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10 0000 ;*****
20 0000 ;
30 0000 ;           PET FILE SYSTEM
40 0000 ;           UTILITY ROUTINES
50 0000 ;
60 0000 ;*****
70 0000 ; COPYRIGHT L. J. SHUSTEK AND H. J. SAAL, 1978,1979
80 0000 ;
90 9024 *=DALLO
100 9024 4C0E96 JMP ALLOC  ALLOCATE FILE
110 9027 *=DFREE
120 9027 4C3E96 JMP FREE  FREE FILE SPACE
130 902A *=DMARK
140 902A 4C6596 JMP MARK  MARK FILE SPACE
150 9030 *=WMOVE
160 9030 4C4D97 JMP MOVE  MOVE PAGE0 WORDS
170 9048 *=PRSTR
180 9048 4C8097 JMP PRSTRG PRINT INLINE STRING
190 9051 *=PRDEC
200 9051 4C9F97 JMP PRDC  PRINT DECIMAL NUMBER
210 9054 *=PRDECF
220 9054 4C9A97 JMP PRDCF PRINT DECIMAL NUMBER, FIXED FIELD
230 9057 ;-----
240 904B *=PRCHAR
250 904B 4C0296 JMP PRINTA PRINT CHAR ROUTINE
260 9066 *=RDSCRN
270 9066 4CCFFF JMP $FFCF  PET GET LINE ROUTINE
280 9069 *=RDKEY
290 9069 4CE4FF JMP $FFE4  PET GET CHARACTER ROUTINE
300 906C ;
310 9600 *=FILUTL
320 9600 FF97 .WORD END
330 9602 ;-----
340 9602 48 PRINTA PHA PRINT CHAR
350 9603 AD0402 PRINTW LDA $204
360 9606 C901 CMP #1 WAIT FOR NO SHIFT KEY
370 9608 F0F9 BEQ PRINTW
380 960A 68 PLA
390 960B 4CD2FF JMP $FFD2 PET PRINT ROUTINE
400 960E ;-----
410 960E ;
420 960E ; ALLOCATE NBLKS BLOCKS IN BIT MAP
430 960E ; SETS DELK TO STARTING BLOCK #
440 960E ; RETURN CARRY SET IF NO SPACE
450 960E ;
460 960E 202797 ALLOC JSR SPBMAP SETUP PTR TO BITMAP
470 9611 A000 LDY #0
480 9613 A200 LDX #0
490 9615 B14D DALLO1 LDA (PBMAP),Y FIND 0 BIT
500 9617 3D4597 AND ORTAB,X
510 961A F007 BEQ DALLO2
520 961C 200797 JSR INCBM
530 961F 90F4 BCC DALLO1
540 9621 38 DALLO6 SEC NOT FOUND
550 9622 60 RTS
560 9623 20E996 DALLO2 JSR BMTORB SAVE REL BLK START
570 9626 208996 JSR MOVDAL DALLOS_NBLKS IF NOT ZERO
580 9629 209E96 DALLO3 JSR DECDAL DECREMENT COUNT
590 962C F00E BEQ DALLO4 ENOUGH: MARK THEM
600 962E 200797 JSR INCBM TRY TO EXTEND THE AREA
610 9631 B0EE BCS DALLO6 END OF MAP: FAIL

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620 9635 B14D LDA (PBMAP),Y
630 9635 3D4597 AND ORTAB,X
640 9638 D0DB BNE DALLO1 FAILED: LOOK FOR NEXT AREA
