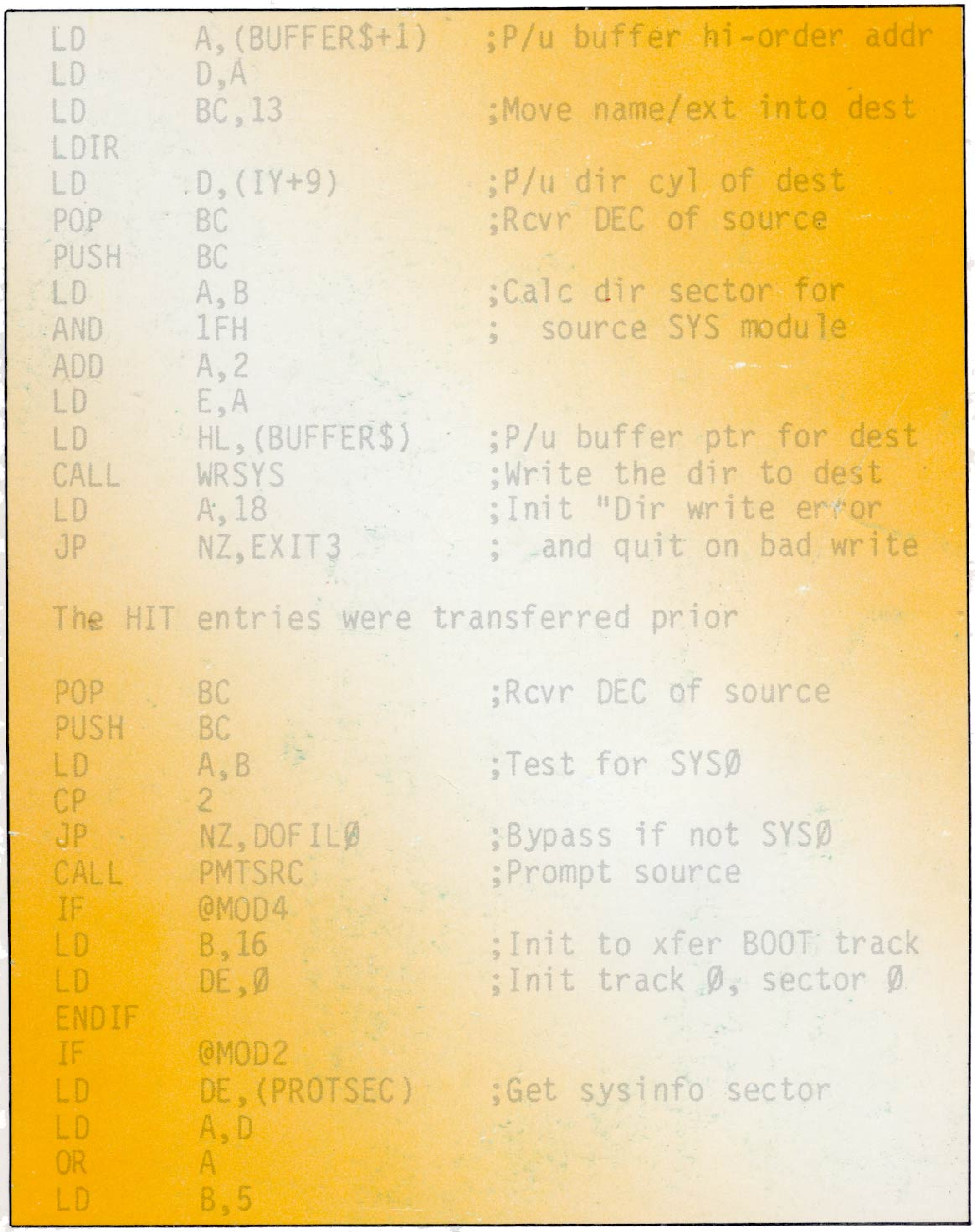
$99

TRSDOS/LS - DOS 6.x

"THE SOURCE"



```
LD      A,(BUFFER$+1)    ;P/u buffer hi-order addr
LD      D,A
LD      BC,13            ;Move name/ext into dest
LDIR
LD      D,(IY+9)         ;P/u dir cyl of dest
POP     BC               ;Rcvr DEC of source
PUSH    BC
LD      A,B              ;Calc dir sector for
AND     1FH              ;  source SYS module
ADD     A,2
LD      E,A
LD      HL,(BUFFER$)     ;P/u buffer ptr for dest
CALL    WRSYS            ;Write the dir to dest
LD      A,18             ;Init "Dir write error
JP      NZ,EXIT3         ;  and quit on bad write

The HIT entries were transferred prior

POP     BC               ;Rcvr DEC of source
PUSH    BC
LD      A,B              ;Test for SYSØ
CP      2
JP      NZ,DOFILØ        ;Bypass if not SYSØ
CALL    PMTSRC           ;Prompt source
IF      @MOD4
LD      B,16             ;Init to xfer BOOT track
LD      DE,Ø             ;Init track Ø, sector Ø
ENDIF
IF      @MOD2
LD      DE,(PROTSEC)     ;Get sysinfo sector
LD      A,D
OR      A
LD      B,5
```

Volume 3

The UTILITIES

LOGICAL SYSTEMS INC.

"THE SOURCE"

CONTENTS

LOGICAL SYSTEMS INC.

8970 North 55th Street
P.O. Box 23956
Milwaukee, WI 53223

Introduction to Volume Three

This is volume three of three in the set of commented source code listings for LS-DOS/TRSDOS 6.2, as assembled for the TRS-8Ø Model 4/4P computer. This volume contains the utility programs, the standard drivers and filters, and the drive setup programs.

Each file will be preceded by a brief description of its function. A symbol table listing will follow each assembly listing.

The SVC macro file used during assembly of the utilities will be listed in Appendix A, along with the equate files generated during assembly of the resident part of the operating system.

This book should by no means be considered a tutorial on assembly language or on the workings of the LS-DOS/TRSDOS operating system. It is only the commented source code used to assemble the system utilities. It can be used for reference purposes and to view examples of interfacing outside drivers, filters and other programs to the DOS and to each other. It is not meant to replace the normal technical reference manual available from the computer manufacturer.

This product is sold on an as-is basis, and is totally unsupported by Logical Systems, Inc. No questions regarding any aspect of the source code will be answered by LSI customer or technical support. Support for LS-DOS users is provided through their OEM dealer. Support for TRSDOS 6.x is provided by Tandy Corporation. Comments or suggestions may be sent to Logical Systems, Inc. in care of the Source Code Technical Editor, but correspondence concerning these comments will not be made.

BACKUP/CMD - Disk and file duplication utility

Backup is assembled from three separate source files. The first contains some initialization, and the common code needed during mirror image backups and backup by class. The other modules contain the code for the two different type of backup operations.

```
                ;BACKUP/ASM - File/disk copy utility
0000                     TITLE   <BACKUP - LS-DOS 6.2>
                ;
0000            *GET     BACKUP1:3
                ;BACKUP1/ASM - Backup utility module
0000                     SUBTTL  '<Backup initialization>'
                ;
0000            SMALL    EQU     0
0000            FMT      EQU     0
000A            LF       EQU     10
000D            CR       EQU     13
0060            LOCK     EQU     60H
00CC            TKCAP    EQU     0CCH
00CE            PSWD     EQU     0CEH
00D8            DAT      EQU     0D8H
00E0            AUTO     EQU     0E0H
1111            FCNT1    EQU     1111H
1555            FCNT2    EQU     1555H
42E0            PASSWORD         EQU     42E0H
                ;
0000            *GET     SVCMAC:3                ;SVC Macro equivalents
                ;SVCMAC/ASM - LS-DOS Version VI
                *LIST    OFF
                *LIST    ON
0000            *GET     COPYCOM:3               ;Copyright message
                ; COPYCOM - File for Copyright COMment block
                ;
0000                     COM     '<*(C) 1982,83,84 by LSI*>'
                ;
2600                     ORG     2600H
                ;
                         IF      @MOD2
                BOOTST$ DB       03H
                         ENDIF
                         IF      @MOD4
2600 9D         BOOTST$ DB       9DH             ;Boot step rate ptr
                         ENDIF
                ;
                ;        Data area
                ;
2601 00         FTFLG$   DB      0
2602 20         SPCFLD$ DC       11,' '
     20 20 20 20 20 20 20 20
     20 20
260D 00         MFLG$    DB      0
260E 0000       NEWPRM$ DW       0
2610 0000       OLDPRM$ DW       0
2612 0000       MODPRM$ DW       0
2614 0000       QPARM$   DW      0
2616 0000       BUFFER$ DW       0
0020            FCB1$    DS      32
0020            FCB2$    DS      32
0020            FCB3$    DS      32
2658            LILBUF$ EQU      FCB3$
0008            DATFLD$ DS       8
0002            FMPAKD$ DS       2
0002            TOPAKD$ DS       2
0001            CLSFLG$ DS       1
                ;
                         IF      @MOD2
                ;
```

Backup initialization

```
                     SUBTTL  '<BACKUP Module - #4/2>'
            ;
                     ENDIF
            ;
            ;
            ;        Normal exit - no errors
            ;
2685 21FC29 EXIT1    LD      HL,BUCAO$         ;"Backup complete...
2688 E5              PUSH    HL                ;Save msg ptr
2689 CDC926          CALL    EXIT5             ;Ck if prompt for sys disk
268C E1              POP     HL
268D                 @@DSPLY
                     IFEQ    ØØH,1
                     LD      HL,
                     ENDIF
268D 3EØA            LD      A,1Ø
268F EF              RST     4Ø
269Ø 182B            JR      EXIT
            ;
            ;        Error exit
            ;
2692 3E11   DIRERR   LD      A,17              ;Init "Dir read error
2694 Ø1              DB      1                 ;Ignore next inst
2695 3E2Ø   EXIT2    LD      A,2ØH             ;Init illegal drive #
2697 F5     EXIT3    PUSH    AF
2698 ØEØD            LD      C,CR              ;Terminate pending line
269A                 @@DSP
269A 3EØ2            LD      A,2
269C EF              RST     4Ø
269D CDC926          CALL    EXIT5             ;Get system disk if needed
26AØ F1              POP     AF
26A1 6F              LD      L,A               ;Error code to HL
26A2 26ØØ            LD      H,Ø
26A4 F6CØ            OR      ØCØH              ;Set short,return
26A6 4F              LD      C,A               ;Error to C
26A7                 @@ERROR                   ;  for error dsply
26A7 3E1A            LD      A,26
26A9 EF              RST     4Ø
26AA 18ØE            JR      ERREXIT
            ;
            ;        Abort exit
            ;
26AC        BREAK    EQU     $
26AC 21ØD2A ABRTBU   LD      HL,ABRTBU$        ;"Backup aborted
26AF E5     EXIT4    PUSH    HL                ;Save msg ptr
26BØ CDC926          CALL    EXIT5             ;Get system disk if needed
26B3 E1              POP     HL
26B4                 @@LOGOT                   ;Display the message
                     IFEQ    ØØH,1
                     LD      HL,
                     ENDIF
26B4 3EØC            LD      A,12
26B6 EF              RST     4Ø
26B7 21FFFF          LD      HL,-1             ;Set error return code
26BA 22C126 ERREXIT  LD      (RETCOD),HL
26BD        EXIT     EQU     $
26BD 31ØØØØ SPSAV    LD      SP,$-$            ;P/u the stack pointer
26CØ 21ØØØØ          LD      HL,Ø              ;Set the return code
26C1        RETCOD   EQU     $-2
```

Backup initialization

```
26C3          Ø49ØØ          @@CKBRKC                  ;Check and clear break
26C3 3E6A     ØØØ15          LD      A,1Ø6
26C5 EF       ØØØ16          RST     4Ø
26C6          Ø491Ø          @@EXIT                    ;Can't return from BACKUP
26C6 3E16     ØØØ17          LD      A,22
26C8 EF       ØØØ18          RST     4Ø
              Ø492Ø ;
              Ø493Ø ;        Get system disk if needed & zero memory used
              Ø494Ø ;
26C9          Ø495Ø EXIT5    EQU     $
26C9 11ØØØØ   Ø496Ø XPARM$   LD      DE,Ø              ;P/u prompt zero drive
26CC 1C       Ø497Ø          INC     E                 ;Ck for entry
26CD 2ØØ9     Ø498Ø          JR      NZ,EXIT5A
26CF AF       Ø499Ø          XOR     A
26DØ 32CF27   Ø5ØØØ          LD      (SXORD+1),A
26D3 CDØØ27   Ø5Ø1Ø          CALL    SYSDRV$           ;Force prompt for SYSTEM
26D6 18Ø7     Ø5Ø2Ø          JR      EXIT5B
26D8 3ACF27   Ø5Ø3Ø EXIT5A   LD      A,(SXORD+1)       ;  else if not entered,
26DB B7       Ø5Ø4Ø          OR      A                 ;  ck if source & dest
26DC CCFB26   Ø5Ø5Ø          CALL    Z,NDSYS$          ;  are same - we may need
26DF ED5B1626 Ø5Ø6Ø EXIT5B   LD      DE,(BUFFER$)      ;  a prompt
26E3 7A       Ø5Ø7Ø          LD      A,D               ;Ck if we did a backup
26E4 B3       Ø5Ø8Ø          OR      E
26E5 C8       Ø5Ø9Ø          RET     Z                 ;Ret if buf adr never set
26E6 21ØØØØ   Ø51ØØ          LD      HL,Ø              ;  else calculate how
26E9 45       Ø511Ø          LD      B,L               ;  many bytes in RAM
26EA          Ø512Ø          @@HIGH$                   ;  to zero
26EA 3E64     ØØØ19          LD      A,1ØØ
26EC EF       ØØØ2Ø          RST     4Ø
26ED AF       Ø513Ø          XOR     A
26EE ED52     Ø514Ø          SBC     HL,DE             ;Get length to zero
26FØ 44       Ø515Ø          LD      B,H
26F1 4D       Ø516Ø          LD      C,L               ;  into BC
26F2 62       Ø517Ø          LD      H,D               ;Pt HL to start of buffer
26F3 6B       Ø518Ø          LD      L,E
26F4 13       Ø519Ø          INC     DE
26F5 36ØØ     Ø52ØØ          LD      (HL),Ø            ;Init 1st to zero
26F7 ØB       Ø521Ø          DEC     BC                ;  & propogate it
26F8 EDBØ     Ø522Ø          LDIR
26FA C9       Ø523Ø          RET
              Ø524Ø ;
              Ø525Ø ;        Prompt for system disk
              Ø526Ø ;
26FB 3AØE27   Ø527Ø NDSYS$   LD      A,(SRCDRV$+1)     ;On exit, if S=D <> Ø
26FE B7       Ø528Ø          OR      A                 ;  then no need to prompt
26FF CØ       Ø529Ø          RET     NZ
27ØØ 3EØØ     Ø53ØØ SYSDRV$  LD      A,Ø               ;P/u drive Ø indicator
27Ø2 F62Ø     Ø531Ø          OR      2ØH               ;Set bit 5 for sys test
27Ø4 E5       Ø532Ø          PUSH    HL
27Ø5 21FE28   Ø533Ø          LD      HL,PMTSYS$        ;"insert system...
27Ø8 CDC727   Ø534Ø          CALL    CURDSK
27ØB E1       Ø535Ø          POP     HL
27ØC C9       Ø536Ø          RET
              Ø537Ø ;
              Ø538Ø ;        Prompt source disk
              Ø539Ø ;
27ØD 3EØØ     Ø54ØØ SRCDRV$  LD      A,Ø               ;Source drive
27ØF F68Ø     Ø541Ø          OR      8ØH               ;Set bit 7 on source
2711 E5       Ø542Ø          PUSH    HL
```

Backup initialization

```
2712 211C29                 LD      HL,PMTSRC$        ;"Insert source
2715 CDC727                 CALL    CURDSK            ;Prompt for source if needed
2718 E1                     POP     HL
2719 C9                     RET
                   ;
                   ;        Prompt source disk if needed to swap
                   ;
271A 3AC827        PMTSRC   LD      A,(CURDSK+1)      ;P/u current drive
271D CB7F                   BIT     7,A               ;Is source the one?
271F 2ØEC                   JR      NZ,SRCDRV$        ;Jump if it is
2721 CDØD27                 CALL    SRCDRV$           ;  else prompt for it
2724 3ACF27                 LD      A,(SXORD+1)
2727 B7                     OR      A
2728 CØ                     RET     NZ                ;Ret if source <> dest
2729 CD5E28                 CALL    RESTOR            ;Restore to cyl Ø
272C C5                     PUSH    BC
272D D5                     PUSH    DE                ;Save registers
272E E5                     PUSH    HL
272F 21ØØ2D                 LD      HL,BUF3$          ;Use this for I/O buffer
2732 11ØØØØ                 LD      DE,Ø              ;Read the BOOT
2735 CD7228                 CALL    RDSEC
2738 E1                     POP     HL
2739 D1                     POP     DE                ;Restore the registers
273A C1                     POP     BC
273B C29726                 JP      NZ,EXIT3          ;Quit on read error
273E 3AØØ2D                 LD      A,(BUF3$)         ;P/u 1st byte of BOOT
2741 B7                     OR      A                 ;If source, s/b Ø
2742 2Ø3Ø                   JR      NZ,PSRC3          ;Jump if not this disk
2744 C5                     PUSH    BC
2745 D5                     PUSH    DE
2746 E5                     PUSH    HL
2747 FD56Ø9                 LD      D,(IY+9)          ;P/u dir cyl
274A 1EØØ                   LD      E,Ø               ;Pt to GAT sector
274C 21ØØ2D                 LD      HL,BUF3$
274F CD7228                 CALL    RDSEC             ;Read the GAT
2752 FEØ6                   CP      6
2754 C29226                 JP      NZ,DIRERR
2757 21CE2B                 LD      HL,BUF1$+PSWD     ;Ck for match with orig
275A 11CE2D                 LD      DE,BUF3$+PSWD     ;  source disk
275D Ø6ØA                   LD      B,1Ø              ;Set match count
275F 1A            PSRC1    LD      A,(DE)
276Ø BE                     CP      (HL)
2761 2ØØ8                   JR      NZ,DIFSRC         ;Wrong disk if no match
2763 13                     INC     DE                ;Bump pointers
2764 23                     INC     HL
2765 1ØF8                   DJNZ    PSRC1             ;Loop for 1Ø compares
2767 E1                     POP     HL                ;Was a match,
2768 D1                     POP     DE                ;  restore and return
2769 C1                     POP     BC
276A C9                     RET
276B               DIFSRC   @@DSPLY DIFSRC$           ;"wake up...
                            IFEQ    Ø1H,1
276B 215D29                 LD      HL,DIFSRC$
                            ENDIF
276E 3EØA                   LD      A,1Ø
277Ø EF                     RST     4Ø
2771 E1                     POP     HL                ;Clean the stack
2772 D1                     POP     DE
2773 C1                     POP     BC
```

