   GET INPUT KEY
2830 906C          ;
2840 906C          ;
2850 906C          CHKSUM =$B800 CHECKSUM ROUTINE IN BOOTSTRAP ROM
2860 906C          STPTST =$F32A PET STOP KEY TEST
2870 906C          ;
2880 906C                   .END
```