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10 0000 ;*****
20 0000 ;
30 0000 ;           PET FILE SYSTEM
40 0000 ;           LOW LEVEL DISK DRIVERS
50 0000 ;           TWO SIDED SUPPORT
60 0000 ;
70 0000 ;           VERSION 23.4
80 0000 ;
90 0000 ;*****
100 0000 ; COPYRIGHT H.J. SAAL AND L.J. SHUSTEK, 1978, 1979
110 0000 ;
120 0000 ; INPUT PARAMETERS:
130 0000 ; DADR   STARTING BYTE POSITION
140 0000 ; DSIZ   LENGTH IN BYTES
150 0000 ; DBLK   RELATIVE BLOCK NUMBER (0...)
160 0000 ; DDRV   DRIVE # (1 OR 2)
170 0000 ; DSID   0 OR 1 FOR SINGLE, DBLD SIDED OPTION
180 0000 ;
190 0000 ; RETURNS:
200 0000 ; A-REG   IF NOT ZERO, UNSUCCESSFUL
210 0000 ;         (Z/NZ IS SET)
220 0000 ;         SPECIAL RETURN CODES:
230 0000 ;         3 = VERIFY FAILURE
240 0000 ;         5 = DISK CHANGE NOT RESET
250 0000 ;         7 = FORMAT ERROR: SECTOR SIZE NOT 256
260 0000 ;         9 = MEMORY NOT PRESENT ERROR ON READ
270 0000 ;         11 = BAD DRIVE #
280 0000 ;         OTHERWISE, RETURNS HW DISK CONTROLLER BYTE
290 0000 ; DRETRY  RETRY COUNT THIS OPERATION
300 0000 ; CUROP   CODE FOR OPERATION IN PROG.
310 0000 ;         $00... DOING READ
320 0000 ;         $40   VERIFY
330 0000 ;         $80   WRITE
340 0000 ;         $C0   READING AND FLUSHING
350 0000 ; INPUTS  PRESERVED
360 0000 ;
370 0000 ;
380 0000 RDCMD=255-$9C      MULT READ,IBM,HEAD IN
390 0000 SEEKCL=255-$18    6 MS. SEEK,LOAD,NO VERIF.
400 0000 WRCMD=255-$BC    MULT WRITE,IBM,HEAD IN
410 0000 STOPIT=255-$D0   HALT CURRENT OPERATION, NO INTERRUPT
420 0000 ;
430 0000 TIMOUT=30      (1/2 SECOND DESELECT TIMEOUT)
440 0000 ;           MAX TIMOUT=128, OR 2 SECONDS
450 0000 TIMINF=$FF     ...THIS WILL NEVER TIMOUT
460 0000 BSINTH=$E685    BASIC INT. HANDLER
470 0000 OLDPIA=$0209    KB PIA LAST JIFFY
480 0000 KEYCNT=$020D    COUNT OF KEYS
490 0000 KEYBUF=$020F    KEYBD BUFFER
500 0000 CURFLS=$0224    0=CURSOR FLASHING
510 0000 KBPIA=$E812     KB PIA (IN)
520 0000 ;
530 9033 ;           *=DREAD
540 9033 4C4698 ;           JMP READ
550 9036 ;           *=DWRITE
560 9036 4C4A98 ;           JMP WRITE
570 9039 ;           *=DVERIF
580 9039 4C4298 ;           JMP VERIF
590 903C ;           *=D2STST
600 903C 4C599A ;           JMP T2TST

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610 903F          *=DCHTST
620 903F 4C469A   JMP TDSKCH
630 9057          *=DINTRH      INTERRUPT HANDLER
640 9057 4CA59A   JMP INTRPT
650 9840          *=DSKRTN
660 9840 DA9A     .WORD FND
670 9842          ;-----
680 9842          ;
690 9842          ;      RAM LOCAL VARIABLES USED:
700 9842          ;  CUROP  DSKERC  MAXY
710 9842          ;      ERRCOD=MAXY  ***ALTERNATE USE OF RAM VARIABLE
720 9842          ;-----
730 9842          ;
740 9842 A040     VERIF  LDY #540  (WARNING: HDISK RTNS KNOW THESE CODES)
750 9844 D006          BNE INIT
760 9846 A000     READ   LDY #0
770 9848 F002          BEQ INIT
780 984A A080     WRITE  LDY #580
790 984C A200     INIT   LDX #0      RETRY COUNT
800 984E 8E38AF   STX DRETRY  THIS OPERATION
810 9851 206D9A   JSR TSTHRD
820 9854 D003          BNE FLOPPY  NOT A HARD DISK
830 9856 4C5D90   JMP HDSKOP  OTHERS ARE HARD
840 9859 A53F     FLOPPY LDA DDRV
850 985B D003          BNE FLOPOK  ZERO IS ILLEGAL
860 985D A90B     LDA #11
870 985F 60       RTS
880 9860 20769A   FLOPOK JSR SELDRD  SELECT FROM DDRV
890 9863 2920     AND #520    IS DISK CHANGE ON?