Backup initialization

```
2774 AF        Ø597Ø PSRC3   XOR     A                ;Show not current disk
2775 32C827    Ø598Ø         LD      (CURDSK+1),A
2778 18AØ      Ø599Ø         JR      PMTSRC           ;Loop to re-prompt
               Ø6ØØØ ;
               Ø6Ø1Ø ;       Destination disk selection
               Ø6Ø2Ø ;
277A 3EØØ      Ø6Ø3Ø DSTDRV$ LD      A,Ø              ;Dest drive
277C F64Ø      Ø6Ø4Ø         OR      4ØH              ;Set dest diskette code
277E E5        Ø6Ø5Ø         PUSH    HL
277F 213A29    Ø6Ø6Ø         LD      HL,PMTDST$       ;"insert dest...
2782 CDC727    Ø6Ø7Ø         CALL    CURDSK
2785 E1        Ø6Ø8Ø         POP     HL
2786 C9        Ø6Ø9Ø         RET
               Ø61ØØ ;
               Ø611Ø ;       Prompt destination if needed
               Ø612Ø ;
2787 3AC827    Ø613Ø PMTDST  LD      A,(CURDSK+1)     ;P/u current disk/drive &
278A CB77      Ø614Ø         BIT     6,A              ;  ck if destination disk
278C 2ØEC      Ø615Ø         JR      NZ,DSTDRV$       ;Jump if it is
278E CD7A27    Ø616Ø         CALL    DSTDRV$          ;  else request swap
2791 3ACF27    Ø617Ø         LD      A,(SXORD+1)
2794 B7        Ø618Ø         OR      A
2795 CØ        Ø619Ø         RET     NZ               ;Ret if source <> dest
2796 CD5E28    Ø62ØØ         CALL    RESTOR           ;  else restore to cyl Ø
2799 C5        Ø621Ø         PUSH    BC
279A D5        Ø622Ø         PUSH    DE
279B E5        Ø623Ø         PUSH    HL
279C 21ØØ2D    Ø624Ø         LD      HL,BUF3$         ;Use this for I/O buffer
279F 11ØØØØ    Ø625Ø         LD      DE,Ø             ;Pt to BOOT sector
27A2 CD7228    Ø626Ø         CALL    RDSEC            ;  & read the BOOT
27A5 E1        Ø627Ø         POP     HL
27A6 D1        Ø628Ø         POP     DE
27A7 C1        Ø629Ø         POP     BC
27A8 C29726    Ø63ØØ         JP      NZ,EXIT3         ;Quit on read error
27AB 3AØØ2D    Ø631Ø         LD      A,(BUF3$)        ;P/u 1st byte of BOOT
27AE FE76      Ø632Ø         CP      76H              ;Dest s/b a HALT
27BØ C8        Ø633Ø PMTDST1 RET     Z
27B1 E5        Ø634Ø         PUSH    HL
27B2 D5        Ø635Ø         PUSH    DE
27B3           Ø636Ø         @@DSPLY DIFDST$          ;"not same dest...
               ØØØ26         IFEQ    Ø1H,1
27B3 218F29    ØØØ27         LD      HL,DIFDST$
               ØØØ28         ENDIF
27B6 3EØA      ØØØ29         LD      A,1Ø
27B8 EF        ØØØ3Ø         RST     4Ø
27B9 D1        Ø637Ø         POP     DE
27BA E1        Ø638Ø         POP     HL
27BB AF        Ø639Ø         XOR     A
27BC 32C827    Ø64ØØ         LD      (CURDSK+1),A     ;Show no current diskette
27BF 18C6      Ø641Ø         JR      PMTDST           ;  and prompt again
               Ø642Ø ;
               Ø643Ø ;       Force a prompt of the target disk
               Ø644Ø ;
27C1 79        Ø645Ø FRCPMT  LD      A,C              ;P/u target drive
27C2 32C827    Ø646Ø         LD      (CURDSK+1),A     ; with code bit
27C5 18ØC      Ø647Ø         JR      FLASH
               Ø648Ø ;
               Ø649Ø ;       Routine to check if flashing prompt is needed
               Ø65ØØ ;
```

Backup initialization

```
27C7 FEØØ       Ø651Ø CURDSK  CP      Ø               ;P/u current disk
27C9 2872       Ø652Ø         JR      Z,FLSH6         ;Match with wanted disk?
27CB 32C827     Ø653Ø         LD      (CURDSK+1),A    ;No, update current
27CE 3EFF       Ø654Ø SXORD   LD      A,ØFFH          ;Ø=src & dst drive same
27DØ B7         Ø655Ø         OR      A
27D1 2Ø6A       Ø656Ø         JR      NZ,FLSH6        ;Jump if source <> dest
                Ø657Ø ;
                Ø658Ø ;       Routine to flash the prompt
                Ø659Ø ;
27D3 C5         Ø66ØØ FLASH   PUSH    BC
27D4 D5         Ø661Ø         PUSH    DE
27D5 E5         Ø662Ø         PUSH    HL
27D6            Ø663Ø         @@FLAGS                 ;IY => flag table base
27D6 3E65       ØØØ31         LD      A,1Ø1
27D8 EF         ØØØ32         RST     4Ø
27D9 ØEØD       Ø664Ø         LD      C,CR            ;Write a new line
27DB            Ø665Ø         @@DSP
27DB 3EØ2       ØØØ33         LD      A,2
27DD EF         ØØØ34         RST     4Ø
27DE ØEØF       Ø666Ø         LD      C,15            ;Cursor off
27EØ            Ø667Ø         @@DSP
27EØ 3EØ2       ØØØ35         LD      A,2
27E2 EF         ØØØ36         RST     4Ø
                Ø668Ø FLASHØ
27E3            Ø669Ø         @@CKBRKC                ;Check and clear break
27E3 3E6A       ØØØ37         LD      A,1Ø6
27E5 EF         ØØØ38         RST     4Ø
27E6 CD4C28     Ø67ØØ         CALL    RESKFLG         ;Reset Pause,Enter,Break
27E9 Ø1FD41     Ø671Ø         LD      BC,16893        ;Delay for 1/4 sec
27EC            Ø672Ø         @@PAUSE
27EC 3E1Ø       ØØØ39         LD      A,16
27EE EF         ØØØ4Ø         RST     4Ø
27EF FD7EØA     Ø673Ø         LD      A,(IY+'K'-'A')
27F2 E6Ø5       Ø674Ø         AND     4!1             ;Wait for no ENTER!BRK
27F4 2ØED       Ø675Ø         JR      NZ,FLASHØ
27F6 CD4C28     Ø676Ø         CALL    RESKFLG         ;Reset in case BREAK
27F9            Ø677Ø FLS1    @@DSPLY                 ;Display the message
                ØØØ41         IFEQ    ØØH,1
                ØØØ42         LD      HL,
                ØØØ43         ENDIF
27F9 3EØA       ØØØ44         LD      A,1Ø
27FB EF         ØØØ45         RST     4Ø
27FC Ø15515     Ø678Ø         LD      BC,FCNT2
27FF CD1428     Ø679Ø         CALL    FLS2            ;Blink start
28Ø2 ØE1D       Ø68ØØ         LD      C,29            ;Cursor to BOL
28Ø4            Ø681Ø         @@DSP
28Ø4 3EØ2       ØØØ46         LD      A,2
28Ø6 EF         ØØØ47         RST     4Ø
28Ø7 ØE1E       Ø682Ø         LD      C,1EH           ;Cursor erase to EOL
28Ø9            Ø683Ø         @@DSP
28Ø9 3EØ2       ØØØ48         LD      A,2
28ØB EF         ØØØ49         RST     4Ø
28ØC Ø11111     Ø684Ø         LD      BC,FCNT1        ;Wait delay count
28ØF CD1428     Ø685Ø         CALL    FLS2            ;Wait & ck Enter or Break
2812 18E5       Ø686Ø         JR      FLS1            ;Loop until Enter
                Ø687Ø FLS2
2814            Ø688Ø         @@CKBRKC                ;Check for break
2814 3E6A       ØØØ5Ø         LD      A,1Ø6
2816 EF         ØØØ51         RST     4Ø
```

Backup initialization

```
2817 C2AC26     Ø689Ø           JP      NZ,BREAK          ;  and abort if so
281A FD7EØA     Ø69ØØ           LD      A,(IY+'K'-'A')    ;P/u KFLAG settings
281D CB57       Ø691Ø           BIT     2,A               ;Enter pressed?
281F 2ØØ6       Ø692Ø           JR      NZ,FLS4           ;Go if so
2821 ØB         Ø693Ø           DEC     BC                ;Count down
2822 78         Ø694Ø           LD      A,B
2823 B1         Ø695Ø           OR      C
2824 2ØEE       Ø696Ø           JR      NZ,FLS2           ;  and loop if more time
2826 C9         Ø697Ø           RET
2827 F1         Ø698Ø FLS4      POP     AF                ;Pop return address
2828            Ø699Ø FLS5      @@KBD                     ;Clear type ahead buffer
2828 3EØ8       ØØØ52           LD      A,8
282A EF         ØØØ53           RST     4Ø
282B 28FB       Ø7ØØØ           JR      Z,FLS5            ;Loop til no key down
282D ØEØD       Ø7Ø1Ø           LD      C,ØDH             ;Dsply a new line
282F            Ø7Ø2Ø           @@DSP
282F 3EØ2       ØØØ54           LD      A,2
2831 EF         ØØØ55           RST     4Ø
2832 ØEØE       Ø7Ø3Ø           LD      C,14              ;Cursor on
2834            Ø7Ø4Ø           @@DSP
2834 3EØ2       ØØØ56           LD      A,2
2836 EF         ØØØ57           RST     4Ø
2837 CD4C28     Ø7Ø5Ø           CALL    RESKFLG           ;Reset Break,Enter,Pause
283A E1         Ø7Ø6Ø           POP     HL
283B D1         Ø7Ø7Ø           POP     DE                ;Restore registers
283C C1         Ø7Ø8Ø           POP     BC
283D 3AC827     Ø7Ø9Ø FLSH6     LD      A,(CURDSK+1)      ;P/u drive #
284Ø E6Ø7       Ø71ØØ           AND     7                 ;Strip off code bits
2842 4F         Ø711Ø           LD      C,A               ;Drive # to C to
2843            Ø712Ø           @@GTDCT                   ;  get DCT vector
2843 3E51       ØØØ58           LD      A,81
2845 EF         ØØØ59           RST     4Ø
                Ø713Ø           IF      @MOD4
2846 CD6328     Ø714Ø           CALL    RSELCT            ;Get drive status in A
                Ø715Ø           ENDIF
                Ø716Ø           IF      @MOD2
                Ø717Ø           CALL    SELECT
                Ø718Ø           ENDIF
2849 Ø7         Ø719Ø           RLCA
284A Ø7         Ø72ØØ           RLCA
284B C9         Ø721Ø           RET
284C FD7EØA     Ø722Ø RESKFLG   LD      A,(IY+'K'-'A')    ;Reset 3-bit field
284F E6F8       Ø723Ø           AND     ØF8H
2851 FD77ØA     Ø724Ø           LD      (IY+'K'-'A'),A
2854 C9         Ø725Ø           RET
                Ø726Ø ;
                Ø727Ø ;         Drive disk I/O call setups
                Ø728Ø ;
2855 C5         Ø729Ø TSTDRV    PUSH    BC
2856 AF         Ø73ØØ           XOR     A                 ;Test for drive
2857 1821       Ø731Ø           JR      DIO1
2859 C5         Ø732Ø SELECT    PUSH    BC
285A 3EØ1       Ø733Ø           LD      A,1               ;Select new drive
285C 181C       Ø734Ø           JR      DIO1
285E C5         Ø735Ø RESTOR    PUSH    BC
285F 3EØ4       Ø736Ø           LD      A,4               ;Restore
2861 1817       Ø737Ø           JR      DIO1
2863 C5         Ø738Ø RSELCT    PUSH    BC
2864 3EØ7       Ø739Ø           LD      A,7               ;Reselect
```

Backup initialization

```
2866 1812                    JR      DIO1
2868 C5          WRSEC       PUSH    BC
2869 3EØD                    LD      A,13             ;Write sector
286B 18ØD                    JR      DIO1
286D C5          WRSYS       PUSH    BC
286E 3EØE                    LD      A,14             ;Write protected
287Ø 18Ø8                    JR      DIO1
2872 C5          RDSEC       PUSH    BC
2873 3EØ9                    LD      A,9              ;Read sector
2875 18Ø3                    JR      DIO1
                 ;
                             IF      @MOD2
                 FMTCYL      PUSH    BC               ;Save
                             LD      A,15             ;I/O command
                             JR      DIO1             ;Continue
                             ENDIF
                 ;
2877 C5          VERSEC      PUSH    BC
2878 3EØA                    LD      A,1Ø             ;Verify sector
287A C628        DIO1        ADD     A,4Ø             ;Adjust for SVC
287C 47                      LD      B,A              ;Save tempy
287D 3AC827                  LD      A,(CURDSK+1)     ;Get drive number
288Ø E6Ø7                    AND     7                ;Strip diskette type bit
2882 4F                      LD      C,A              ;Load up drive register
2883 78                      LD      A,B              ;Get back SVC #
                             IF      @MOD4
2884 F3                      DI                       ;Interrupts off
                             ENDIF
2885 EF                      RST     4Ø
                             IF      @MOD4
2886 FB                      EI                       ;Interrupts on
                             ENDIF
2887 C1                      POP     BC
2888 C9                      RET
                 ;
                 ;           Check for correct disk
                 ;
2889 D5          CKSWDD      PUSH    DE               ;Save DE,BC
288A C5                      PUSH    BC
288B 3AØE27                  LD      A,(SRCDRV$+1)    ;Get drive
288E 21C827                  LD      HL,CURDSK+1
2891 4E                      LD      C,(HL)           ;Get current drive
2892 77                      LD      (HL),A           ;Make curdsk our dsk
2893 2A1626                  LD      HL,(BUFFER$)     ;I/O buffer
2896 11Ø2ØØ                  LD      DE,2             ;Trk Ø, sect 2
2897             PROTSEC     EQU     $-2
2899 CD7228                  CALL    RDSEC            ;Read SIS sector
289C 2Ø1C                    JR      NZ,EX2           ;Quit on read error
289E 2EC6                    LD      L,ØC6H           ;Set buffer posn
28AØ 3EØØ                    LD      A,$-$            ;Get original id byte
28A1             SVCTR       EQU     $-1
28A2 BE                      CP      (HL)             ;Is it the same disk?
28A3 2ØØF                    JR      NZ,EX1           ;NZ=error exit
28A5 3C                      INC     A
28A6 28ØC                    JR      Z,EX1
28A8 3D                      DEC     A                ;If id byte Ø,
28A9 28Ø9                    JR      Z,EX1            ; no modifying needed
28AB 3D                      DEC     A                ; else dec remaining
28AC 2ØØ1                    JR      NZ,$+3           ;If now Ø, make FFH
```