650 963A F0ED BEQ DALLO3
660 963C DALLO4 =* FOUND SPACE
670 963C ;;;;;; JSR DMARK MARK BIT MAP (NOT NECESSARY CURRENTLY)
680 963C 18 CLC
690 963D 60 RTS
700 963E ;
710 963E ; FREE NBLKS AT RELATIVE BLOCK DBLK
720 963E ;
730 963E 20B396 FREE JSR RBTBOM GET BITMAP OFFSETS
740 9641 208996 JSR MOVDAL
750 9644 BD4597 DFREEL LDA ORTAB,X
760 9647 314D AND (PBMAP),Y
770 9649 D003 BNE DFREE2
780 964B 4C3397 JMP ERRA FREEING A FREE BLK
790 964E BD4597 DFREE2 LDA ORTAB,X
800 9651 49FF EOR #$FF
810 9653 314D AND (PBMAP),Y
820 9655 914D STA (PBMAP),Y
830 9657 200797 JSR INCBM
840 965A 9003 BCC DFREE3
850 965C 4C3C97 JMP ERRD ERROR: END OF MAP
860 965F 209E96 DFREE3 JSR DECDAL
870 9662 D0E0 BNE DFREEL
880 9664 60 DFREEZ RTS
890 9665 ;
900 9665 ; MARK NBLKS AT RELATIVE BLOCK DBLK
910 9665 ;
920 9665 20B396 MARK JSR RBTBOM GET BITMAP OFFSETS
930 9668 208996 JSR MOVDAL
940 966B BD4597 DMARKL LDA ORTAB,X
950 966E 314D AND (PBMAP),Y
960 9670 F003 BEQ DMARK2
970 9672 4C3697 JMP ERRB MARKING A MARKED BLK
980 9675 BD4597 DMARK2 LDA ORTAB,X
990 9678 114D ORA (PBMAP),Y
1000 967A 914D STA (PBMAP),Y
1010 967C 209E96 JSR DECDAL
1020 967F F0E3 BEQ DFREEZ ALL BLOCKS DONE...
1030 9681 200797 JSR INCBM MOVE TO NEXT MAP BIT
1040 9684 90E5 BCC DMARKL AND CONTINUE
1050 9686 4C3C97 JMP ERRD ERROR: RAN OF END OF MAP
1060 9689 ;
1070 9689 ; MOVDAL: IF NBLKS=0, RETURN TO CALLER'S CALLER WITH CARRY
1080 9689 ; OTHERWISE DALLOS_NBLKS
1090 9689 ;
1100 9689 A54B MOVDAL LDA NBLKS
1110 968B 054C ORA NBLKS+1
1120 968D F00B BEQ MOVDZ
1130 968F A54B LDA NBLKS
1140 9691 8D40AF STA DALLOS
1150 9694 A54C LDA NBLKS+1
1160 9696 8D41AF STA DALLOS+1
1170 9699 60 RTS
1180 969A 68 MOVDZ PLA ERROR RETURN
1190 969B 68 PLA
1200 969C 38 SEC
1210 969D 60 RTS
1220 969E ;
1230 969E ; DECDAL: DECREMENT DALLOS AND SET Z/NZ
1240 969E ;
1250 969E 18 DECDAL CLC
1260 969F AD40AF LDA DALLOS
1270 96A2 69FF ADC #$FF

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1280 96A4 8D40AF STA DALLOS
1290 96A7 AD41AF LDA DALLOS+1
1300 96AA 69FF ADC #$FF
1310 96AC 8D41AF STA DALLOS+1
1320 96AF 0D40AF ORA DALLOS
1330 96B2 60 RTS