900 9865 D011          BNE REINIT  NO
910 9867 ADFCBF   LDA DDCMD  CHECK IF READY
920 986A 1006     BPL FLOX   NO, SHOW IT
930 986C 20969A   JSR DESELD YES, DESELECT
940 986F A905     LDA #5     AND RETURN ERROR CODE
950 9871 60       RTS
960 9872 20969A   FLOX   JSR DESELD  DESELECT
970 9875 A980     LDA #580   NOT READY
980 9877 60       RTS
990 9878 98       REINIT TYA      SAVE CUROP
1000 9879 48      PHA
1010 987A 8D39AF   WVERIF STA CUROP  REENTER HERE FOR VERIFY AFTER WRITE
1020 987D A542     LDA DBLK   SAVE DBLK
1030 987F 48      PHA
1040 9880 A543     LDA DBLK+1 SAVE MORE DBLK
1050 9882 48      PHA
1060 9883 A544     LDA DSIZ
1070 9885 48      PHA
1080 9886 A545     LDA DSIZ+1
1090 9888 48      PHA
1100 9889          ; MOVE DADR TO PAGE0 POINTER - PNTL,H
1110 9889 A546     LDA DADR
1120 988F 8549     STA PNTL
1130 988D A547     LDA DADR+1
1140 988F 854A     STA PNTL
1150 9891 A900     LDA #0
1160 9893 8D3AAF   STA MAXY
1170 9896 ADFCBF   WNBSY  LDA DDCMD
1180 9899 2901     AND #1
1190 989B F0F9     BEQ WNBSY
1200 989D A544     SEEKB  LDA DSIZ      SHORT CUT
1210 989F 0545     ORA DSIZ+1
1220 98A1 D003          BNE S0      KEEP GOING
1230 98A3 4C7B99   JMP DONET   DONT SEEK IF JUST FINISHED
1240 98A6 20209A   S0      JSR GETTRK  COMPUTE THE TRACK NUMBER
1250 98A9 CDFDBF   CMP DDTRK  ARE WE THERE?
1260 98AC F013     BEQ S2     YES. SKIP SEEK

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1270 98AE 48          PHA          SAVE TRACK #
1280 98AF 8DFFBF     STA DDATA
1290 98B2 A9E7       LDA #SEEKCL  LOAD THE HEAD NOW
1300 98B4 8DFCBF     STA DDCMD
1310 98B7 58         CLI          LET INTERRUPTS IN
1320 98B8 2CFBBF     S1      BIT DDSEL  IDLE HERE
1330 98BB 50FB       BVC S1      TILL SEEK DONE
1340 98BD           ; WE ARE READY TO READ OR WRITE
1350 98BD           ; SET THE TRACK AND SECTOR IN THE CONTROLLER
1360 98BD           ; NOTE: YOU CAN'T COUNT ON THE TRACK REGISTER
1370 98BD           ; AFTER A SEEK, SINCE IT IS SET TO ZERO
1380 98BD           ; IF THE HW DETECTS TRACK 0!!!