Backup initialization

```
28AE 3D         Ø799Ø           DEC     A
28AF 77         Ø8ØØØ           LD      (HL),A          ;Store the new id
                Ø8Ø1Ø           IF      @MOD2
                Ø8Ø2Ø           LD      L,Ø             ;Reset buffer
                Ø8Ø3Ø           ENDIF
                Ø8Ø4Ø           IF      @MOD4
28BØ 6A         Ø8Ø5Ø           LD      L,D             ;Reset buffer
                Ø8Ø6Ø           ENDIF
28B1 CD6828     Ø8Ø7Ø           CALL    WRSEC           ;Put it back, ck error later
28B4 79         Ø8Ø8Ø EX1       LD      A,C
28B5 32C827     Ø8Ø9Ø           LD      (CURDSK+1),A    ;Restor orig drv #
28B8 C1         Ø81ØØ           POP     BC
28B9 D1         Ø811Ø           POP     DE
28BA 211F2A     Ø812Ø EX2       LD      HL,CANTBU$      ;Go if was write error
28BD C8         Ø813Ø           RET     Z
28BE C3AF26     Ø814Ø           JP      EXIT4
                Ø815Ø ;
                Ø816Ø ;
                Ø817Ø ;         Message area
                Ø818Ø ;
28C1 ØA         Ø819Ø DSTWP$    DB      LF,'Destination disk is write '
     44 65 73 74 69 6E 61 74
     69 6F 6E 2Ø 64 69 73 6B
     2Ø 69 73 2Ø 77 72 69 74
     65 2Ø
28DC 7Ø         Ø82ØØ           DB      'protected',CR
     72 6F 74 65 63 74 65 64
     ØD
28E6 49         Ø821Ø BADMPW$ DB        'Invalid master password',CR
     6E 76 61 6C 69 64 2Ø 6D
     61 73 74 65 72 2Ø 7Ø 61
     73 73 77 6F 72 64 ØD
28FE 1D         Ø822Ø PMTSYS$ DB        29,3Ø,'Insert SYSTEM disk  <ENTER>',3
     1E 49 6E 73 65 72 74 2Ø
     53 59 53 54 45 4D 2Ø 64
     69 73 6B 2Ø 2Ø 3C 45 4E
     54 45 52 3E Ø3
291C 1D         Ø823Ø PMTSRC$ DB        29,3Ø,'Insert SOURCE disk  <ENTER>',3
     1E 49 6E 73 65 72 74 2Ø
     53 4F 55 52 43 45 2Ø 64
     69 73 6B 2Ø 2Ø 3C 45 4E
     54 45 52 3E Ø3
293A 1D         Ø824Ø PMTDST$ DB        29,3Ø,'Insert DESTINATION disk  '
     1E 49 6E 73 65 72 74 2Ø
     44 45 53 54 49 4E 41 54
     49 4F 4E 2Ø 64 69 73 6B
     2Ø 2Ø
2955 3C         Ø825Ø           DB      '<ENTER>',3
     45 4E 54 45 52 3E Ø3
295D 1D         Ø826Ø DIFSRC$ DB        29,3Ø,'* A L E R T *  That',27H
     1E 2A 2Ø 41 2Ø 4C 2Ø 45
     2Ø 52 2Ø 54 2Ø 2A 2Ø 2Ø
     54 68 61 74 27
2973 73         Ø827Ø           DB      's not the same source disk ',CR
     2Ø 6E 6F 74 2Ø 74 68 65
     2Ø 73 61 6D 65 2Ø 73 6F
     75 72 63 65 2Ø 64 69 73
     6B 2Ø ØD
298F 1D         Ø828Ø DIFDST$ DB        29,3Ø,'* A L E R T *  That',27H
```

Backup initialization

```
     1E 2A 2Ø 41 2Ø 4C 2Ø 45
     2Ø 52 2Ø 54 2Ø 2A 2Ø 2Ø
     54 68 61 74 27
29A5 73         Ø829Ø         DB      's not the same destination disk ',CR
     2Ø 6E 6F 74 2Ø 74 68 65
     2Ø 73 61 6D 65 2Ø 64 65
     73 74 69 6E 61 74 69 6F
     6E 2Ø 64 69 73 6B 2Ø ØD
29C6 53         Ø83ØØ CCMOD$  DB      'Source disk is write protected; '
     6F 75 72 63 65 2Ø 64 69
     73 6B 2Ø 69 73 2Ø 77 72
     69 74 65 2Ø 7Ø 72 6F 74
     65 63 74 65 64 3B 2Ø
29E6 4D         Ø831Ø         DB      'MOD flags not updated',CR
     4F 44 2Ø 66 6C 61 67 73
     2Ø 6E 6F 74 2Ø 75 7Ø 64
     61 74 65 64 ØD
29FC ØA         Ø832Ø BUCAO$  DB      LF,'Backup complete',CR
     42 61 63 6B 75 7Ø 2Ø 63
     6F 6D 7Ø 6C 65 74 65 ØD
2AØD ØA         Ø833Ø ABRTBU$ DB      LF,'Command aborted',14,CR
     43 6F 6D 6D 61 6E 64 2Ø
     61 62 6F 72 74 65 64 ØE
     ØD
2A1F 43         Ø834Ø CANTBU$ DB      'Can''t Backup - source disk write protected',LF
     61 6E 27 74 2Ø 42 61 63
     6B 75 7Ø 2Ø 2D 2Ø 73 6F
     75 72 63 65 2Ø 64 69 73
     6B 2Ø 77 72 69 74 65 2Ø
     7Ø 72 6F 74 65 63 74 65
     64 ØA
2A4A 44         Ø835Ø PROT$   DB      'Disk contains protected files ',CR
     69 73 6B 2Ø 63 6F 6E 74
     61 69 6E 73 2Ø 7Ø 72 6F
     74 65 63 74 65 64 2Ø 66
     69 6C 65 73 2Ø ØD
2A69            Ø836Ø BUCORE$ DEFL    $
2BØØ            Ø837Ø         ORG     $<-8+1<+8
Ø1ØØ            Ø838Ø BUF1$   DS      256
Ø1ØØ            Ø839Ø BUF2$   DS      256
Ø1ØØ            Ø84ØØ BUF3$   DS      256
```

Backup initialization

```
                08420 ;
                08430 ;
                08440 ;          Backup entry point
                08450 ;
                08460 ;
                08470 BACKUP
2E00            08480            @@CKBRKC
2E00 3E6A       00060            LD       A,106
2E02 EF         00061            RST      40
2E03 2804       08490            JR       Z,BACKUPA        ;Go ahead if no break
2E05 21FFFF     08500            LD       HL,-1            ; else abort
2E08 C9         08510            RET
                08520 ;
2E09 ED73BE26   08530 BACKUPA LD       (SPSAV+1),SP     ;Save current SP
2E0D E5         08540            PUSH     HL               ;Save cmdbuf
2E0E            08550            @@BREAK  0                ;Remove any BREAK vector
                00062            IFEQ     01H,1
2E0E 210000     00063            LD       HL,0
                00064            ENDIF
2E11 3E67       00065            LD       A,103
2E13 EF         00066            RST      40
2E14            08560            @@DSPLY  HELLO$           ;Welcome
                00067            IFEQ     01H,1
2E14 21F942     00068            LD       HL,HELLO$
                00069            ENDIF
2E17 3E0A       00070            LD       A,10
2E19 EF         00071            RST      40
2E1A            08570            @@FLAGS                   ;IY => flag table
2E1A 3E65       00072            LD       A,101
2E1C EF         00073            RST      40
2E1D CD4C28     08580            CALL     RESKFLG          ;Reset KFLAG bits
2E20 FDCB024E   08590            BIT      1,(IY+'C'-'A')   ;Check on CMNDR active
2E24 217E43     08600            LD       HL,LDOS$
2E27 C2AF26     08610            JP       NZ,EXIT4         ;  and exit if so
2E2A E1         08620            POP      HL
2E2B 7E         08630 BCK1       LD       A,(HL)           ;Bypass cmdline spaces
2E2C 23         08640            INC      HL
2E2D FE20       08650            CP       ' '
2E2F 28FA       08660            JR       Z,BCK1
                08670 ;
                08680 ;          Scan for source partial spec
                08690 ;
2E31 110226     08700            LD       DE,SPCFLD$       ;Pt to filespec field
2E34 0608       08710            LD       B,8              ;Init for file name
2E36 FE2D       08720            CP       '-'              ;Exclude matches?
2E38 2005       08730            JR       NZ,BCK2          ;If '-', set flag
2E3A 320D26     08740            LD       (MFLG$),A
2E3D 7E         08750            LD       A,(HL)           ;Get next char
2E3E 23         08760            INC      HL
2E3F CDF030     08770 BCK2       CALL     PRSPEC           ;Parse possible filename
2E42 FE2F       08780            CP       '/'              ;File ext?
2E44 200A       08790            JR       NZ,BCK3
2E46 110A26     08800            LD       DE,SPCFLD$+8     ;Reposn buffer ptr
2E49 0603       08810            LD       B,3              ;Init for 3 chars
2E4B 7E         08820            LD       A,(HL)
2E4C 23         08830            INC      HL               ;Bypass the /
2E4D CDF030     08840            CALL     PRSPEC           ;Parse extension
                08850 ;
                08860 ;          Determine source & destination drives
                08870 ;
```

Backup initialization

```
2E5Ø FE3A      Ø888Ø BCK3    CP      ':'             ;Drive number coming?
2E52 2817      Ø889Ø         JR      Z,BCK4          ;Go if so
2E54 2B        Ø89ØØ         DEC     HL              ;Save possible parms
2E55 E5        Ø891Ø         PUSH    HL
2E56           Ø892Ø         @@DSPLY SRCNUM$         ;No drives enter, so
               ØØØ74         IFEQ    Ø1H,1
2E56 21B343    ØØØ75         LD      HL,SRCNUM$
               ØØØ76         ENDIF
2E59 3EØA      ØØØ77         LD      A,1Ø
2E5B EF        ØØØ78         RST     4Ø
2E5C 215826    Ø893Ø         LD      HL,LILBUF$      ;  prompt for them
2E5F Ø1ØØØ1    Ø894Ø         LD      BC,1<8          ;1 char response
2E62           Ø895Ø         @@KEYIN
2E62 3EØ9      ØØØ79         LD      A,9
2E64 EF        ØØØ8Ø         RST     4Ø
2E65 DAAC26    Ø896Ø         JP      C,ABRTBU        ;Quit on Break
2E68 7E        Ø897Ø         LD      A,(HL)          ;Get response. Restore
2E69 E1        Ø898Ø         POP     HL              ;  command buffer. Ignore
2E6A DA        Ø899Ø         DB      ØDAH            ;  next 2 inst with JP C,
2E6B 7E        Ø9ØØØ BCK4    LD      A,(HL)          ;P/u source drive #
2E6C 23        Ø9Ø1Ø         INC     HL              ;Bump to separator
2E6D D63Ø      Ø9Ø2Ø         SUB     'Ø'             ;Adj to binary
2E6F FEØ8      Ø9Ø3Ø         CP      8               ;Error if not in
2E71 D29526    Ø9Ø4Ø         JP      NC,EXIT2        ;  the range <Ø-7>
2E74 32ØE27    Ø9Ø5Ø         LD      (SRCDRV$+1),A   ;Stuff source drive
2E77 7E        Ø9Ø6Ø BCK5    LD      A,(HL)          ;P/u char or separator
2E78 23        Ø9Ø7Ø         INC     HL              ;Bump ptr
2E79 FE3A      Ø9Ø8Ø         CP      ':'             ;Find dest drive?
2E7B 281F      Ø9Ø9Ø         JR      Z,BCK6          ;Get drive # if :
2E7D FE3Ø      Ø91ØØ         CP      3ØH             ; let prepositions thru
2E7F 3ØF6      Ø911Ø         JR      NC,BCK5
2E81 FE2Ø      Ø912Ø         CP      2ØH             ;Or a space separator
2E83 28F2      Ø913Ø         JR      Z,BCK5
2E85 2B        Ø914Ø         DEC     HL              ;Save possible parms
2E86 E5        Ø915Ø         PUSH    HL
2E87           Ø916Ø         @@DSPLY DSTNUM$         ;Prompt for dest drive
               ØØØ81         IFEQ    Ø1H,1
2E87 21D143    ØØØ82         LD      HL,DSTNUM$
               ØØØ83         ENDIF
2E8A 3EØA      ØØØ84         LD      A,1Ø
2E8C EF        ØØØ85         RST     4Ø
2E8D 215826    Ø917Ø         LD      HL,LILBUF$      ;Use for keyin buffer
2E9Ø Ø1ØØØ1    Ø918Ø         LD      BC,1<8          ;1 char only
2E93           Ø919Ø         @@KEYIN
2E93 3EØ9      ØØØ86         LD      A,9
2E95 EF        ØØØ87         RST     4Ø
2E96 DAAC26    Ø92ØØ         JP      C,ABRTBU        ;Quit on Break
2E99 7E        Ø921Ø         LD      A,(HL)          ;Get response. Restore
2E9A E1        Ø922Ø         POP     HL              ;  buffer. Ignore next 2
2E9B DA        Ø923Ø         DB      ØDAH            ;  inst with JP C,nn
2E9C 7E        Ø924Ø BCK6    LD      A,(HL)          ;P/u dest drive #
2E9D 23        Ø925Ø         INC     HL              ;Bump line ptr
2E9E D63Ø      Ø926Ø         SUB     'Ø'             ;Adjust to binary
2EAØ FEØ8      Ø927Ø         CP      8               ;Error if not in the
2EA2 D29526    Ø928Ø         JP      NC,EXIT2        ;  range <Ø-7>
2EA5 327B27    Ø929Ø         LD      (DSTDRV$+1),A   ;Stuff dest drive
               Ø93ØØ ;
2EA8 115442    Ø931Ø         LD      DE,PRMTBL$      ;P/u parm table ptr
2EAB D5        Ø932Ø         PUSH    DE              ;Also in IX to check
```

Backup initialization

```
2EAC DDE1      09330          POP     IX                ;  responses
2EAE           09340          @@PARAM                   ;Get parms if any
2EAE 3E11      00088          LD      A,17
2EB0 EF        00089          RST     40
2EB1 21A343    09350          LD      HL,PRMERR$        ;Init "parm error
2EB4 2005      09360          JR      NZ,$EX4           ;Quit on parm error
2EB6 DD7E30    09370          LD      A,(IX+DATRSP)     ;Date can only be STR
2EB9 E6C0      09380          AND     VAL!SW            ;This must be string
2EBB C2AF26    09390 $EX4     JP      NZ,EXIT4          ;Quit if not
               09400 ;
               09410 ;        Check on Source = Destination
               09420 ;
2EBE 3A0E27    09430          LD      A,(SRCDRV$+1)     ;P/u source drive
2EC1 217B27    09440          LD      HL,DSTDRV$+1
2EC4 AE        09450          XOR     (HL)              ;Match against dest
2EC5 32CF27    09460          LD      (SXORD+1),A       ;0 if S=D, <>0 if S<>D
2EC8 200D      09470          JR      NZ,DATPRM         ;Bypass if source <> dest
2ECA           09480          @@FLAGS                   ;Else test if <DO> proc
2ECA 3E65      00090          LD      A,101
2ECC EF        00091          RST     40
2ECD FDCB126E  09490          BIT     5,(IY+'S'-'A')
2ED1 219642    09500          LD      HL,NOINDO$        ;"can't do single...
2ED4 C2AF26    09510          JP      NZ,EXIT4          ;Abort if from <DO>
               09520 ;
               09530 ;        Check on date entries
               09540 ;
2ED7 210000    09550 DATPRM   LD      HL,0              ;P/u date="from-to"
2EDA 7C        09560          LD      A,H
2EDB B5        09570          OR      L
2EDC 282F      09580          JR      Z,CKCLAS          ;Bypass if not entered
2EDE 7E        09590          LD      A,(HL)            ;Check for "-to"
2EDF FE2D      09600          CP      '-'
2EE1 2815      09610          JR      Z,CKTO            ;Go if no From used
2EE3 3E80      09620          LD      A,80H             ;Set From bit
2EE5 320126    09630          LD      (FTFLG$),A        ;Note From entered
2EE8 CD0B31    09640          CALL    PAKDAT            ;Pack the date entry
2EEB ED438026  09650          LD      (FMPAKD$),BC      ;Save From packed date
2EEF 7E        09660          LD      A,(HL)            ;Ck if more in date parm
2EF0 FE22      09670          CP      '"'               ;End of string?
2EF2 280D      09680          JR      Z,FRCDAT          ;Go if so
2EF4 FE2D      09690          CP      '-'               ;Check for "-to"
2EF6 2015      09700          JR      NZ,CKCLAS         ;Done if not
2EF8 23        09710 CKTO     INC     HL                ;Bypass the '-'
2EF9 7E        09720          LD      A,(HL)            ;Ck for end of parm
2EFA FE22      09730          CP      '"'
2EFC 280F      09740          JR      Z,CKCLAS          ;Go if done
2EFE CD0B31    09750          CALL    PAKDAT            ;Pack To date
2F01 3A0126    09760 FRCDAT   LD      A,(FTFLG$)        ;P/u From/To flag and
2F04 F601      09770          OR      1                 ;  set To bit
2F06 320126    09780          LD      (FTFLG$),A
2F09 ED438226  09790          LD      (TOPAKD$),BC      ;Save To packed date
               09800 ;
               09810 ;        Check on parms to force CLASS backup
               09820 ;
2F0D 0600      09830 CKCLAS   LD      B,0               ;Init class flag
2F0F 110000    09840 SYSPRM   LD      DE,0              ;SYS parm used?
2F12 7A        09850          LD      A,D
2F13 B3        09860          OR      E
2F14 2802      09870          JR      Z,INVPRM          ;Go if not
```