1340 96B3 ;
1350 96B3 ; CONVERT RELATIVE BLOCK "DBLK" TO BITMAP OFFSETS
1360 96B3 ; DBLK = 0000ZYYYYYYYYXXX
1370 96B3 ; X=BIT OFFSET, Y=BYTE OFFSET, Z=LSB OF PBMAP
1380 96B3 ;
1390 96B3 202797 RBTOBM JSR SPBMAP SETUP PBMAP
1400 96B6 A542 LDA DBLK LOW 3 BITS TO X
1410 96B8 2907 AND #$07
1420 96BA AA TAX
1430 96BB A542 LDA DBLK NEXT 8 TO Y, NEXT TO CARRY
1440 96BD 29F8 AND #$F8
1450 96BF 8D34AF STA TEMP
1460 96C2 A543 LDA DBLK+1
1470 96C4 290F AND #$0F
1480 96C6 4A LSR A ZYY,Y
1490 96C7 0D34AF ORA TEMP YYYYYZYY,Y
1500 96CA 6A ROR A
1510 96CB 6A ROR A
1520 96CC 6A ROR A
1530 96CD A8 TAY YYYYYYYY
1540 96CE 9002 BCC RBTOB2
1550 96D0 E64E INC PBMAP+1 Z=1 (OVERFLOW TO 2ND BITMAP PAGE)
1560 96D2 6A RBTOB2 ROR A ZYYYYYYY (FOR MAX CHECK)
1570 96D3 8D34AF STA TEMP
1580 96D6 A540 LDA DSID FIGURE OUT MAXIMUM BLOCK#
1590 96D8 D004 BNE RBTOB3
1600 96DA A94C LDA #TBNUMS/16-1 SINGLE-SIDED DISK
1610 96DC D002 BNE RBTOB4
1620 96DE A999 RBTOB3 LDA #TBNUMD/16-1 DOUBLE-SIDED DISK
1630 96E0 CD34AF RBTOB4 CMP TEMP MAX-1:BLOCK#
1640 96E3 9001 BCC RBTOB5 LT
1650 96E5 60 RTS
1660 96E6 4C3F97 RBTOB5 JMP ERRE BLOCK# TOO BIG
1670 96E9 ;
1680 96E9 ; CONVERT BITMAP OFFSETS TO RELATIVE BLOCK# IN DBLK
1690 96E9 ;
1700 96E9 8A BMTORB TXA
1710 96EA 8D34AF STA TEMP 00000XXX
1720 96ED A54E LDA PBMAP+1
1730 96EF 6A ROR A Z TO CARRY
1740 96F0 98 TYA
1750 96F1 2A ROL A
1760 96F2 2A ROL A
1770 96F3 2A ROL A
1780 96F4 8D35AF STA TEMP+1 A=Y4-Y0,Z,Y7-Y6, CARRY=Y5
1790 96F7 29F8 AND #$F8
1800 96F9 0D34AF ORA TEMP
1810 96FC 8542 STA DBLK Y4-Y0,XXX
1820 96FE AD35AF LDA TEMP+1
1830 9701 2A ROL A
1840 9702 290F AND #$0F 0000,Z,Y7-Y5
1850 9704 8543 STA DBLK+1
1860 9706 60 RTS
1870 9707 ;
1880 9707 ; INCREMENT BITMAP OFFSETS
1890 9707 ; SET FOR BCS IF END OF MAP
1900 9707 ;
1910 9707 E8 INCBM INX NEXT BIT
1920 9708 E008 CPX #8
1930 970A 1001 BPL INCBM1

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1940 970C 60          RTS
1950 970D A200      INCBM1 LDX #0
1960 970F C8        INY          NEXT BYTE
1970 9710 A540      LDA DSID    TEST # SIDES
1980 9712 D003      BNE INCBM2  2 SIDED...