1390 98BD 68        PLA          RESTORE TRACK #
1400 98BE 8DFDBF     STA DDTRK
1410 98C1 20169A     S2      JSR GETSEC  COMPUTE SECTOR #
1420 98C4 8DFEBF     STA DDSEC
1430 98C7           ; NOW LOAD APPROP. COMMAND
1440 98C7 AD39AF     LDA CUROP
1450 98CA C980       CMP #580    WRITE?
1460 98CC F004       BEQ LDWRT
1470 98CE A963       LDA #RDCMD  NO
1480 98D0 D002       BNE LD1
1490 98D2 A943       LDWRT     LDA #WRCMD
1500 98D4 78        LD1      SEI
1510 98D5 8DFCBF     STA DDCMD
1520 98D8 A000       LDY #0     INDEX INTO CURRENT SECTOR
1530 98DA B8        BOSECT  CLV          RESET FOR ERROR TESTS LATER
1540 98DB A545       LDA DSIZ+1 AT LEAST A PAGE TO GO?
1550 98DD D010       BNE BOSX   BR IF YES
1560 98DF A544       LDA DSIZ
1570 98E1 D003       BNE BOSY
1580 98E3 4C7699     JMP DONE
1590 98E6 8D3AAF     BOSY     STA MAXY    REMAINING BYTES IN SECTOR
1600 98E9 A900       LDA #0
1610 98EB 8544       STA DSIZ   SO WE ARE DONE NEXT TIME
1620 98ED F002       BEQ DOSECT
1630 98EF C645       BOSX     DEC DSIZ+1 DO ONE PAGE
1640 98F1 AE39AF     DOSECT  LDX CUROP  WRITE?
1650 98F4 304C       BMI DOWR
1660 98F6 D025       BNE DOCOMP
1670 98F8           ; READING: CHECK ONE BYTE PRESENT
1680 98F8 B149       LDA (PNTL),Y OLD VALUE
1690 98FA 49FF       EOR #5FF   CHANGE ALL BITS
1700 98FC 9149       STA (PNTL),Y SAVE IT BACK
1710 98FE D149       CMP (PNTL),Y AND IT BETTER BE THERE
1720 9900 F003       BEQ TRYRD  OKAY, GO ON
1730 9902 4CA599     JMP MEMERR BAD NEWS SIGNAL
1740 9905 7014       TRYRD   BVS TRYCM  ERROR ON READ..GOTO RETRYX
1750 9907 2CFBBF     DOREAD  BIT DDSEL
1760 990A 10F9       BPL TRYRD
1770 990C ADFFBF     LDA DDATA
1780 990F 9149       STA (PNTL),Y
1790 9911 C8        INY
1800 9912 F03D       BEQ EOSECT
1810 9914 CC3AAF     CPY MAXY
1820 9917 D0EE       BNE DOREAD
1830 9919 F016       BEQ DOFL
1840 991B           ;
1850 991B 7014       TRYCM   BVS DOFL  ERROR..GOTO RETRYX
1860 991D 2CFBBF     DOCOMP  BIT DDSEL
1870 9920 10F9       BPL TRYCM
1880 9922 ADFFBF     LDA DDATA
1890 9925 D149       CMP (PNTL),Y
1900 9927 D075       BNE BADCMP DATA MISCOMPARE
1910 9929 C8        INY
1920 992A F025       BEQ EOSECT

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1930 992C CC3AAF          CPY MAXY
1940 992F D0EC          BNE DOCOMP
1950 9931 700D          DOFL  BVS TRYWR          ERROR..GOTO RETRYX
1960 9933 2CFBBF          BIT DDSEL
1970 9936 10F9          BPL DOFL
1980 9938 ADFFBF          LDA DDATA
1990 993B C8             INY
2000 993C D0F3          BNE DOFL
2010 993E F011          BEQ EOSECT
2020 9940 707A          TRYWR BVS RETRYX          GOTO RETRYX ON ERROR
2030 9942 2CFBBF          DOWR  BIT DDSEL
2040 9945 10F9          BPL TRYWR
2050 9947 B149          LDA (PNTL),Y
2060 9949 8DFFBF          STA DDATA
2070 994C C8             INY
2080 994D D0F3          BNE DOWR