Backup initialization

```
2F16 CBFØ      Ø988Ø         SET     6,B             ;Set 6 if SYS
2F18 11ØØØØ    Ø989Ø INVPRM  LD      DE,Ø            ;INV parm used?
2F1B 7A        Ø99ØØ         LD      A,D
2F1C B3        Ø991Ø         OR      E
2F1D 28Ø2      Ø992Ø         JR      Z,CKCLA1        ;Go if not
2F1F CBD8      Ø993Ø         SET     3,B             ;Set 3 if INV
2F21 78        Ø994Ø CKCLA1  LD      A,B
2F22 328426    Ø995Ø         LD      (CLSFLG$),A     ;Store by class flag
2F25 3AØ226    Ø996Ø         LD      A,(SPCFLD$)     ;Get 1st char of possible
2F28 D62Ø      Ø997Ø         SUB     ' '             ;  file name
2F2A 47        Ø998Ø         LD      B,A             ;Save test result and
2F2B 3AØA26    Ø999Ø         LD      A,(SPCFLD$+8)   ;  check if extension used
2F2E D62Ø      1ØØØØ         SUB     ' '             ;Ck for ext
2F3Ø BØ        1ØØ1Ø         OR      B               ;A <> Ø if partspec
2F31 47        1ØØ2Ø         LD      B,A             ;Hold in reg B
               1ØØ3Ø ;
               1ØØ4Ø ;       Merge all "CLASS" parms together
               1ØØ5Ø ;
2F32 DD7EØC    1ØØ6Ø         LD      A,(IX+SYSRSP)   ;System files
2F35 DDB613    1ØØ7Ø         OR      (IX+INVRSP)     ;Invisible files
2F38 DDB61A    1ØØ8Ø         OR      (IX+MODRSP)     ;Mod flag files
2F3B DDB637    1ØØ9Ø         OR      (IX+NEWRSP)     ;Files not on dest
2F3E DDB63E    1Ø1ØØ         OR      (IX+OLDRSP)     ;Files on dest
2F41 DDB623    1Ø11Ø         OR      (IX+QRSP)       ;Query forces by class
2F44 4F        1Ø12Ø         LD      C,A             ;Hold value
2F45 E6AØ      1Ø13Ø         AND     VAL!STR         ;Above parms only SWITCH
2F47 21A343    1Ø14Ø         LD      HL,PRMERR$      ;Init "parm error
2F4A C2AF26    1Ø15Ø         JP      NZ,EXIT4        ;Quit if not switches only
2F4D B1        1Ø16Ø         OR      C
2F4E BØ        1Ø17Ø         OR      B               ;Merge with partspec
2F4F DDB63Ø    1Ø18Ø         OR      (IX+DATRSP)     ;D=" mm/dd/yy-mm/dd/yy"
               1Ø19Ø ;
               1Ø2ØØ ;       Advise backup by class if any class parameter
               1Ø21Ø ;
2F52 32Ø141    1Ø22Ø         LD      (CLSTST+1),A    ;Set for all flags
2F55 28Ø6      1Ø23Ø         JR      Z,GETDAT        ;Z=may be mirror image
2F57           1Ø24Ø         @@LOGOT CLASS$          ;  else log by class msg
               ØØØ92         IFEQ    Ø1H,1
2F57 21Ø344    ØØØ93         LD      HL,CLASS$
               ØØØ94         ENDIF
2F5A 3EØC      ØØØ95         LD      A,12
2F5C EF        ØØØ96         RST     4Ø
               1Ø25Ø ;
               1Ø26Ø ;       Recover today's date
               1Ø27Ø ;
2F5D 217826    1Ø28Ø GETDAT  LD      HL,DATFLD$      ;Date storage buffer
2F6Ø           1Ø29Ø         @@DATE                  ;Get date
2F6Ø 3E12      ØØØ97         LD      A,18
2F62 EF        ØØØ98         RST     4Ø
2F63 1A        1Ø3ØØ         LD      A,(DE)          ;Check if date in system
2F64 B7        1Ø31Ø         OR      A
2F65 2ØØ6      1Ø32Ø         JR      NZ,GETGM        ;Go if it is
2F67 21EF43    1Ø33Ø         LD      HL,NODAT$
2F6A           1Ø34Ø         @@LOGOT                 ;Show "no date" if none
               ØØØ99         IFEQ    ØØH,1
               ØØ1ØØ         LD      HL,
               ØØ1Ø1         ENDIF
2F6A 3EØC      ØØ1Ø2         LD      A,12
2F6C EF        ØØ1Ø3         RST     4Ø
```

Backup initialization

```
2F6D D5        1Ø35Ø GETGM   PUSH    DE               ;Save date$
2F6E E5        1Ø36Ø         PUSH    HL               ;  and date buffer
2F6F 114144    1Ø37Ø         LD      DE,RES$          ;See if SYS modules resident
2F72           1Ø38Ø         @@GTMOD                  ;  in case needed later
2F72 3E53      ØØ1Ø4         LD      A,83
2F74 EF        ØØ1Ø5         RST     4Ø
2F75 2ØØ4      1Ø39Ø         JR      NZ,GETDAT1       ;Skip if none res'ed
2F77 ED532941  1Ø4ØØ         LD      (RESLOC+1),DE    ;Store the module loc
               1Ø41Ø ;
               1Ø42Ø ;       Get SYS2 loaded for password hash
               1Ø43Ø ;
2F7B E1        1Ø44Ø GETDAT1 POP     HL
2F7C D1        1Ø45Ø         POP     DE
2F7D CD6A41    1Ø46Ø         CALL    GETSYS2          ;Get sys2 and move date
               1Ø47Ø ;
               1Ø48Ø ;       Check on (X) parm for source/dest swap
               1Ø49Ø ;
2F8Ø 3AØE27    1Ø5ØØ         LD      A,(SRCDRV$+1)    ;If source is not Ø,
2F83 B7        1Ø51Ø         OR      A                ; then let PMTSRC handle
2F84 2ØØF      1Ø52Ø         JR      NZ,SRCDFT
2F86 F68Ø      1Ø53Ø         OR      8ØH              ;Set to SRC code
2F88 4F        1Ø54Ø         LD      C,A              ;Save if needed
2F89 3ACA26    1Ø55Ø         LD      A,(XPARM$+1)     ;Source is drive Ø,
2F8C 3C        1Ø56Ø         INC     A                ; if (X), then swap
2F8D F5        1Ø57Ø         PUSH    AF
2F8E 211C29    1Ø58Ø         LD      HL,PMTSRC$
2F91 CCC127    1Ø59Ø         CALL    Z,FRCPMT         ;Force prompt on (X)
2F94 F1        1Ø6ØØ         POP     AF
2F95 C4ØD27    1Ø61Ø SRCDFT  CALL    NZ,SRCDRV$       ;Prompt for source
2F98 CD5E28    1Ø62Ø         CALL    RESTOR           ;Get set to see if a
2F9B CDBF41    1Ø63Ø         CALL    CKDRV            ; source disk mounted
2F9E 28ØA      1Ø64Ø         JR      Z,GOTSRC         ;Z=ok
2FAØ F5        1Ø65Ø         PUSH    AF
2FA1 211C29    1Ø66Ø         LD      HL,PMTSRC$       ;Else prompt "Insert...
2FA4 CDC127    1Ø67Ø         CALL    FRCPMT
2FA7 F1        1Ø68Ø         POP     AF
2FA8 18EB      1Ø69Ø         JR      SRCDFT           ; and then check again
               1Ø7ØØ ;
               1Ø71Ø ;       Get source disk attributes
               1Ø72Ø ;
2FAA FD7EØ3    1Ø73Ø GOTSRC  LD      A,(IY+3)         ;P/u 5" or 8" from
2FAD E62Ø      1Ø74Ø         AND     2ØH              ;  DCT+3, bit 5
2FAF 324D3Ø    1Ø75Ø         LD      (TST5_8+1),A     ;  and save for later
2FB2 CD5528    1Ø76Ø         CALL    TSTDRV           ;Ck for active DCT
2FB5 C29726    1Ø77Ø         JP      NZ,EXIT3         ;  and quit if not
2FB8 21ØØ2D    1Ø78Ø         LD      HL,BUF3$         ;Disk buffer
               1Ø79Ø ;
               1Ø8ØØ         IF      @MOD2
               1Ø81Ø         CALL    GETPSEC          ;Get prot sector
               1Ø82Ø         JP      NZ,EXIT3         ;Go on error
               1Ø83Ø         CP      6                ;Directory?
               1Ø84Ø         JP      NZ,DIRERR        ;Nope, go!
               1Ø85Ø         ENDIF
2FBB 11ØØØØ    1Ø86Ø         LD      DE,Ø             ;Set to track/sector Ø/Ø
2FBE CD7228    1Ø87Ø         CALL    RDSEC            ;Read boot
2FC1 C29726    1Ø88Ø         JP      NZ,EXIT3         ;Quit on read error
2FC4 3AØ22D    1Ø89Ø         LD      A,(BUF3$+2)      ;P/u dir track
2FC7 FD77Ø9    1Ø9ØØ         LD      (IY+9),A         ;  & stuff in table
               1Ø91Ø         IF      @MOD2
```

Backup initialization

```
                       LD      DE,(PROTSEC)    ;Get info sector
                       ENDIF
                       IF      @MOD4
2FCA 1C                INC     E               ;Point to SYSINFO sector
2FCB 1C                INC     E
                       ENDIF
2FCC 262B              LD      H,BUF1$<-8      ;Use this disk buffer
2FCE CD7228            CALL    RDSEC           ;Read the info sector
2FD1 C29726            JP      NZ,EXIT3        ;Quit on read error
2FD4 3AC62B            LD      A,(BUF1$+ØC6H)  ;Get & save id byte
2FD7 32A128            LD      (SVCTR),A
2FDA 3C                INC     A
2FDB 2815              JR      Z,CKGAT
                ;
                ;      Check write protect status
                ;
2FDD 3D                DEC     A               ;Need to check?
2FDE 2812              JR      Z,CKGAT         ;Go if not
2FEØ CD5E28            CALL    RESTOR          ;Start the drive
2FE3 CD6328            CALL    RSELCT          ;Ck if WP
2FE6 FDB6Ø3            OR      (IY+3)          ;Merge in soft WP
2FE9 Ø7                RLCA                    ;Push WP to CF
2FEA 3ØØ6              JR      NC,CKGAT        ;Bypass if not WP
2FEC 211F2A     CANTBU LD      HL,CANTBU$
2FEF C3AF26            JP      EXIT4
                ;
2FF2 FD56Ø9     CKGAT  LD      D,(IY+9)        ;Directory track,
2FF5 1EØØ              LD      E,Ø             ;  sector Ø
2FF7 21ØØ2B            LD      HL,BUF1$
2FFA CD7228            CALL    RDSEC           ;Read GAT
2FFD FEØ6              CP      6               ;Ensure directory cyl
2FFF C29226            JP      NZ,DIRERR       ;Quit on any other error
3ØØ2 CDCF3Ø            CALL    TSTMPW          ;Get password if needed
                ;
                ;      Check if destination formatted & not protected
                ;
3ØØ5 3A7B27            LD      A,(DSTDRV$+1)   ;If dest is not Ø,
3ØØ8 B7                OR      A               ; then let DSTDRV handle
3ØØ9 2ØØF              JR      NZ,DSTDFT
3ØØB F64Ø              OR      4ØH             ;Set DST code
3ØØD 4F                LD      C,A             ;Save if needed
3ØØE 3ACA26            LD      A,(XPARM$+1)    ;Dest is drive Ø
3Ø11 3C                INC     A               ;If (X), then swap
3Ø12 F5                PUSH    AF
3Ø13 213A29            LD      HL,PMTDST$
3Ø16 CCC127            CALL    Z,FRCPMT        ;Force prompt on (X)
3Ø19 F1                POP     AF
3Ø1A C47A27     DSTDFT CALL    NZ,DSTDRV$      ;Get dest drive
3Ø1D CD5E28            CALL    RESTOR          ;Restore destination
3Ø2Ø CD6328            CALL    RSELCT          ;Test it
3Ø23 2Ø18              JR      NZ,PMTDD        ;Might be signal from
                                               ;HD driver
3Ø25 Ø7                RLCA
3Ø26 FDB6Ø3            OR      (IY+3)          ;Merge in soft WP
3Ø29 CB7F              BIT     7,A             ; Check on WP status
3Ø2B 21C128            LD      HL,DSTWP$       ;Dest write prot...
3Ø2E C2AF26            JP      NZ,EXIT4        ;Jp if write protected
                                               ;If hard drive, don't
3Ø31 FDCBØ35E          BIT     3,(IY+3)        ;  try to test for write
```

Backup initialization

```
3Ø35 C2AE3Ø   1151Ø          JP      NZ,RECON          ;  but go to re-construct
3Ø38 CDBF41   1152Ø          CALL    CKDRV             ;Ck if diskette in place
3Ø3B 28ØA     1153Ø          JR      Z,GOTDST
3Ø3D F5       1154Ø PMTDD    PUSH    AF                ;Kludge a force of
3Ø3E 213A29   1155Ø          LD      HL,PMTDST$
3Ø41 CDC127   1156Ø          CALL    FRCPMT
3Ø44 F1       1157Ø          POP     AF
3Ø45 18D3     1158Ø          JR      DSTDFT            ;  the destination prompt
              1159Ø ;
              116ØØ ;        Check 5" vs 8" for forced reconstruction
              1161Ø ;
3Ø47 FD7EØ3   1162Ø GOTDST   LD      A,(IY+3)
3Ø4A E62Ø     1163Ø          AND     2ØH               ;See if 5/8 mismatch
3Ø4C EEØØ     1164Ø TST5_8   XOR     Ø                 ;P/u source size
3Ø4E C2AE3Ø   1165Ø          JP      NZ,RECON          ;Go if different
3Ø51 11ØØØØ   1166Ø          LD      DE,Ø
3Ø54 CD7728   1167Ø          CALL    VERSEC            ;Verify boot sector readable
3Ø57 28Ø6     1168Ø          JR      Z,CKDST           ;Jump if ok
              1169Ø ;
              117ØØ ;        Destination not formatted, abort
              1171Ø ;
3Ø59 21C942   1172Ø          LD      HL,NOFMT$         ;Init "Not formatted
3Ø5C C3AF26   1173Ø          JP      EXIT4             ;Display and abort
              1174Ø ;
              1175Ø ;        Check destination attributes
              1176Ø ;
3Ø5F 21ØØ2D   1177Ø CKDST    LD      HL,BUF3$
3Ø62 11ØØØØ   1178Ø          LD      DE,Ø              ;SET for track/sector Ø/Ø
3Ø65 CD7228   1179Ø          CALL    RDSEC             ;Read dest boot
3Ø68 C29726   118ØØ          JP      NZ,EXIT3
3Ø6B 3AØ22D   1181Ø          LD      A,(BUF3$+2)       ;P/u its dir track
3Ø6E 57       1182Ø          LD      D,A               ;Set up in D
3Ø6F 21ØØ2C   1183Ø          LD      HL,BUF2$
3Ø72 5D       1184Ø          LD      E,L               ;  and Ø in E
3Ø73 CD7228   1185Ø          CALL    RDSEC             ;Read dest GAT
3Ø76 FEØ6     1186Ø          CP      6                 ;Ensure a dir cyl
3Ø78 C29226   1187Ø          JP      NZ,DIRERR         ;Quit on any other error
3Ø7B 2ACC2B   1188Ø          LD      HL,(BUF1$+TKCAP)        ;P/u source capacity
3Ø7E ED5BCC2C 1189Ø          LD      DE,(BUF2$+TKCAP)        ;P/u dest capacity
3Ø82 3AA128   119ØØ          LD      A,(SVCTR)         ;If id byte was FF
3Ø85 3C       1191Ø          INC     A
3Ø86 28Ø7     1192Ø          JR      Z,SHOPROT         ; then force recon
3Ø88 3D       1193Ø          DEC     A                 ;If id was not Ø
3Ø89 2ØØC     1194Ø          JR      NZ,TSTCAP         ;  then test sizes
3Ø8B CB64     1195Ø          BIT     4,H               ;If types differ
3Ø8D 28Ø8     1196Ø          JR      Z,TSTCAP          ;  force reconstruct
              1197Ø ;
3Ø8F          1198Ø SHOPROT  @@LOGOT PROT$             ;Show reconstruct invoked
              ØØ1Ø6          IFEQ    Ø1H,1
3Ø8F 214A2A   ØØ1Ø7          LD      HL,PROT$
              ØØ1Ø8          ENDIF
3Ø92 3EØC     ØØ1Ø9          LD      A,12
3Ø94 EF       ØØ11Ø          RST     4Ø
3Ø95 1817     1199Ø          JR      RECON             ;Skip next tests
              12ØØØ ;
3Ø97 7C       12Ø1Ø TSTCAP   LD      A,H               ;Den/sides match?
3Ø98 AA       12Ø2Ø          XOR     D                 ;Force Reconstruct if
3Ø99 E66Ø     12Ø3Ø          AND     6ØH               ;  density & sides
3Ø9B 2Ø11     12Ø4Ø          JR      NZ,RECON          ;  differ
```