1990 9714 C09A      CPY #TBNUMS/8  SET CARRY IF TOO BIG
2000 9716 60        RTS
2010 9717 98        INCBM2 TYA          BYTE OFFSET
2020 9718 D004      BNE INCBM3  OFFSET NOT ZERO
2030 971A E64E      INC PBMAP+1  ZERO: MOVE TO NEXT PAGE
2040 971C 18        CLC
2050 971D 60        RTS
2060 971E A54E      INCBM3 LDA PBMAP+1
2070 9720 C9AF      CMP #BMAP/256+1
2080 9722 9002      BCC INCBM4  NONZERO OFFSET ON 1ST PAGE - RET C=0
2090 9724 C034      CPY #TBNUMD/8-256  2ND PAGE: CHECK FOR END
2100 9726 60        INCBM4 RTS
2110 9727          ;
2120 9727          ; SPBMAP    SET PTR TO BIT MAP
2130 9727          ;
2140 9727 A900      SPBMAP LDA #0
2150 9729 854D      STA PBMAP
2160 972B 8D42AF    STA DIRCOD  ZERO DIR ERR SUBCODE, WHILE WE'RE HERE
2170 972E A9AE      LDA #BMAP/256
2180 9730 854E      STA PBMAP+1
2190 9732 60        RTS
2200 9733          ;
2210 9733 EE42AF    ERRA INC DIRCOD 5  FREE OF FREE BLOCK
2220 9736 EE42AF    ERRB INC DIRCOD 4  MARK OF MARKED BLOCK
2230 9739 EE42AF    ERRC INC DIRCOD 3  NO VOLUME LABEL (FROM MAIN RTN)
2240 973C EE42AF    ERRD INC DIRCOD 2  OFF END OF MAP
2250 973F EE42AF    ERRE INC DIRCOD 1  BAD BLOCK NUMBER
2260 9742 4C2D90    JMP DIRERR  DIRECTORY (BITMAP) ERR
2270 9745          ;
2280 9745 80        ORTAB  .BYTE $80,$40,$20,$10
2280 9746 40
2280 9747 20
2280 9748 10
2290 9749 08        .BYTE $08,$04,$02,$01
2290 974A 04
2290 974B 02
2290 974C 01
2300 974D          ;
2310 974D          ; MOVE WORDS ON PAGE 0
2320 974D          ;   .BYTE FROM,TO,FROM,TO,...,0
2330 974D          ;
2340 974D 68        MOVE    PLA LOW PC
2350 974E 8551      STA SPTR
2360 9750 68        PLA HIGH PC
2370 9751 8552      STA SPTR+1
2380 9753 A001      LDY #1  PARM LIST INDEX
2390 9755 B151      WMOVE1 LDA (SPTR),Y  "FROM"
2400 9757 F018      BEQ WMOVER  DONE IF ZERO
2410 9759 AA        TAX
2420 975A C8        INY
2430 975B B151      LDA (SPTR),Y  "TO"
2440 975D C8        INY
2450 975E 8C41AF    STY WMOVEY
2460 9761 A8        TAY
2470 9762 B500      LDA 0,X  MOVE THE WORD
2480 9764 990000    STA 0,Y
2490 9767 B501      LDA 1,X
2500 9769 990100    STA 1,Y
2510 976C AC41AF    LDY WMOVEY
2520 976F D0E4      BNE WMOVE1
2530 9771 38        WMOVER SEC

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2540 9772 98          TYA
2550 9773 6551       ADC SPTR      COMPUTE RETURN ADDR
2560 9775 8551       STA SPTR
2570 9777 A552       LDA SPTR+1
2580 9779 6900       ADC #0
2590 977B 8552       STA SPTR+1
2600 977D 6C5100     JMP (SPTR)
2610 9780           ;
2620 9780           ; PRSTR  PRINT INLINE STRING UNTIL 0
2630 9780           ;
2640 9780           ; JSR PRSTR
2650 9780           ; .BYTE 'STRING',0
2660 9780           ;
2670 9780 68         PRSTRG PLA LOW PC
2680 9781 8551       STA SPTR
2690 9783 68         PLA HIGH PC
2700 9784 8552       STA SPTR+1
2710 9786 A001       LDY #1 INDEX TO FIRST BYTE
2720 9788 208F97     JSR PRSTRL PRINT UNTIL 0
2730 978B F0E4       BEQ WMOVER BUILD RETURN ADDR