2090 994F F000          BEQ EOSECT
2100 9951          ;
2110 9951 ADFEBF          EOSECT LDA DDSEC          CURRENT SECTOR
2120 9954 AA             TAX          SAVE IT HERE
2130 9955 18             CLC
2140 9956 6542          ADC DBLK          ADD TRUE BLK NO TO COMPL. HW VALUE
2150 9958 18             CLC
2160 9959 6902          ADC #2           PLUS TWO FOR DIFFERENT ORIGIN
2170 995B 290F          AND #5F          LOW 4 BITS SHOULD
2180 995D D038          BNE FRMERR          BE ZERO NOW
2190 995F E64A          INC PNTH          WRITE/READ NEXT PAGE
2200 9961 E642          INC DBLK          UPDATE RELATIVE BLOCK #
2210 9963 D002          BNE EOS1
2220 9965 E643          INC DBLK+1       CARRY INTO NEXT BYTE
2230 9967 E0EF          EOS1  CPX #255-16     IS SECTOR REG PAST THE END?
2240 9969 F003          BEQ EOS2          YES, NEXT TRACK
2250 996B 4CDA98          JMP BOSECT        NO, KEEP GOING
2260 996E 20AC99          EOS2  JSR KILL          STOP DISK SPINNING
2270 9971 D04C          BNE RETRY        STATUS IS N.G.
2280 9973 4C9D98          JMP SEEKB         GO TO NEXT TRACK
2290 9976          ;
2300 9976 20AC99          DONE  JSR KILL
2310 9979 D044          BNE RETRY
2320 997B AD39AF          DONET LDA CUROP          WHAT WERE WE DOING?
2330 997E C980          CMP #80 A        WRITE?
2340 9980 F004          BEQ DOVER        YES, GO VERIFY
2350 9982 A900          LDA #0           ALL DONE, OK
2360 9984 F039          BEQ RETRY        GET OUT..
2370 9986          ; VERIFY NEEDED
2380 9986 68             DOVER  PLA          RESTORE LENGTH
2390 9987 8545          STA DSIZ+1
2400 9989 68             PLA
2410 998A 8544          STA DSIZ
2420 998C 68             PLA
2430 998D 8543          STA DBLK+1
2440 998F 68             PLA
2450 9990 8542          STA DBLK
2460 9992 A940          LDA #40          SET VERIFY CODE
2470 9994 4C7A98          JMP WVERIF        AND START VERIFY
2480 9997 20AC99          FRMERR JSR KILL
2490 999A A907          LDA #7           7 IS SIGNAL FOR BAD DISK FORMAT
2500 999C D021          BNE RETRY
2510 999E          ;
2520 999E          ;
2530 999E 20AC99          BADCMP JSR KILL
2540 99A1 A903          LDA #3           3 IS SIGNAL FOR VERIFY ERROR
2550 99A3 D01A          BNE RETRY
2560 99A5          ;
2570 99A5 20AC99          MEMERR JSR KILL
2580 99A8 A909          LDA #9           9 IS SIGNAL FOR NO MEMORY PRESENT ON READ

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2590 99AA D013      BNE RETRY
2600 99AC          ;
2610 99AC A92F      KILL   LDA #STOPIT  HALT CURRENT OPERATION AT ONCE
2620 99AE 8DFCBF    STA DDCMD
2630 99B1 A900      LDA #0      RETURN OK STATUS
2640 99B3 F005      BEQ KRET
2650 99B5 ADFCBF    TROBLE  LDA DDCMD  READ STATUS
2660 99B8 49FF      EOR #$FF   RETURN STATUS IN A
2670 99BA          ;    CALLERS DEPEND ON Z BIT!!