Backup initialization

```
3Ø9D 7D         12Ø5Ø          LD      A,L              ;Test # of cyls
3Ø9E 93         12Ø6Ø          SUB     E
3Ø9F 28ØA       12Ø7Ø          JR      Z,BYCLAS         ;Jump if same
                12Ø8Ø ;
                12Ø9Ø ;        Cylinder count differs - question Mirror
                121ØØ ;
3ØA1 3AØ141     1211Ø          LD      A,(CLSTST+1)     ;But don't question if
3ØA4 B7         1212Ø          OR      A                ; Class parms already
3ØA5 C2ØØ41     1213Ø          JP      NZ,CLSTST        ; entered
3ØA8 CDB73Ø     1214Ø          CALL    MIRROR           ;Attempt mirror?
3ØAB CAØØ41     1215Ø BYCLAS   JP      Z,CLSTST         ;Jump if mirror to be tried
3ØAE            1216Ø RECON    @@LOGOT RECON$           ;"backup re-con...
                ØØ111          IFEQ    Ø1H,1
3ØAE 218Ø44     ØØ112          LD      HL,RECON$
                ØØ113          ENDIF
3ØB1 3EØC       ØØ114          LD      A,12
3ØB3 EF         ØØ115          RST     4Ø
3ØB4 C31341     1217Ø          JP      MVBYCLS          ;Go do file backup
                1218Ø ;
                1219Ø ;        Different # of tracks - Prompt for mirror
                122ØØ ;
3ØB7            1221Ø MIRROR   @@DSPLY MIRROR$          ;"Attempt mirror...
                ØØ116          IFEQ    Ø1H,1
3ØB7 219B44     ØØ117          LD      HL,MIRROR$
                ØØ118          ENDIF
3ØBA 3EØA       ØØ119          LD      A,1Ø
3ØBC EF         ØØ12Ø          RST     4Ø
3ØBD 215926     1222Ø          LD      HL,LILBUF$+1     ;Keyin buffer
3ØCØ Ø1ØØØ3     1223Ø QM1      LD      BC,3<8           ;3 chars max
3ØC3            1224Ø          @@KEYIN
3ØC3 3EØ9       ØØ121          LD      A,9
3ØC5 EF         ØØ122          RST     4Ø
3ØC6 DAAC26     1225Ø          JP      C,ABRTBU         ;Quit on break
3ØC9 7E         1226Ø          LD      A,(HL)
3ØCA CBAF       1227Ø          RES     5,A              ;Convert to UC
3ØCC FE59       1228Ø          CP      'Y'              ;Ret Z if Yes
3ØCE C9         1229Ø          RET
                123ØØ ;
                1231Ø ;        Get & check Disk master password
                1232Ø ;
3ØCF 2ACE2B     1233Ø TSTMPW   LD      HL,(BUF1$+PSWD)  ;P/u src MPW
3ØD2 11EØ42     1234Ø          LD      DE,PASSWORD      ;If "PASSWORD",
3ØD5 AF         1235Ø          XOR     A                ;  don't prompt
3ØD6 ED52       1236Ø          SBC     HL,DE
3ØD8 C8         1237Ø          RET     Z
3ØD9 11ØØØØ     1238Ø          LD      DE,$-$           ;P/u User entry
3ØDA            1239Ø MPWPRM   EQU     $-2
3ØDC 21D344     124ØØ          LD      HL,PMTMPW$       ;Init "Enter MPW
3ØDF CD6441     1241Ø          CALL    GETMPW           ;Get the user's response
3ØE2 EB         1242Ø          EX      DE,HL
3ØE3 2ACE2B     1243Ø          LD      HL,(BUF1$+PSWD)
3ØE6 AF         1244Ø          XOR     A
3ØE7 ED52       1245Ø          SBC     HL,DE            ;Entry match?
3ØE9 C8         1246Ø          RET     Z                ;Ret if MPW match
3ØEA 21E628     1247Ø          LD      HL,BADMPW$       ;  else init "bad MPW...
3ØED C3AF26     1248Ø          JP      EXIT4            ;Don't do the backup
                1249Ø ;
                125ØØ ;        Routine to parse partial filespecs & cvrt to UC
                1251Ø ;
```

Backup initialization

```
30F0 FE24      PRSPEC  CP      '$'             ;Wild character?
30F2 280A              JR      Z,PS1           ;Always a match
30F4 FE41              CP      'A'             ;Filename entered?
30F6 3006              JR      NC,PS1
30F8 FE3A              CP      '9'+1           ;Ck on 0-9
30FA D0                RET     NC
30FB FE30              CP      '0'
30FD D8                RET     C
30FE FE61      PS1     CP      'a'             ;Cvrt to UC if needed
3100 3802              JR      C,$+4
3102 CBAF              RES     5,A             ;Convert to upper case
3104 12                LD      (DE),A          ;Save in partspec buffer
3105 13                INC     DE              ;Bump buffer
3106 7E                LD      A,(HL)          ;Get next char and
3107 23                INC     HL              ;  bump string ptr
3108 10E6              DJNZ    PRSPEC
310A C9                RET
               ;
               ;       Pack user date string
               ;
310B 7E        PAKDAT  LD      A,(HL)
310C 0E2F              LD      C,'/'           ;Init separator
310E CD5431            CALL    PARSDAT         ;Parse entry
3111 203B              JR      NZ,BADFMT       ;Jump on format error
3113 EB                EX      DE,HL
3114 3A5826            LD      A,(LILBUF$)     ;Is year a leap year?
3117 E603              AND     3
3119 21EC44            LD      HL,MAXDAYS+1    ;Set Feb to have 29 days
311C 2001              JR      NZ,$+3          ; if so
311E 34                INC     (HL)
311F 3A5A26            LD      A,(LILBUF$+2)   ;P/u month
3122 3D                DEC     A               ;Range check
3123 FE0C              CP      12
3125 3027              JR      NC,BADFMT       ;Go if 0 or >12
3127 2B                DEC     HL              ;Point to Jan entry
3128 85                ADD     A,L             ;Index the month
3129 6F                LD      L,A
312A 7C                LD      A,H
312B CE00              ADC     A,0
312D 67                LD      H,A
312E 3A5926            LD      A,(LILBUF$+1)   ;P/u day entry
3131 3D                DEC     A               ;Reduce for test (0->FF)
3132 BE                CP      (HL)
3133 3019              JR      NC,BADFMT       ;Go if too large (or 0)
3135 215A26            LD      HL,LILBUF$+2    ;Pt to month
3138 7E                LD      A,(HL)          ;P/u month
3139 2B                DEC     HL              ;Pt to day
313A 47                LD      B,A             ;Save it
313B 7E                LD      A,(HL)          ;P/u day
313C 2B                DEC     HL              ;Pt to year
313D 07                RLCA                    ;Shift day to 3-7
313E 07                RLCA
313F 07                RLCA
3140 4F                LD      C,A
3141 7E                LD      A,(HL)          ;P/u year
3142 D650              SUB     80              ;Adjust for offset
3144 3001              JR      NC,$+3          ;If entry < 1980,
3146 AF                XOR     A               ; then use 1980
3147 0F                RRCA                    ;Shift into bits 5-7
```

Backup initialization

```
3148 ØF                  RRCA
3149 ØF                  RRCA
314A BØ                  OR       B               ; & merge with month
314B 47                  LD       B,A
314C EB                  EX       DE,HL
314D C9                  RET
314E 21F744      BADFMT  LD       HL,BADFMT$
3151 C3AF26              JP       EXIT4
                 ;
                 ;       Routine to parse DATE/TIME entry
                 ;
3154 115A26      PARSDAT LD       DE,LILBUF$+2    ;Point to buf end
3157 Ø6Ø3                LD       B,3             ;Process 3 fields
3159 D5          PRSD1   PUSH     DE              ;Save pointer
315A CD6931              CALL     PRSD2           ;Get a digit pair
315D D1                  POP      DE              ;Recover pointer
315E CØ                  RET      NZ              ;Ret if bad digit pair
315F 12                  LD       (DE),A          ; else stuff the value
316Ø 1B                  DEC      DE              ;Backup the pointer
3161 Ø5                  DEC      B               ;Loop countdown
3162 C8                  RET      Z
3163 7E                  LD       A,(HL)          ;Ck for valid separator
3164 23                  INC      HL              ;Bump pointer
3165 B9                  CP       C               ;Separator char required
3166 28F1                JR       Z,PRSD1         ;Loop if match
3168 C9                  RET                      ;Else ret bad (NZ)
                 ;
                 ;       Routine to parse a digit pair
                 ;
3169 CD8Ø31      PRSD2   CALL     PRS4            ;Get a digit
316C 3Ø1Ø                JR       NC,PRSD3        ;Jump if bad digit
316E 5F                  LD       E,A             ;Multiply by ten
316F Ø7                  RLCA
317Ø Ø7                  RLCA
3171 83                  ADD      A,E
3172 Ø7                  RLCA
3173 5F                  LD       E,A
3174 CD8Ø31              CALL     PRS4            ;Get another digit
3177 3ØØ5                JR       NC,PRSD3        ;Jump on bad digit
3179 83                  ADD      A,E             ;Accumulate new digit
317A 5F                  LD       E,A             ;Save 2-digit value
317B AF                  XOR      A               ;Clear flags
317C 7B                  LD       A,E             ;Xfer field value
317D C9                  RET
317E B7          PRSD3   OR       A               ;Set NZ
317F C9                  RET
318Ø 7E          PRS4    LD       A,(HL)          ;P/u a digit &
3181 23                  INC      HL              ;Convert to binary
3182 D63Ø                SUB      3ØH
3184 FEØA                CP       1Ø              ;Set CF if good
3186 C9                  RET
                 ;
                 ;       Save PC for later use
                 ;
32ØØ             CORE$   DEFL     $<-8+1<8        ;Set to next page
2EØØ                     ORG      BACKUP          ;Set for MIRROR exec
32ØØ             MIRBU   EQU      CORE$
2EØØ                     LORG     MIRBU           ;Load origin
                 ;
```

```
2EØØ           137ØØ          SUBTTL  '<Mirror Image Backup>'
```

Mirror Image Backup

```
                ;
2EØØ            *GET    BACKUP2:3
                ;BACKUP2/ASM - Mirror Image Backup
                *MOD
                ;
2EØØ CD7A27             CALL    DSTDRV$         ;Prompt for dest but
2EØ3 CD8727             CALL    PMTDST          ;  don't test yet
2EØ6 21ØØ2D             LD      HL,BUF3$
2EØ9 55                 LD      D,L             ;Set cyl to Ø
2EØA 1EØ1               LD      E,1             ;Read sector 1 for step
2EØC CD7228             CALL    RDSEC           ;Read BOOT
2EØF C29726             JP      NZ,EXIT3        ;Quit on read error
2E12 3AØØ26             LD      A,(BOOTST$)     ;P/u the boot step rate
2E15 6F                 LD      L,A
2E16 7E                 LD      A,(HL)
2E17 E6Ø3               AND     3               ;  from bits Ø-1
2E19 32Ø63Ø             LD      (BSMIR+1),A     ;Save for later
2E1C 3AØ22D             LD      A,(BUF3$+2)     ;Get dir cylinder
2E1F 57                 LD      D,A             ;  into D
2E2Ø 21ØØ2C             LD      HL,BUF2$        ;Use this buffer now
2E23 5D                 LD      E,L             ;Set sector Ø
2E24 CD7228             CALL    RDSEC           ;Read the dest GAT
2E27 FEØ6               CP      6               ;Expect error 6 here
2E29 3E14               LD      A,2Ø            ;Init "GAT read error
2E2B C29726             JP      NZ,EXIT3        ;  and abort on an error
2E2E 21CE2B             LD      HL,BUF1$+ØCEH   ;Source GAT
2E31 11CE2C             LD      DE,BUF2$+ØCEH   ;Dest GAT
2E34 Ø6ØA               LD      B,1Ø            ;Compare pack names
2E36 1A         CPRID   LD      A,(DE)          ;  and passwords
2E37 BE                 CP      (HL)
2E38 286Ø               JR      Z,IDMATCH
                ;
                ;       No match - move disk name into message
                ;
2E3A 21DØ2C             LD      HL,BUF2$+ØDØH
2E3D 115A32             LD      DE,PACKID$+5    ;Move name into
2E4Ø Ø1Ø8ØØ             LD      BC,8            ;  display message field
2E43 EDBØ               LDIR
2E45 116932             LD      DE,PACKID$+2Ø   ;Move date into
2E48 ØEØ8               LD      C,8             ;  message field
2E4A EDBØ               LDIR
2E4C                    @@LOGOT DIFID$          ;"diff pack ids..
                        IFEQ    Ø1H,1
2E4C 213332             LD      HL,DIFID$
                        ENDIF
2E4F 3EØC               LD      A,12
2E51 EF                 RST     4Ø
2E52                    @@FLAGS                 ;If DOing, don't!
2E52 3E65               LD      A,1Ø1
2E54 EF                 RST     4Ø
2E55 FDCB126E           BIT     5,(IY+'S'-'A')
2E59 2Ø3C               JR      NZ,PACKNDO      ;Abort if JCL going
                ;
                ;       If MPW = "PASSWORD", just query Y,N
                ;
2E5B 2ACE2C             LD      HL,(BUF2$+ØCEH) ;P/u disk MPW
2E5E 11EØ42             LD      DE,PASSWORD     ;P/u hash for "PASSWORD"
2E61 AF                 XOR     A
2E62 ED52               SBC     HL,DE           ;Does it match disk MPW?
2E64 2818               JR      Z,PMTYN         ;Go get Y or N if so
```

Mirror Image Backup

```
                ;
                ;          User must enter Current Pack's MPW to proceed
                ;
2E66 217232       OLDMPW   LD      HL,OLDMPW$       ;"What's the old MPW?
2E69 110000                LD      DE,0             ;Force prompt of message
2E6C CD6441                CALL    GETMPW           ;Grab user input to match
                ;
                ;          Routine to test master password for match
                ;
2E6F EB                    EX      DE,HL            ;Xfer hashed MPW to DE
2E70 2ACE2C                LD      HL,(BUF2$+0CEH)  ;Grab pack MPW
2E73 AF                    XOR     A                ;Clear carry flag
2E74 ED52                  SBC     HL,DE            ;Did user enter pack MPW?
2E76 21E628                LD      HL,BADMPW$       ;Init "Bad MPW" just in case
2E79 C2AF26                JP      NZ,EXIT4         ;Abort if no match
2E7C 1820                  JR      $A1              ;PW good, continue backup
                ;
2E7E              PMTYN    @@DSPLY PMTYN$           ;"Backup anyway?"
                           IFEQ    01H,1
2E7E 21A432                LD      HL,PMTYN$
                           ENDIF
2E81 3E0A                  LD      A,10
2E83 EF                    RST     40
2E84 215826                LD      HL,LILBUF$       ;Prompt to continue
2E87 010003                LD      BC,3<8           ;  since ID's differ
2E8A                       @@KEYIN
2E8A 3E09                  LD      A,9
2E8C EF                    RST     40
2E8D DAAC26                JP      C,ABRTBU         ;Exit on break
2E90 7E                    LD      A,(HL)
2E91 CBAF                  RES     5,A              ;Make answer upper case
2E93 FE59                  CP      'Y'              ;Was answer Yes?
2E95 2807                  JR      Z,$A1            ;Go if continue
2E97 C3AC26       PACKNDO  JP      ABRTBU           ;  else abort
                ;
2E9A 13           IDMATCH  INC     DE
2E9B 23                    INC     HL
2E9C 1098                  DJNZ    CPRID
2E9E 21602C       $A1      LD      HL,BUF2$+60H     ;Dest lockout table
2EA1 11602B                LD      DE,BUF1$+60H     ;Source lockout table
2EA4 0660                  LD      B,60H            ;Init to compare 96 posns
2EA6 1A           CPRLOK   LD      A,(DE)           ;P/u lockout byte
2EA7 2F                    CPL                      ;Reset all used bits
2EA8 4F                    LD      C,A              ;  and save results
2EA9 D5                    PUSH    DE
2EAA 7B                    LD      A,E              ;Now posn to GAT byte
2EAB D660                  SUB     60H              ;  for that track
2EAD 5F                    LD      E,A
2EAE 1A                    LD      A,(DE)           ;P/u free/used
2EAF D1                    POP     DE               ;Pt back to lockout
2EB0 A1                    AND     C                ;Merge non-locked and in use
2EB1 A6                    AND     (HL)             ;That much must be free on dest
2EB2 C2BC31                JP      NZ,NOTMIR        ;  else "dest disk flawed
2EB5 13                    INC     DE
2EB6 23                    INC     HL
2EB7 10ED                  DJNZ    CPRLOK           ;Loop thru all cyls
                ;
                ;          Dest can take backup, insert HALT for swap test
                ;
```