2740 978D           ;
2750 978D           ; PRSTRP PRINT STRING AT SPTR UNTIL 0
2760 978D           ;
2770 978D A000       PRSTRP LDY #0
2780 978F B151       PRSTRL LDA (SPTR),Y ALTERNATE ENTRY
2790 9791 F006       BEQ PRSTRZ
2800 9793 204B90     JSR PRCHAR
2810 9796 C8         INY
2820 9797 D0F6       BNE PRSTRL
2830 9799 60         PRSTRZ RTS
2840 979A           ;
2850 979A           ; PRDEC/F PRINT WORD AT $11 IN DECIMAL
2860 979A           ; WITH LEADING ZERO SUPPRESSION
2870 979A           ; PRDEC PRINTS A VARIABLE-WIDTH FIELD
2880 979A           ; PRDECF PRINTS A FIXED-WIDTH FIELD OF 5 (BLANK IF ZERO)
2890 979A           ;
2900 979A           ; BIN    =$11
2910 979A           ;
2920 979A A901       PRDCF LDA #$01 FLAG: PRINT 0 AS BLANK
2930 979C 4CA197     JMP PRDECM
2940 979F A980       PRDC  LDA #$80 FLAG: PRINT 0 AS NULL
2950 97A1 48         PRDECM PHA      SAVE FLAG FOR LATER
2960 97A2 A900       LDA #0
2970 97A4 8D43AF     STA DECNN  ZERO DECIMAL ACCUMULATOR
2980 97A7 8D44AF     STA DECNN+1
2990 97AA 8D45AF     STA DECNN+2
3000 97AD           ; FIRST LOOP: CREATE PACKED DECIMAL
3010 97AD A010       LDY #16
3020 97AF F8         SED
3030 97B0 0611       PRN01 ASL BIN  SHIFT LEFT INTO CARRY
3040 97B2 2612       ROL BIN+1
3050 97B4 A203       LDX #3
3060 97B6 BD42AF     PRN02 LDA DECNN-1,X DOUBLE DEC, +1 IF CARRY
3070 97B9 7D42AF     ADC DECNN-1,X
3080 97BC 9D42AF     STA DECNN-1,X
3090 97BF CA         DEX
3100 97C0 D0F4       BNE PRN02
3110 97C2 88         DEY
3120 97C3 D0EB       BNE PRN01
3130 97C5 D8         PRN03 CLD
3140 97C6           ;SECOND LOOP: UNPACK AND PRINT
3150 97C6 A200       LDX #0
3160 97C8 68         PLA  RESTORE FLAG
3170 97C9 A8         TAY  KEEP IT IN Y
3180 97CA 4CD797     JMP PRN05 START W/ 2ND DIGIT OF 1ST BYTE
3190 97CD BD43AF     PRN04 LDA DECNN,X  A DIGIT PAIR

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3200 97D0 6A      ROR A
3210 97D1 6A      ROR A
3220 97D2 6A      ROR A
3230 97D3 6A      ROR A
3240 97D4 20EB97  JSR PRNDIG DO 1ST DIGIT
3250 97D7 BD43AF  PRN05 LDA DECNN,X
3260 97DA 20EB97  JSR PRNDIG DO 2ND DIGIT
3270 97DD E8      INX
3280 97DE E003    CPX #3 CONTINUE FOR 3 BYTES
3290 97E0 D0EB    BNE PRN04
3300 97E2 98      TYA ANY SIGNIFICANT DIGITS?
3310 97E3 1005    BPL PRNRTS YES: RETURN
3320 97E5 A930    LDA #'0 NO: PRINT A SINGLE ZERO
3330 97E7 204B90  JSR PRCHAR
3340 97EA 60      PRNRTS RTS
3350 97EB          ;
3360 97EB 290F    PRNDIG AND #50F ISOLATE DIGIT TO PRINT
3370 97ED D009    BNE PRNDIP NON-ZERO: PRINT
3380 97EF 98      TYA ZERO: TEST FLAG
3390 97F0 F006    BEQ PRNDIP PRINT 0
3400 97F2 30F6    BMI PRNRTS PRINT NULL
3410 97F4 A920    LDA #' PRINT BLANK
3420 97F6 D004    BNE PRNDIJ
3430 97F8 0930    PRNDIP ORA #'0 PRINT DIGIT
3440 97FA A000    LDY #0 FLAG: PRINT ALL
3450 97FC 4C4B90  PRNDIJ JMP PRCHAR PRINT AND RETURN
3460 97FF          END=*

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