2680 99BA 58        KRET   CLI    RESTORE THEM ALL
2690 99BE 60        RTS
2700 99BC 20B599   RETRYX  JSR TROBLE  GET STATUS
2710 99BF 8D3AAF   RETRY  STA ERRCOD  SAVE IT FOR NOW
2720 99C2 68        GETOUT  PLA
2730 99C3 8545     STA DSIZ+1
2740 99C5 68        PLA
2750 99C6 8544     STA DSIZ
2760 99C8 68        PLA    RESTORE TRUE BLOCK COUNT
2770 99C9 8543     STA DBLK+1
2780 99CB 68        PLA    RESTORE TRUE BLOCK COUNT
2790 99CC 8542     STA DBLK
2800 99CE 68        PLA    GET CUROP
2810 99CF A8        TAY    HOLD IT IN Y
2820 99D0 AD3AAF   LDA ERRCOD  WAS THERE AN ERROR?
2830 99D3 F03A     BEQ GOUT   NO.
2840 99D5 AA        RECAL  TAX    SAVE CODE
2850 99D6 29C0     AND #$C0   NOT READY OR PROTECTED
2860 99D8 D035     BNE GOUT   GIVE UP
2870 99DA 8A        TXA    LOOK AGAIN AT ERROR
2880 99DB E003     CPX #3
2890 99DD F004     BEQ DORTY
2900 99DF 2901     AND #1    SPECIAL CODE?
2910 99E1 D02C     BNE GOUT   YES, QUIT
2920 99E3 A9FF     DORTY  LDA #DDREST  DO A RESTORE
2930 99E5 8DFCBF    STA DDCMD
2940 99E8 2CFBBF   RECALW  BIT DDSEL   WAIT FOR END OF RESTORE
2950 99EB 50FB     BVC RECALW
2960 99ED EE37AF   INC DSKERC+1  BUMP ERROR COUNT
2970 99F0 D003     BNE RECAL1
2980 99F2 EE36AF   INC DSKERC
2990 99F5 98        RECAL1  TYA    TEST OPERATION
3000 99F6 F006     BEQ RECAL2  WAS READ
3010 99F8 3008     BMI RECAL3  WAS WRITE
3020 99FA A202     LDX #2     VERIFY, 2 RETRIES
3030 99FC D006     BNE RECAL4
3040 99FE A208     RECAL2  LDX #8     READ, 8 RETRIES
3050 9A00 D002     BNE RECAL4
3060 9A02 A204     RECAL3  LDX #4     WRITE, 4 RETRIES
3070 9A04 EC38AF   RECAL4  CPX DRETRY  AT MAX?
3080 9A07 F006     BEQ GOUT   YES
3090 9A09 EE38AF   INC DRETRY  NO, TRY AGAIN
3100 9A0C 4C7898   JMP REINIT  GO TRY AGAIN
3110 9A0F 20969A   GOUT    JSR DESELD  DESELECT CURRENT DRIVE
3120 9A12 AD3AAF   OUT     LDA ERRCOD  RESTORE ERROR CODE FOR CALLER
3130 9A15 60        RTS
3140 9A16          ;
3150 9A16          ;    COMPUTE SECTOR NUMBER
3160 9A16          ;    IN H.W. FORM, FROM DBLK
3170 9A16          ;
3180 9A16 A542     GETSEC  LDA DBLK
3190 9A18 290F     AND #$F    JUST USE LOW FOUR BITS
3200 9A1A 18        CLC
3210 9A1B 6901     ADC #1     MAKE ORIGIN 1
3220 9A1D 49FF     EOR #$FF   COMPLEMENT FOR H.W.