Mirror Image Backup

```
2EB9 CD8727    1477Ø          CALL    PMTDST            ;Prompt dest if needed
2EBC 21ØØ2D    1478Ø          LD      HL,BUF3$          ;Set up to read
2EBF 55        1479Ø          LD      D,L               ;  track Ø,
2ECØ 5D        148ØØ          LD      E,L               ;  sector Ø
2EC1 CD7228    1481Ø          CALL    RDSEC
2EC4 C29726    1482Ø          JP      NZ,EXIT3          ;Quit on read error
2EC7 3676      1483Ø          LD      (HL),76H          ;Insert HALT to guard
2EC9 21ØØ2D    1484Ø          LD      HL,BUF3$          ; against incomplete BU
2ECC CD6828    1485Ø          CALL    WRSEC
2ECF C29726    1486Ø          JP      NZ,EXIT3          ;Quit on write error
2ED2 3AØ22D    1487Ø          LD      A,(BUF3$+2)       ;P/U current dest/dir
2ED5 32Ø431    1488Ø          LD      (STRDIR$+1),A     ; store it for later
               1489Ø ;
               149ØØ ;        Use source directory track for destination
               1491Ø ;
2ED8 CD1A27    1492Ø          CALL    PMTSRC            ;Prompt source
2EDB FD7EØ9    1493Ø          LD      A,(IY+9)          ;Get source dir cyl
2EDE 32ØF3Ø    1494Ø          LD      (DSTDIR+1),A
               1495Ø ;
               1496Ø ;        Calculate the number of sectors per cylinder
               1497Ø ;
2EE1 FD7EØ7    1498Ø          LD      A,(IY+7)          ;P/u # of sectors per cyl
2EE4 47        1499Ø          LD      B,A               ;Save # heads also
2EE5 E61F      15ØØØ          AND     1FH               ;Mask all but sectors
2EE7 4F        15Ø1Ø          LD      C,A
2EE8 ØC        15Ø2Ø          INC     C                 ;Adj for zero offset
2EE9 A8        15Ø3Ø          XOR     B                 ;Get # of heads
2EEA Ø7        15Ø4Ø          RLCA
2EEB Ø7        15Ø5Ø          RLCA                      ;Shift to bits Ø-2
2EEC Ø7        15Ø6Ø          RLCA
2EED 3C        15Ø7Ø          INC     A                 ;Adj for Ø offset
2EEE 47        15Ø8Ø          LD      B,A               ;Init loop counter
2EEF AF        15Ø9Ø          XOR     A                 ;Set sector count to Ø
2EFØ 81        151ØØ          ADD     A,C               ;Multiply # sectors/track
2EF1 1ØFD      1511Ø          DJNZ    $-1               ;X # of heads/cyl
2EF3 FDCBØ46E  1512Ø          BIT     5,(IY+4)          ;If 2-sided diskette
2EF7 28Ø1      1513Ø          JR      Z,$+3
2EF9 87        1514Ø          ADD     A,A               ;Double the # of sectors
2EFA 327E2F    1515Ø          LD      (LDCYL4+1),A      ;Save sect/cyl total
2EFD 32263Ø    1516Ø          LD      (DUCYL5+1),A      ;  in many places
2FØØ 327B3Ø    1517Ø          LD      (VECYL4+1),A
2FØ3 329Ø31    1518Ø          LD      (RESMF6+1),A
2FØ6 32F13Ø    1519Ø          LD      (RESMF2+1),A
               152ØØ ;
               1521Ø ;        Calculate the amount of core available
               1522Ø ;
2FØ9 47        1523Ø          LD      B,A               ;Put sector count in B
2FØA 21ØØØØ    1524Ø          LD      HL,Ø              ;Set up to get HIGH$
2FØD C5        1525Ø          PUSH    BC                ;Save the count
2FØE 45        1526Ø          LD      B,L
2FØF           1527Ø          @@HIGH$                   ;Get HIGH$
2FØF 3E64      ØØ137          LD      A,1ØØ
2F11 EF        ØØ138          RST     4Ø
2F12 C1        1528Ø          POP     BC                ;Recover sector count
2F13 23        1529Ø          INC     HL                ;Get highest full page
2F14 25        153ØØ          DEC     H
2F15 ED5B1626  1531Ø          LD      DE,(BUFFER$)      ;Get buffer addr
2F19 7C        1532Ø          LD      A,H               ;Now sub buffer start
2F1A 92        1533Ø          SUB     D                 ;  from the top
```

Mirror Image Backup

```
2F1B ØEFF       1534Ø          LD      C,-1
2F1D ØC         1535Ø $A2      INC     C                 ;Now count how many cyls
2F1E 9Ø         1536Ø          SUB     B                 ;  will fit in this space
2F1F 3ØFC       1537Ø          JR      NC,$A2
2F21 79         1538Ø          LD      A,C               ;This is the number of full
2F22 32892F     1539Ø          LD      (LDCYL6+1),A      ;  cylinders to move per pass
                154ØØ ;
                1541Ø ;        Get source & initialize
                1542Ø ;
2F25 CD1A27     1543Ø          CALL    PMTSRC            ;Prompt source if needed
2F28 AF         1544Ø          XOR     A                 ;Init starting cylinder
2F29 32822F     1545Ø          LD      (LDCYL5+1),A      ;  to Ø
2F2C 57         1546Ø          LD      D,A               ;Set current track to Ø
2F2D CD8928     1547Ø          CALL    CKSWDD
                1548Ø ;
                1549Ø ;        Here each time a new load cycle
                155ØØ ;
2F3Ø 2A1626     1551Ø LDTKS    LD      HL,(BUFFER$)      ;Pt to buffer start
2F33 7A         1552Ø          LD      A,D               ;P/u cylinder to move
2F34 32A52F     1553Ø          LD      (DUCYL+1),A       ;Save start for dump cycle
                1554Ø ;
                1555Ø ;        Here on each track loaded
                1556Ø ;
                1557Ø LDTKS1
2F37            1558Ø          @@CKBRKC                  ;Ckeck for break
2F37 3E6A       ØØ139          LD      A,1Ø6
2F39 EF         ØØ14Ø          RST     4Ø
2F3A C2AC26     1559Ø          JP      NZ,BREAK          ;  and abort if so
                156ØØ ;
2F3D E5         1561Ø          PUSH    HL                ;Save buffer
2F3E 262B       1562Ø          LD      H,BUF1$<-8        ;Pt to source GAT
2F4Ø 6A         1563Ø          LD      L,D               ;  for this cylinder
2F41 4E         1564Ø          LD      C,(HL)            ;P/u Free/used byte
2F42 7A         1565Ø          LD      A,D
2F43 C66Ø       1566Ø          ADD     A,6ØH             ;Pt to Lockout byte
2F45 6F         1567Ø          LD      L,A               ;If source track is
2F46 7E         1568Ø          LD      A,(HL)            ;  locked out, don't
2F47 2F         1569Ø          CPL                       ;  back it up - BUT
2F48 A1         157ØØ          AND     C                 ;  show dest is "in use"
2F49 262C       1571Ø          LD      H,BUF2$<-8        ;Pt to dest lockout
2F4B 4E         1572Ø          LD      C,(HL)            ;P/u dest lockout byte
2F4C B1         1573Ø          OR      C                 ;Merge with source
2F4D 6A         1574Ø          LD      L,D               ;Xfer pattern to FREE
2F4E 77         1575Ø          LD      (HL),A            ;  field of dest
2F4F B9         1576Ø          CP      C
2F5Ø E1         1577Ø          POP     HL                ;Recover buffer
2F51 CA8D2F     1578Ø          JP      Z,LDCYL7          ;Go if ignore this track
                1579Ø ;
                158ØØ ;        Get source disk and load
                1581Ø ;
2F54 CD1A27     1582Ø          CALL    PMTSRC            ;Prompt source if needed
2F57 E5         1583Ø          PUSH    HL                ;Save buffer
2F58 1EØØ       1584Ø          LD      E,Ø               ;Start track at sector Ø
2F5A 7A         1585Ø          LD      A,D               ;This is the cylinder
2F5B 21Ø132     1586Ø          LD      HL,CYL$           ;Message posn to hold
2F5E CD9631     1587Ø          CALL    CVTDEC            ;  ASCII cyl number
2F61 D5         1588Ø          PUSH    DE
2F62            1589Ø          @@DSPLY LDCYL$            ;"loading cylinder...
                ØØ141          IFEQ    Ø1H,1
```

Mirror Image Backup

```
2F62 21C231            LD      HL,LDCYL$
                       ENDIF
2F65 3E0A              LD      A,10
2F67 EF                RST     40
2F68                   @@DSPLY CYL$              ;"xx...
                       IFEQ    01H,1
2F68 210132            LD      HL,CYL$
                       ENDIF
2F6B 3E0A              LD      A,10
2F6D EF                RST     40
2F6E D1                POP     DE                ;Now set up to
2F6F E1                POP     HL                ;  read the cylinder
2F70 CD7228   LDCYL2   CALL    RDSEC             ;Read a sector
2F73 2805              JR      Z,LDCYL3          ;Go if no error
2F75 FE06              CP      6                 ;Ok if error 6 (reading DIR
2F77 C29726            JP      NZ,EXIT3
2F7A 24       LDCYL3   INC     H                 ;Bump buffer and
2F7B 1C                INC     E                 ;  sector number
2F7C 7B                LD      A,E
2F7D FE00     LDCYL4   CP      0                 ;High sector #
2F7F 20EF              JR      NZ,LDCYL2         ;Loop til cyl. finished
2F81 3E00     LDCYL5   LD      A,$-$             ;P/u current cylinder
2F83 3C                INC     A
2F84 32822F            LD      (LDCYL5+1),A      ;Store next cyl
2F87 47                LD      B,A
2F88 3E00     LDCYL6   LD      A,$-$             ;P/u last for this pass
2F8A B8                CP      B                 ;See if memory full
2F8B 280E              JR      Z,LDCYL8          ;  and go if so
2F8D 14       LDCYL7   INC     D                 ;Bump cyl to use
2F8E 7A                LD      A,D
2F8F FE60              CP      60H               ;Highest track #?
2F91 C2372F            JP      NZ,LDTKS1         ;If not, do another
2F94 3A822F            LD      A,(LDCYL5+1)      ;Were any moved?
2F97 B7                OR      A                 ;Don't dump if not
2F98 CA8F30            JP      Z,MOVID
2F9B 3A822F   LDCYL8   LD      A,(LDCYL5+1)      ;P/u last cyl loaded
2F9E 327F30            LD      (VECYL5+1),A      ;  & save for VERIFY
              ;
              ;        Get ready to dump to destination
              ;
2FA1 2A1626            LD      HL,(BUFFER$)      ;P/u start of buffer
2FA4 1600     DUCYL    LD      D,$-$             ;Init starting cylinder
              ;
              DUCYL1
2FA6                   @@CKBRKC                  ;Check for break
2FA6 3E6A              LD      A,106
2FA8 EF                RST     40
2FA9 C2AC26            JP      NZ,BREAK          ; and abort if hit
              ;
              ;        Start by making dest GAT bytes
              ;
2FAC E5                PUSH    HL                ;Save buffer ptr
2FAD 262B              LD      H,BUF1$<-8        ;Pt to source GAT
2FAF 6A                LD      L,D               ;  at current cylinder
2FB0 4E                LD      C,(HL)            ;Get the free/used byte
2FB1 7A                LD      A,D
2FB2 C660              ADD     A,60H             ;P/u the lockout byte
2FB4 6F                LD      L,A               ;  for this cylinder
2FB5 7E                LD      A,(HL)
```

Mirror Image Backup

```
2FB6 2F         1638Ø          CPL                       ;Merge non-locked and
2FB7 A1         1639Ø          AND      C                ;  in use bits
2FB8 262C       164ØØ          LD       H,BUF2$<-8       ;Pt to dest GAT
2FBA 4E         1641Ø          LD       C,(HL)           ;P/u its lockout byte
2FBB B1         1642Ø          OR       C                ;Merge in source info
2FBC 6A         1643Ø          LD       L,D              ;Store in dest free/used
2FBD 77         1644Ø          LD       (HL),A
2FBE B9         1645Ø          CP       C                ;Check if any in use
2FBF E1         1646Ø          POP      HL
2FCØ CA3Ø3Ø     1647Ø          JP       Z,DUCYL6         ;  and go if not
2FC3 CD8727     1648Ø          CALL     PMTDST           ;Set up to write dest disk
2FC6 1EØØ       1649Ø          LD       E,Ø              ;Init to sector Ø
2FC8 7A         165ØØ          LD       A,D              ;Get current cylinder
2FC9 B3         1651Ø          OR       E
2FCA E5         1652Ø          PUSH     HL               ;Save buffer ptr
2FCB 7A         1653Ø          LD       A,D
2FCC 21Ø132     1654Ø          LD       HL,CYL$          ;"xx...
2FCF CD9631     1655Ø          CALL     CVTDEC           ;Convert cyl # to ASCII
2FD2 D5         1656Ø          PUSH     DE
2FD3            1657Ø          @@DSPLY  DUCYL$           ;"dumping cyl...
                ØØ153          IFEQ     Ø1H,1
2FD3 21D731     ØØ154          LD       HL,DUCYL$
                ØØ155          ENDIF
2FD6 3EØA       ØØ156          LD       A,1Ø
2FD8 EF         ØØ157          RST      4Ø
2FD9            1658Ø          @@DSPLY  CYL$             ;"xx...
                ØØ158          IFEQ     Ø1H,1
2FD9 21Ø132     ØØ159          LD       HL,CYL$
                ØØ16Ø          ENDIF
2FDC 3EØA       ØØ161          LD       A,1Ø
2FDE EF         ØØ162          RST      4Ø
2FDF D1         1659Ø          POP      DE               ;Recover cyl/sect
2FEØ E1         166ØØ          POP      HL               ;  and buffer posn
2FE1 7A         1661Ø DUCYL2   LD       A,D              ;P/u track # & bypass
2FE2 B7         1662Ø          OR       A                ;  if not cyl=Ø
2FE3 2Ø28       1663Ø          JR       NZ,DUCYL2B
                1664Ø ;
                1665Ø          IF       @MOD2
                1666Ø          LD       A,(BACKUPØ)      ;Get system flag
                1667Ø          OR       A                ;System disk?
                1668Ø          JR       NZ,DUCYL2B       ;Yes, bypass!
                1669Ø          ENDIF
                167ØØ ;
2FE5 B3         1671Ø          OR       E                ;Merge to test for sec=2
2FE6 FEØ2       1672Ø          CP       2
2FE8 2ØØD       1673Ø          JR       NZ,CKBOOT        ;If not 2, ck 1 or Ø
2FEA 2EC6       1674Ø          LD       L,ØC6H           ;Point to id byte
2FEC 7E         1675Ø          LD       A,(HL)
2FED 3C         1676Ø          INC      A                ;If X'FF', leave as is
2FEE 2818       1677Ø          JR       Z,SETØ
2FFØ 3D         1678Ø          DEC      A                ;If X'ØØ', leave as is
2FF1 2815       1679Ø          JR       Z,SETØ
2FF3 36FF       168ØØ          LD       (HL),-1          ;Set to X'FF'
2FF5 1811       1681Ø          JR       SETØ
2FF7 E6FE       1682Ø CKBOOT   AND      ØFEH             ;Sector Ø or 1?
2FF9 2Ø12       1683Ø          JR       NZ,DUCYL2B       ;Go if not
2FFB B3         1684Ø          OR       E                ;If sector Ø, just
2FFC 28ØD       1685Ø          JR       Z,DUCYL2A        ;  bother with HALT
                1686Ø ;
```

Mirror Image Backup

```
                 ;        Keep the boot track step rate
                 ;
2FFE 3AØØ26               LD      A,(BOOTST$)      ;P/u step pointer
3ØØ1 6F                   LD      L,A              ;  & update buffer ptr
3ØØ2 7E                   LD      A,(HL)           ;P/u this step byte
3ØØ3 E6FC                 AND     ØFCH             ;  & strip the step rate
3ØØ5 F6ØØ        BSMIR    OR      Ø                ;Merge with the step
3ØØ7 77                   LD      (HL),A
3ØØ8 2EØØ        SETØ     LD      L,Ø              ;Reset buffer pointer
3ØØA Ø1                   DB      1                ;Ignore next via LD BC,nn
3ØØB 3676        DUCYL2A  LD      (HL),76H         ;Keep the HALT in dest
3ØØD 7A          DUCYL2B  LD      A,D              ;P/u the cylinder #
3ØØE FEØØ        DSTDIR   CP      Ø                ;Is this the dir cyl?
3Ø1Ø 28Ø8                 JR      Z,DUCYL3         ;Go if it is
3Ø12 CD6828               CALL    WRSEC            ;Write non-dir sector
3Ø15 C29726               JP      NZ,EXIT3         ;Quit on write error
3Ø18 18Ø8                 JR      DUCYL4
3Ø1A CD6D28      DUCYL3   CALL    WRSYS            ;Write dir sector
3Ø1D 3E12                 LD      A,18             ;Init "Dir write error
3Ø1F C29726               JP      NZ,EXIT3         ;  and leave if error
3Ø22 24          DUCYL4   INC     H                ;Advance buffer and
3Ø23 1C                   INC     E                ;  sector #
3Ø24 7B                   LD      A,E
3Ø25 FEØØ        DUCYL5   CP      Ø                ;Reach end of cylinder?
3Ø27 2ØB8                 JR      NZ,DUCYL2        ;Go if not
3Ø29 3A822F               LD      A,(LDCYL5+1)     ;Count down one more
3Ø2C 3D                   DEC     A                ;  cylinder dumped
3Ø2D 32822F               LD      (LDCYL5+1),A
3Ø3Ø 14          DUCYL6   INC     D                ;Bump cylinder #
3Ø31 3A822F               LD      A,(LDCYL5+1)     ;Loop if still more
3Ø34 B7                   OR      A                ; to dump
3Ø35 C2A62F               JP      NZ,DUCYL1
                 ;
                 ;        Prepare to verify
                 ;
3Ø38 3AA52F               LD      A,(DUCYL+1)      ;P/u cyl # to start
3Ø3B 57                   LD      D,A
                 VECYL1
3Ø3C                      @@CKBRKC                 ;Check if Break hit
3Ø3C 3E6A                 LD      A,1Ø6
3Ø3E EF                   RST     4Ø
3Ø3F C2AC26               JP      NZ,BREAK         ;Abort on break
                 ;
3Ø42 262B                 LD      H,BUF1$<-8       ;Pt to source GAT
3Ø44 6A                   LD      L,D              ;  at the current cylinder
3Ø45 4E                   LD      C,(HL)           ;Get free/used byte
3Ø46 7A                   LD      A,D
3Ø47 C66Ø                 ADD     A,6ØH            ;Pt to lockout byte for
3Ø49 6F                   LD      L,A              ;  the current cylinder
3Ø4A 7E                   LD      A,(HL)           ;P/u the locked out info
3Ø4B 2F                   CPL                      ;Merge the non-locked and
3Ø4C A1                   AND     C                ;  and the free/ used
3Ø4D 262C                 LD      H,BUF2$<-8       ;Pt to dest GAT
3Ø4F 4E                   LD      C,(HL)           ;P/u lockout for dest cyl
3Ø5Ø B1                   OR      C                ;Merge source info
3Ø51 6A                   LD      L,D              ;Pt to dest free/used
3Ø52 77                   LD      (HL),A           ;  and store new value
3Ø53 B9                   CP      C                ;See if in use
3Ø54 CA843Ø               JP      Z,VECYL6         ;Skip verify if not
```