3230 9A1F 60        RTS
3240 9A20          ;

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3250 9A20 ; COMPUTE TRACK NUMBER
3260 9A20 ; IN H.W. FORM, FROM DBLK
3270 9A20 ; AUTOMATICALLY SELECTS 2ND SIDE
3280 9A20 ; IF NEEDED, AND OPN IS 2SIDED
3290 9A20 ;
3300 9A20 A542 GETTRK LDA DBLK
3310 9A22 4A LSR A
3320 9A23 4A LSR A SHIFT 4 TIMES
3330 9A24 4A LSR A
3340 9A25 4A LSR A TO GET LW ORDER ADDRESS ALIGNED
3350 9A26 8D34AF STA TEMP SAVE IT
3360 9A29 A543 LDA DBLK+1 GET HIGH ORDER BLOCK NUMBER
3370 9A2B 0A ASL A
3380 9A2C 0A ASL A SHIFT LEFT 4 TIMES
3390 9A2D 0A ASL A
3400 9A2E 0A ASL A
3410 9A2F 0D34AF ORA TEMP PUT TOGETHER
3420 9A32 ;
3430 9A32 ; WE NOW HAVE 8 BITS TOGETHER
3440 9A32 ; THIS IS AT MOST 7 BITS FOR TRACK
3450 9A32 ; AND 1 FOR SIDE, IF NEEDED.
3460 9A32 ; THIS COVERS ALL ?? TRACKS FOR NOW
3470 9A32 ;
3480 9A32 A640 LDX DSID OPERATION 1 OR 2 SIDED?
3490 9A34 F00D BEQ GETTR2 BR IF 1 SIDE
3500 9A36 4A LSR A MOVE SIDE TO CARRY
3510 9A37 48 PHA SAVE TRACK NUMBER
3520 9A38 A53F LDA DDRV GET DRIVE NO.
3530 9A3A 9002 BCC GETTR1 BR IF SIDE 0
3540 9A3C 6902 ADC #2 IF SIDE TWO, MAP 0,1,2 TO 3,4,5
3550 9A3E ; THIS FORCES SECOND SIDE SELECT
3560 9A3E AA GETTR1 TAX PUT DRIVE IN X
3570 9A3F 207F9A JSR SELDRX AND PHYSICALLY PICK IT
3580 9A42 68 PLA RESTORE TRACK
3590 9A43 49FF GETTR2 EOR #$FF MAKE H.W. FORMAT
3600 9A45 60 RTS
3610 9A46 ;
3620 9A46 ; MISC ROUTINES
3630 9A46 ;
3640 9A46 206D9A TDSKCH JSR TSTHRD HRD DISK?
3650 9A49 F0F8 BEQ GETTR2 NEVER DISK CHANNGE
3660 9A4B 20649A JSR STGET SELECT, DESELECT
3670 9A4E 2920 AND #$20 TEST CHANGE BIT
3680 9A50 D006 BNE TDSKX EXIT IF NOT CHANGED
3690 9A52 8DFBBF STA DDSEL IF CHANGED, MUST RESET SELECT FOR NEXT TRY
3700 9A55 8D61AF STA DTIMER CANCEL COUNTDOWN
3710 9A58 60 TDSKX RTS
3720 9A59 ;
3730 9A59 206D9A T2TST JSR TSTHRD HRD DISK?
3740 9A5C F0FA BEQ TDSKX ALWAYS DOUBLE SIDED
3750 9A5E 20649A JSR STGET SELECT, DESELECT
3760 9A61 2910 AND #$10 TEST 2 SIDE BIT
3770 9A63 60 RTS
3780 9A64 ;
3790 9A64 ;
3800 9A64 20769A STGET JSR SELDRD SELECT CURRENT DRIVE
3810 9A67 48 PHA SAVE STATUS
3820 9A68 20969A JSR DESELD DESELECT CURRENT DRIVE
3830 9A6B 68 PLA GET STATUS
3840 9A6C 60 RTS
3850 9A6D ;
3860 9A6D A53F TSTHRD LDA DDRV SEE IF HARD DISK
3870 9A6F C903 CMP #3
3880 9A71 3002 BMI TSTHRX NO,FLOPPY
3890 9A73 A900 LDA #0 HARD DISK
3900 9A75 60 TSTHRX RTS

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3910 9A76 ;
3920 9A76 ;
3930 9A76 ; SELECT CURRENT DRIVE
3940 9A76 A53F SELDRD LDA DDRV
3950 9A78 ;
3960 9A78 ; FALL INTO...