Mirror Image Backup

```
3Ø57 1EØØ      1744Ø          LD      E,Ø              ;Init to sector Ø
3Ø59 7A        1745Ø          LD      A,D              ;P/u cyl # for dsply
3Ø5A 21Ø132    1746Ø          LD      HL,CYL$          ;"xx...
3Ø5D CD9631    1747Ø          CALL    CVTDEC           ;Convert cyl # to ASCII
3Ø6Ø D5        1748Ø          PUSH    DE
3Ø61           1749Ø          @@DSPLY VECYL$           ;"verifying cyl...
               ØØ165          IFEQ    Ø1H,1
3Ø61 21EC31    ØØ166          LD      HL,VECYL$
               ØØ167          ENDIF
3Ø64 3EØA      ØØ168          LD      A,1Ø
3Ø66 EF        ØØ169          RST     4Ø
3Ø67           175ØØ          @@DSPLY CYL$             ;"xx...
               ØØ17Ø          IFEQ    Ø1H,1
3Ø67 21Ø132    ØØ171          LD      HL,CYL$
               ØØ172          ENDIF
3Ø6A 3EØA      ØØ173          LD      A,1Ø
3Ø6C EF        ØØ174          RST     4Ø
3Ø6D D1        1751Ø          POP     DE               ;Recover cyl/sector
3Ø6E CD7728    1752Ø VECYL2   CALL    VERSEC           ;Verify a sector
3Ø71 28Ø5      1753Ø          JR      Z,VECYL3         ;Go if no error
3Ø73 FEØ6      1754Ø          CP      6                ;Error 6 is OK
3Ø75 C29726    1755Ø          JP      NZ,EXIT3
3Ø78 1C        1756Ø VECYL3   INC     E                ;Inc sector #
3Ø79 7B        1757Ø          LD      A,E
3Ø7A FEØØ      1758Ø VECYL4   CP      Ø                ;Check end of cylinder
3Ø7C 2ØFØ      1759Ø          JR      NZ,VECYL2        ;Loop if not
3Ø7E 3EØØ      176ØØ VECYL5   LD      A,Ø              ;Count down another
3Ø8Ø 3D        1761Ø          DEC     A                ;  cyl just verified
3Ø81 327F3Ø    1762Ø          LD      (VECYL5+1),A
3Ø84 14        1763Ø VECYL6   INC     D                ;Bump cyl # by 1
3Ø85 3A7F3Ø    1764Ø          LD      A,(VECYL5+1)     ;Loop if more cylinders
3Ø88 B7        1765Ø          OR      A                ;  to verify, else go
3Ø89 C23C3Ø    1766Ø          JP      NZ,VECYL1        ;  back to "loading"
3Ø8C C33Ø2F    1767Ø          JP      LDTKS
               1768Ø ;
               1769Ø ;        All cylinders backed up, move ID info
               177ØØ ;
3Ø8F ØEØD      1771Ø MOVID    LD      C,CR             ;Print a newline
3Ø91           1772Ø          @@DSP
3Ø91 3EØ2      ØØ175          LD      A,2
3Ø93 EF        ØØ176          RST     4Ø
3Ø94 21CD2B    1773Ø          LD      HL,BUF1$+ØCDH    ;Move in the pswd,name,
3Ø97 11CD2C    1774Ø          LD      DE,BUF2$+ØCDH    ;  date, "AUTO" buffer,
3Ø9A Ø133ØØ    1775Ø          LD      BC,33H           ;  & config byte
3Ø9D EDBØ      1776Ø          LDIR
3Ø9F 217826    1777Ø          LD      HL,DATFLD$       ;Move in today's date
3ØA2 11D82C    1778Ø          LD      DE,BUF2$+ØD8H
3ØA5 ØEØ8      1779Ø          LD      C,8
3ØA7 EDBØ      178ØØ          LDIR
               1781Ø ;
               1782Ø ;        Get destination disk & write new GAT
               1783Ø ;
3ØA9 CD8727    1784Ø          CALL    PMTDST           ;Set up to use dest disk
3ØAC 3AØF3Ø    1785Ø          LD      A,(DSTDIR+1)     ;Get dir cyl
3ØAF 57        1786Ø          LD      D,A              ;Set to track Dir,
3ØBØ 1EØØ      1787Ø          LD      E,Ø              ;  sector Ø
3ØB2 21ØØ2C    1788Ø          LD      HL,BUF2$         ;Write the GAT back
3ØB5 CD6D28    1789Ø          CALL    WRSYS
3ØB8 3E15      179ØØ          LD      A,21             ;Init "GAT write error
```

Mirror Image Backup

```
30BA C29726   17910          JP      NZ,EXIT3          ;  and go if bad
30BD 21002D   17920          LD      HL,BUF3$
30C0 CD7728   17930          CALL    VERSEC            ;  else verify gat
30C3 FE06     17940          CP      6                 ;Expect error 6
30C5 3E14     17950          LD      A,20              ;Init "GAT read error now
30C7 C29726   17960          JP      NZ,EXIT3          ;  and quit if bad verify
30CA 3A0F30   17970          LD      A,(DSTDIR+1)      ;P/u cyl to use for dir
30CD 57       17980          LD      D,A               ;Set track = Dir
30CE 1E02     17990          LD      E,2               ;Skip GAT and HIT
              18000 ;
              18010 ;        Reset all mod flags on destination
              18020 ;
30D0 2A1626   18030 RESMF    LD      HL,(BUFFER$)      ;Use this for sector buffer
30D3 CD7228   18040          CALL    RDSEC             ;Read in dir record
30D6 FE06     18050          CP      6                 ;Expect error 6
30D8 C29226   18060          JP      NZ,DIRERR         ;Abort on any other
30DB 2C       18070          INC     L                 ;DIR+1 holds mod flag
30DC CBB6     18080 RESMF1   RES     6,(HL)            ;Reset the flag
30DE 7D       18090          LD      A,L
30DF C620     18100          ADD     A,20H             ;Index to next direc
30E1 6F       18110          LD      L,A
30E2 30F8     18120          JR      NC,RESMF1         ;  and loop thru all 8
30E4 2E00     18130          LD      L,0
30E6 CD6D28   18140          CALL    WRSYS             ;Write record back out
30E9 3E12     18150          LD      A,18              ;Init "DIR write error
30EB C29726   18160          JP      NZ,EXIT3
30EE 1C       18170          INC     E                 ;Inc dir sector #
30EF 7B       18180          LD      A,E
30F0 FE00     18190 RESMF2   CP      $-$               ;Compare highest sect this cyl
30F2 20DC     18200          JR      NZ,RESMF          ;Loop until complete
              18210 ;
              18220          IF      @MOD2
              18230          LD      A,(STRDIR$+1)     ;Get old dir cyl
              18240          LD      B,A               ;Pass for jump
              18250          LD      A,(BACKUP0)       ;Get system backup flag
              18260          OR      A                 ;System disk?
              18270          JR      NZ,CNTBAK1        ;Yes, check if dir change
              18280          ENDIF
              18290 ;
              18300 ;        Clear the HALT inst from dest
              18310 ;
30F4 21002D   18320          LD      HL,BUF3$
30F7 55       18330          LD      D,L               ;Now read the BOOT
30F8 5D       18340          LD      E,L               ;  on the dest disk
30F9 CD7228   18350          CALL    RDSEC
30FC C29726   18360          JP      NZ,EXIT3          ;Quit if couldn't be read
30FF 3600     18370          LD      (HL),0            ;Clear the HALT
3101 23       18380          INC     HL
3102 23       18390          INC     HL                ;Pt to old DIR cyl
3103 0600     18400 STRDIR$  LD      B,$-$             ;P/u the old DIR cyl
3105 3A0F30   18410          LD      A,(DSTDIR+1)      ;Update the dir cyl
3108 77       18420          LD      (HL),A            ;  in case it changed
3109 2B       18430          DEC     HL                ;Pt back to buffer start
310A 2B       18440          DEC     HL
310B CD6828   18450          CALL    WRSEC             ;Write back the BOOT
310E CC7728   18460          CALL    Z,VERSEC          ;  and then verify it
3111 C29726   18470          JP      NZ,EXIT3          ;Go if write error
3114 1C       18480          INC     E                 ;Point to sector 1
3115 CD7228   18490          CALL    RDSEC             ;Read it
```

Mirror Image Backup

```
3118 C29726    185ØØ          JP      NZ,EXIT3
311B 3AØF3Ø    1851Ø          LD      A,(DSTDIR+1)     ;Do the same thing again
311E 23        1852Ø          INC     HL
311F 23        1853Ø          INC     HL
312Ø 77        1854Ø          LD      (HL),A           ;Store new dir cyl
3121 2B        1855Ø          DEC     HL
3122 2B        1856Ø          DEC     HL
3123 CD6828    1857Ø          CALL    WRSEC            ;Write it back
3126 CC7728    1858Ø          CALL    Z,VERSEC         ;Verify it if written OK
3129 C29726    1859Ø          JP      NZ,EXIT3         ;Quit if we couldn't
               186ØØ ;
312C 262C      1861Ø CNTBAK1 LD      H,BUF2$<-8       ;Destination GAT
312E 78        1862Ø          LD      A,B              ;P/u old DIR cyl
312F C66Ø      1863Ø          ADD     A,6ØH            ;Point to lockout table
3131 6F        1864Ø          LD      L,A
3132 4E        1865Ø          LD      C,(HL)           ;Check lockout byte
3133 68        1866Ø          LD      L,B              ;Pt to GAT byte
3134 7E        1867Ø          LD      A,(HL)           ;Get GAT byte
3135 B1        1868Ø          OR      C
3136 B9        1869Ø          CP      C                ;Anything allocated?
3137 2Ø1E      187ØØ          JR      NZ,RESMF2B       ;Bypass if yes
3139 78        1871Ø          LD      A,B              ;Save cylinder
313A 21ØØ2D    1872Ø          LD      HL,BUF3$         ;Write E5's to cylinder
313D 11Ø12D    1873Ø          LD      DE,BUF3$+1       ; to remove system DAM
314Ø Ø1FFØØ    1874Ø          LD      BC,255
3143 36E5      1875Ø          LD      (HL),ØE5H
3145 EDBØ      1876Ø          LDIR
3147 69        1877Ø          LD      L,C              ;Pt back to buf3$
3148 57        1878Ø          LD      D,A              ;Set cylinder # in D
3149 59        1879Ø          LD      E,C              ;Start with sector Ø
314A 3A7E2F    188ØØ          LD      A,(LDCYL4+1)     ;Get # of sectors
314D 47        1881Ø          LD      B,A              ;Set loop counter
314E CD6828    1882Ø RESMF2A CALL    WRSEC            ;Write normal sector
3151 C29726    1883Ø          JP      NZ,EXIT3
3154 1C        1884Ø          INC     E                ;Step to next sector
3155 1ØF7      1885Ø          DJNZ    RESMF2A
3157 CD5E28    1886Ø RESMF2B CALL    RESTOR           ;Restore to track Ø
               1887Ø ;
               1888Ø ;        Attempt to clear MOD flags of source
               1889Ø ;
315A CD1A27    189ØØ          CALL    PMTSRC           ;Set up for source disk
315D FD56Ø9    1891Ø          LD      D,(IY+9)         ;Get track = Dir
               1892Ø ;
316Ø 1EØ2      1893Ø          LD      E,2              ;Skip GAT and HIT
3162 2A1626    1894Ø RESMF3  LD      HL,(BUFFER$)     ;Use this as sector buffer
3165 CD7228    1895Ø          CALL    RDSEC            ;Read source dir sector
3168 FEØ6      1896Ø          CP      6                ;Expect error 6
316A C29226    1897Ø          JP      NZ,DIRERR
316D 2C        1898Ø          INC     L                ;Pt to DIR + 1
316E CBB6      1899Ø RESMF4  RES     6,(HL)           ;Turn off mod flag
317Ø 7D        19ØØØ          LD      A,L
3171 C62Ø      19Ø1Ø          ADD     A,2ØH            ;Index to next direc
3173 6F        19Ø2Ø          LD      L,A
3174 3ØF8      19Ø3Ø          JR      NC,RESMF4        ;Loop 8 times/sector
3176 2EØØ      19Ø4Ø          LD      L,Ø
3178 CD6D28    19Ø5Ø          CALL    WRSYS            ;Write back dir sector
317B 281Ø      19Ø6Ø          JR      Z,RESMF5         ;Loop on no error
317D FEØF      19Ø7Ø          CP      15               ;Write protected source?
317F 3E12      19Ø8Ø          LD      A,18             ;Init "DIR write error"
```

Mirror Image Backup

```
3181 C29726    19Ø9Ø          JP      NZ,EXIT3         ;Exit if not WP error
3184           191ØØ          @@LOGOT CCMOD$           ;"Can't clear mod flags
               ØØ177          IFEQ    Ø1H,1
3184 21C629    ØØ178          LD      HL,CCMOD$
               ØØ179          ENDIF
3187 3EØC      ØØ18Ø          LD      A,12
3189 EF        ØØ181          RST     4Ø
               1911Ø          IF      @MOD4
318A C38526    1912Ø          JP      EXIT1            ;Backup is complete
               1913Ø          ENDIF
               1914Ø          IF      @MOD2
               1915Ø          JR      CKWRTKØ          ;Check if write cyl Ø
               1916Ø          ENDIF
318D 1C        1917Ø RESMF5   INC     E                ;Bump sector #
318E 7B        1918Ø          LD      A,E
318F FEØØ      1919Ø RESMF6   CP      $-$              ;Compare highest sect this cyl
3191 2ØCF      192ØØ          JR      NZ,RESMF3        ;Do another sector if not
               1921Ø          IF      @MOD4
3193 C38526    1922Ø          JP      EXIT1            ;Backup is complete
               1923Ø          ENDIF
               1924Ø          IF      @MOD2
               1925Ø CKWRTKØ  LD      A,(BACKUPØ)      ;Get flag
               1926Ø          OR      A                ;Anything?
               1927Ø          JP      Z,EXIT1          ;Nope, go!
               1928Ø          CALL    PMTSRC           ;Prompt for source
               1929Ø          CALL    READØ            ;Read cyl Ø
               193ØØ          JP      NZ,EXIT3         ;Go on error
               1931Ø          CALL    PMTDST           ;Prompt for dest drive
               1932Ø          CALL    FORMATØ          ;Format cylinder Ø
               1933Ø          JP      NZ,EXIT3         ;Go on disk error
               1934Ø ;
               1935Ø ;        Pass original step rate to new disk
               1936Ø ;
               1937Ø          LD      HL,(BUFFER$)     ;Get I/O buffer
               1938Ø          INC     HL               ;Bump to step rate
               1939Ø          INC     HL
               194ØØ          INC     HL               ;+3
               1941Ø          LD      A,(BSMIR+1)      ;Get step
               1942Ø          LD      (HL),A           ;Pass to buffer
               1943Ø          LD      BC,8ØH           ;Offset to sector 1
               1944Ø          ADD     HL,BC            ;Point to it
               1945Ø          LD      (HL),A           ;Pass to buffer
               1946Ø          CALL    PMTDST           ;Re-fetch DCT
               1947Ø          CALL    WRITEØ           ;Write cylinder Ø
               1948Ø          JP      NZ,EXIT3         ;Go on disk error
               1949Ø          CALL    PMTDST           ;Fetch DCT
               195ØØ          LD      A,(DSTDIR+1)     ;Get new dir cyl
               1951Ø          LD      (IY+9),A         ;Update DCT
               1952Ø          CALL    UPGATØ           ;Update GAT table
               1953Ø          JP      NZ,EXIT3         ;Go on disk error
               1954Ø          JP      EXIT1            ; else program completed
               1955Ø          ENDIF
               1956Ø ;
               1957Ø ;        Routine to convert cylinder # & message stuff
               1958Ø ;
3196 362Ø      1959Ø CVTDEC   LD      (HL),' '         ;Init to leading blank
3198 Ø664      196ØØ          LD      B,1ØØ
319A CDA831    1961Ø          CALL    CVD1
319D 362Ø      1962Ø          LD      (HL),' '         ;Init to blank
```