3970 9A78 ;
3980 9A78 ; SELECT DRIVE FROM A
3990 9A78 ; USE TRACK HISTORY FROM DLSTRK:DLSTRK+2
4000 9A78 ; RETURNS STATUS IN A
4010 9A78 ;
4020 9A78 AA SELDR TAX
4030 9A79 BD46AF LDA DLSTRK,X GET OLD TRACK POSITION
4040 9A7C 8DFDFB STA DDTRK SET INTO REGISTER
4050 9A7F BD909A SELDRX LDA HWSEL,X PICK THE SELECT LINES AND SIDE SELECT
4060 9A82 78 SEI SUSPEND INT'S
4070 9A83 8DFBBF STA DDSEL
4080 9A86 A9FF LDA #TIMINF SELECT FOR EVER, TILL DESELECTED
4090 9A88 8D61AF STA DTIMER
4100 9A8E 58 CLI ALLOW INT'S
4110 9A8C ADFBBF LDA DDSEL RETURN STATUS
4120 9A8F 60 RTS
4130 9A90 ;
4140 9A90 00 HWSEL .BYTE 0,2,4
4140 9A91 02
4140 9A92 04
4150 9A93 00 .BYTE 0,34,36 2ND SIDE
4150 9A94 22
4150 9A95 24
4160 9A96 ;
4170 9A96 ; DESELECT CURRENT DRIVE
4180 9A96 ;
4190 9A96 A53F DESELD LDA DDRV
4200 9A98 ;
4210 9A98 ; FALL INTO...
4220 9A98 ;
4230 9A98 ; DESELECT DRIVE FROM A REG.
4240 9A98 ; SAVE TRACK REGISTER IN DLSTRK:DLSTRK+2
4250 9A98 ;
4260 9A98 AA DESEL TAX
4270 9A99 ADFDFB LDA DDTRK CURRENT POSITION
4280 9A9C 9D46AF STA DLSTRK,X SAVED..
4290 9A9F A91E LDA #TIMOUT START COUNTDOWN
4300 9AA1 8D61AF STA DTIMER NOW...
4310 9AA4 60 RTS DONE
4320 9AA5 ;
4330 9AA5 38 INTRPT SEC COUNT DOWN EACH CLOCK INTERRUPT
4340 9AA6 AD61AF LDA DTIMER
4350 9AA9 E901 SBC #1 LESS ONE
4360 9AAB 3008 BMI STPCHK WAS ALREADY OFF
4370 9AAD 8D61AF STA DTIMER GE ZERO, RESET
4380 9AB0 D003 BNE STPCHK NOT ZERO, EXIT
4390 9AB2 8DFBBF STA DDSEL DESELCT HW
4400 9AB5 AD2402 STPCHK LDA CURFLS CURSOR FLASHING?
4410 9AB8 D01D BNE INTXIT NO, QUIT
4420 9ABA AD12E8 LDA KBPIA SEE IF STOP DOWN
4430 9ABD 2910 AND #16
4440 9ABF D016 BNE INTXIT IT IS UP
4450 9AC1 AD0902 LDA OLDPIA IT IS DOWN
4460 9AC4 2910 AND #16
4470 9AC6 F00F BEQ INTXIT IT WAS DOWN BEFORE TOO
4480 9AC8 A9A0 LDA #A0 NEW DOWN!!
4490 9ACA 8D0F02 STA KEYBUF MOVE SHIFT SPACE
4500 9ACD A90D LDA #0D AND CR
4510 9ACF 8D1002 STA KEYBUF+1 TO KEYBD BUFFER
4520 9AD2 A902 LDA #2 COUNT OF KEYS

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4530 9AD4 8D0D02      STA KEYCNT  ..WILL CAUSE EXIT
4540 9AD7 4C85E6 INTXIT JMP BSINTH  I AM THE LOWEST LEVEL HANDLER
4550 9ADA          ;          GO BACK TO BASIC
4560 9ADA          ;
4570 9ADA          END      .END
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