Mirror Image Backup

```
319F Ø6ØA                 LD      B,1Ø
31A1 CDA831               CALL    CVD1
31A4 363Ø                 LD      (HL),'Ø'        ;Init to leading Ø
31A6 Ø6Ø1                 LD      B,1
31A8 ØEØØ         CVD1    LD      C,Ø             ;Init digit counter
31AA 9Ø           CVD2    SUB     B               ;Sub 1Ø's power until carry
31AB 38Ø3                 JR      C,CVD3
31AD ØC                   INC     C               ;  and bump count
31AE 18FA                 JR      CVD2
31BØ 8Ø           CVD3    ADD     A,B             ;Add back last sub
31B1 F5                   PUSH    AF
31B2 79                   LD      A,C             ;Check the count
31B3 B7                   OR      A
31B4 28Ø3                 JR      Z,CVD7          ;Ignore if Ø
31B6 C63Ø                 ADD     A,3ØH           ;  else change to ASCII digit
31B8 77                   LD      (HL),A
31B9 F1           CVD7    POP     AF
31BA 23                   INC     HL
31BB C9                   RET
                  ;
                  ;       Message area
                  ;
31BC 21Ø532       NOTMIR  LD      HL,NOTMIR$
31BF C3AF26               JP      EXIT4
31C2 1D           LDCYL$  DB      29,'Reading < cylinder ',3
     52 65 61 64 69 6E 67 2Ø
     3C 2Ø 63 79 6C 69 6E 64
     65 72 2Ø Ø3
31D7 1D           DUCYL$  DB      29,'Writing > cylinder ',3
     57 72 69 74 69 6E 67 2Ø
     3E 2Ø 63 79 6C 69 6E 64
     65 72 2Ø Ø3
31EC 1D           VECYL$  DB      29,'Verifying cylinder ',3
     56 65 72 69 66 79 69 6E
     67 2Ø 63 79 6C 69 6E 64
     65 72 2Ø Ø3
32Ø1 3Ø           CYL$    DB      'ØØØ',3
     3Ø 3Ø Ø3
32Ø5 ØA           NOTMIR$ DB      LF,'Backup aborted, '
     42 61 63 6B 75 7Ø 2Ø 61
     62 6F 72 74 65 64 2C 2Ø
3216 64                   DB      'destination not mirror-image',CR
     65 73 74 69 6E 61 74 69
     6F 6E 2Ø 6E 6F 74 2Ø 6D
     69 72 72 6F 72 2D 69 6D
     61 67 65 ØD
3233 44           DIFID$  DB      'Destination disk ID is different: '
     65 73 74 69 6E 61 74 69
     6F 6E 2Ø 64 69 73 6B 2Ø
     49 44 2Ø 69 73 2Ø 64 69
     66 66 65 72 65 6E 74 3A
     2Ø
3255 4E           PACKID$ DB      'Name=XXXXXXXX  Date=mm/dd/yy',CR
     61 6D 65 3D 58 58 58 58
     58 58 58 58 2Ø 2Ø 44 61
     74 65 3D 6D 6D 2F 64 64
     2F 79 79 ØD
3272 2Ø           OLDMPW$ DB      '  Enter its Master Password'
     2Ø 45 6E 74 65 72 2Ø 69
```

Mirror Image Backup

```
     74 73 2Ø 4D 61 73 74 65
     72 2Ø 5Ø 61 73 73 77 6F
     72 64
328D 2Ø         1996Ø          DB       ' or <BREAK> to abort: ',3
     6F 72 2Ø 3C 42 52 45 41
     4B 3E 2Ø 74 6F 2Ø 61 62
     6F 72 74 3A 2Ø Ø3
32A4 41         1997Ø PMTYN$   DB       'Are you sure you want to backup to it '
     72 65 2Ø 79 6F 75 2Ø 73
     75 72 65 2Ø 79 6F 75 2Ø
     77 61 6E 74 2Ø 74 6F 2Ø
     62 61 63 6B 75 7Ø 2Ø 74
     6F 2Ø 69 74 2Ø
32CA 3C         1998Ø          DB       '<Y,N> ? ',3
     59 2C 4E 3E 2Ø 3F 2Ø Ø3
                1999Ø ;
32D3 ØØ         2ØØØØ          DC       64,Ø                ;PATCH space
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ
                2ØØ1Ø ;
Ø6ØØ            2ØØ2Ø MIRSIZ   EQU      $<-8+1<8-BACKUP
                2ØØ3Ø ;
                2ØØ4Ø ;
                2ØØ5Ø ;        Adjust PC & load address for CLASS
                2ØØ6Ø ;
2EØØ            2ØØ7Ø          ORG      BACKUP
                2ØØ8Ø ;
38ØØ            2ØØ9Ø CLSBU    EQU      CORE$+MIRSIZ
2EØØ            2Ø1ØØ          LORG     CLSBU
                2Ø11Ø ;
2EØØ            2Ø12Ø          SUBTTL   '<Backup By Class>'
```

```
                ;
2EØØ            *GET    BACKUP3:3
                ;BACKUP3/ASM - Backup By Class
                ;
                ;       Find highest available memory page
                ;
2EØØ 21ØØØØ             LD      HL,Ø            ;Set up to get HIGH$
2EØ3 45                 LD      B,L
2EØ4                    @@HIGH$
2EØ4 3E64               LD      A,1ØØ
2EØ6 EF                 RST     4Ø
2EØ7 23                 INC     HL              ;Find highest available
2EØ8 25                 DEC     H               ;  memory page
2EØ9 7C                 LD      A,H
2EØA 32CE32             LD      (DOFILØ6+1),A   ;Save for later testing
2EØD 32E332             LD      (DOFILØ8+1),A
2E1Ø 32DA33             LD      (LSTBUF1+1),A
2E13 3EC9               LD      A,ØC9H
2E15 32BØ27             LD      (PMTDST1),A     ;Ignore dest disk test
2E18 CD8727             CALL    PMTDST          ;Prompt dest drive
                ;
                ;       Calculate mamximum free space per dest disk type
                ;
2E1B FD7EØ7             LD      A,(IY+7)        ;P/u # heads & sect/trk
2E1E 47                 LD      B,A             ;Save heads
2E1F E61F               AND     1FH             ;Mask all but sectors
2E21 4F                 LD      C,A
2E22 ØC                 INC     C               ;Adj for zero offset
2E23 A8                 XOR     B               ;Get # of heads
2E24 Ø7                 RLCA
2E25 Ø7                 RLCA                    ;  in bits Ø-2
2E26 Ø7                 RLCA
2E27 3C                 INC     A               ;Adj to Ø offset
2E28 47                 LD      B,A             ;Init loop counter
2E29 AF                 XOR     A               ;Init sector count to Ø
2E2A 81                 ADD     A,C             ;Multiply # sectors/track
2E2B 1ØFD               DJNZ    $-1             ;  x # of heads/cyl
2E2D 6F                 LD      L,A
2E2E 26ØØ               LD      H,Ø             ;Xfer to 16-bit reg
2E3Ø FDCBØ46E           BIT     5,(IY+4)        ;If 2-sided diskette
2E34 28Ø1               JR      Z,$+3
2E36 29                 ADD     HL,HL           ;  double the # of sectors
2E37 FD4EØ6             LD      C,(IY+6)        ;P/u # cyls & adjust for
2E3A ØD                 DEC     C               ;  BOOT & DIR
2E3B                    @@MUL16                 ;Calc total records
2E3B 3E5B               LD      A,91
2E3D EF                 RST     4Ø
2E3E 65                 LD      H,L             ;Results to HL
2E3F 6F                 LD      L,A
2E4Ø 225932             LD      (SIZSAV+1),HL   ;Save for later
                ;
                ;       Read the BOOT sector of dest disk
                ;
2E43 11Ø1ØØ             LD      DE,1            ;Track Ø, sector 1
2E46 21ØØ2C             LD      HL,BUF2$        ;Disk buffer area
2E49 CD7228             CALL    RDSEC           ;Read the sector
2E4C C29726             JP      NZ,EXIT3        ;Quit on read error
2E4F 3AØØ26             LD      A,(BOOTST$)     ;Locn of boot step rate
2E52 6F                 LD      L,A
2E53 7E                 LD      A,(HL)          ;Get the step rate in
```

Backup By Class

```
2E54 E6Ø3                   AND     3               ;  bits Ø and 1
2E56 321932                 LD      (BSCLS+1),A     ;Save for later
2E59 3AØ22C                 LD      A,(BUF2$+2)     ;P/u dir cyl
2E5C FD77Ø9                 LD      (IY+9),A        ;Stuff into DCT
                    ;
                    ;       Check id type byte
                    ;
2E5F CD8928                 CALL    CKSWDD
                    ;
                    ;       If a system backup, then check the GAT & HIT
                    ;
2E62 3A6Ø42                 LD      A,(PRMTBL$+SYSRSP)
2E65 B7                     OR      A               ;P/u SYS parm response
2E66 CA1A2F                 JP      Z,CLSBU5        ;  and skip next if not SYS
                    ;
                    ;       If already a SYSTEM disk, don't check BOOT space
                    ;
                            IF      @MOD2
                            CALL    PMTDST          ;Get dest data
                    ;
                            LD      A,(IY+3)        ;Get DCT data
                            AND     28H             ;Bit 5/3
                            CP      2ØH             ;8" floppy?
                            JR      NZ,SETSYS2      ;Go if not
                            LD      A,(IY+4)        ;Get data
                            AND     5ØH             ;Bit 6/4
                            CP      4ØH             ;DD not alien?
                      SETSYS2 LD    D,Ø             ;Cyl Ø if not
                            JR      NZ,$+3          ;Go if system
                            INC     D               ;Sysinfo on cyl 1
                            ENDIF
                    ;
2E69 21ØØ36                 LD      HL,HITBUF       ;Set disk buffer
2E6C 1EØ2                   LD      E,2             ;  and sector 2
                    ;
                    ;       Mod II save sysinfo sector for later check
                    ;
                            IF      @MOD2
                            LD      (CKPROT2),DE    ;Save cyl/sect
                            ENDIF
                    ;
                            IF      @MOD4
2E6E CD7228                 CALL    RDSEC           ;Read the sysinfo sector
2E71 C29726                 JP      NZ,EXIT3        ;QUit on read error
2E74 3ACØ36                 LD      A,(HITBUF+ØCØH) ;P/u & test the SYSTEM
2E77 3C                     INC     A               ;  disk byte. If already
2E78 FD56Ø9                 LD      D,(IY+9)
2E7B CACC2E                 JP      Z,CLSBUØ1       ;  a system disk, bypass
                            ENDIF
                    ;
                            IF      @MOD2
                    ;
                            LD      D,(IY+9)        ;P/u dir cyl
                    ;
                            ENDIF
                    ;
2E7E 5D                     LD      E,L             ;Set sector Ø, dir trk
2E7F CD7228                 CALL    RDSEC           ;Read the GAT
2E82 FEØ6                   CP      6               ;Expect error 6
```

Backup By Class

```
2E84 3E14      2129Ø          LD      A,2Ø            ;Init "GAT read error
2E86 C29726    213ØØ          JP      NZ,EXIT3        ;Quit on any other error
               2131Ø ;
               2132Ø          IF      @MOD4
2E89 Ø6ØØ      2133Ø          LD      B,Ø             ;Need no more
2E8B FDCBØ35E  2134Ø          BIT     3,(IY+3)        ;  if rigid drive
2E8F 2Ø11      2135Ø          JR      NZ,SETSYS       ;NZ = rigid
               2136Ø          ENDIF
               2137Ø ;
               2138Ø ;        Check GAT byte on Mod2/12
               2139Ø          IF      @MOD2
               214ØØ          LD      L,ØCDH
               2141Ø          BIT     7,(HL)
               2142Ø          LD      L,Ø
               2143Ø          JP      Z,CLSBUØ1       ;Go if system disk
               2144Ø          ENDIF
               2145Ø ;
               2146Ø ;        If ALIEN or NOT 8" space is OK
               2147Ø ;
               2148Ø          IF      @MOD2
               2149Ø          LD      A,(CKPROT2+1)
               215ØØ          OR      A
               2151Ø          JR      Z,SETSYS        ;Go if not
               2152Ø          ENDIF
               2153Ø ;
               2154Ø ;        Mod II must have track Ø fully available
               2155Ø ;
               2156Ø          IF      @MOD2
               2157Ø          LD      A,(HITBUF+6ØH)  ;Track Ø lockout data
               2158Ø          OR      1               ;Boot/sys allocation
               2159Ø          CP      (HL)            ;Anything here?
               216ØØ          JP      NZ,NOTSYS       ;Yes, cannot use!
               2161Ø          ENDIF
               2162Ø ;
               2163Ø ;        Mod II must have 16 sectors available on cyl 1
               2164Ø ;
               2165Ø          IF      @MOD2
               2166Ø          INC     HL              ;Point to cyl 1
               2167Ø          LD      B,3             ;2 grans SD or DD
               2168Ø          ENDIF
               2169Ø ;
               217ØØ ;        Check to be sure additional grans needed for boot
               2171Ø ;        are not already allocated
               2172Ø ;
               2173Ø          IF      @MOD4
2E91 Ø6Ø2      2174Ø          LD      B,2             ;If 8" SDEN or DDEN, then
               2175Ø          ENDIF
               2176Ø ;
2E93 FDCBØ36E  2177Ø          BIT     5,(IY+3)        ;  need gran 1
2E97 2ØØ2      2178Ø          JR      NZ,$+4
2E99 Ø6Ø6      2179Ø          LD      B,6             ;5" needs grans 1 & 2
2E9B 7E        218ØØ          LD      A,(HL)          ;P/u GAT byte for BOOT
2E9C AØ        2181Ø          AND     B               ;  & ck for needed space
2E9D 2Ø48      2182Ø          JR      NZ,NOTSYS       ;Go if no free space
2E9F 7E        2183Ø          LD      A,(HL)          ;Reserve the GAT space
2EAØ BØ        2184Ø          OR      B
2EA1 77        2185Ø          LD      (HL),A
               2186Ø ;
               2187Ø ;        Mod II must make force locked/used cyl Ø
```

Backup By Class

```
              ;
                      IF      @MOD2
                      LD      A,-1            ;Init
                      LD      L,0             ;Reset to beginning
                      LD      (HL),A          ;Allocate cyl 0
                      LD      L,60H           ;Lockout table
                      LD      (HL),A          ;Lockout cyl 0
                      ENDIF
              ;
              ;
              ;       Mask the config byte "data/system" disk bit
              ;
2EA2 2ECD     SETSYS  LD      L,0CDH          ;Point to config byte
2EA4 CBBE             RES     7,(HL)          ;  & show system disk
2EA6 CDBF33           CALL    WRGAT
              ;
              ;       Adjust the allocation info for BOOT/SYS
              ;
2EA9 1E02     CLSBU0  LD      E,2             ;Read the directory
2EAB CD7228           CALL    RDSEC           ;  sector containing
2EAE FE06             CP      6               ;  BOOT/SYS record
2EB0 3E11             LD      A,17            ;Init "dir read error
2EB2 C29726           JP      NZ,EXIT3
2EB5 04               INC     B               ;Code to 7 3 1
2EB6 04               INC     B               ;Code to 8 4 2
2EB7 CB28             SRA     B               ;Code to 4 2 1
2EB9 CB28             SRA     B               ;Code to 2 1 0
              ;
                      IF      @MOD2
                      LD      A,(CKPROT2+1)
                      OR      A
                      JR      Z,CLSBU01
                      ENDIF
              ;
              ;       Mod II must force BOOT/SYS to new cyl 1
              ;
                      IF      @MOD2
              CLSBU00 LD      L,16H           ;Cylinder start
                      LD      (HL),1          ;Force cyl 1
                      ENDIF
              ;
2EBB 2E17             LD      L,17H           ;Point to gran alloc
2EBD 70               LD      (HL),B          ;Reset alloc
2EBE 2E14             LD      L,14H           ;Point to ERN
2EC0 3610             LD      (HL),16         ;Update # BOOT records
2EC2 2E00             LD      L,0
2EC4 CD6D28           CALL    WRSYS           ;Write dir sector back
2EC7 3E12             LD      A,18            ;Init "dir write error
2EC9 C29726           JP      NZ,EXIT3        ;Exit if so
              ;
              ;       If OLD entered No SYS file check needed
              ;
              CLSBU01
2ECC 3A1026           LD      A,(OLDPRM$)     ;Check for OLD entered
2ECF B7               OR      A
2ED0 2048             JR      NZ,CLSBU5       ;Skip SYS setup if so
              ;
              ;
              ;       Now check the HIT positions for /SYS files
```

Backup By Class

```
                22470 ;
2ED2 CD4F34     22480          CALL    HITRD          ;Read in destination HIT
2ED5 C29726     22490          JP      NZ,EXIT3
2ED8 119735     22500          LD      DE,SYSDEC      ;Pt to SYS file hash codes
2EDB EB         22510          EX      DE,HL          ;HIT to DE, hash tbl to HL
2EDC 0610       22520          LD      B,16           ;Check 16 DECs
2EDE 1A         22530 CLSBU1   LD      A,(DE)         ;If dest spare, stuff
2EDF B7         22540          OR      A              ;  with source else
2EE0 2002       22550          JR      NZ,CLSBU2      ;  test for match
2EE2 7E         22560          LD      A,(HL)
2EE3 12         22570          LD      (DE),A
2EE4 BE         22580 CLSBU2   CP      (HL)           ;Dest match source?
2EE5 2806       22590          JR      Z,CLSBU3       ;Continue if so
2EE7 213C35     22600 NOTSYS   LD      HL,NOTSYS$     ;Init"Can't make sys disk...
2EEA C3AF26     22610          JP      EXIT4          ;Display and quit
2EED 1C         22620 CLSBU3   INC     E              ;Bump to next DEC
2EEE 23         22630          INC     HL             ;  & our table
2EEF 3E08       22640          LD      A,8            ;At midpoint?
2EF1 BB         22650          CP      E
2EF2 2002       22660          JR      NZ,CLSBU4      ;Skip if not
2EF4 1E20       22670          LD      E,20H          ;Adjust DEC row #
2EF6 10E6       22680 CLSBU4   DJNZ    CLSBU1
2EF8 FD5609     22690          LD      D,(IY+9)       ;Ok to backup SYSTEM
2EFB 1E01       22700          LD      E,1            ;Init to HIT sector
2EFD 210036     22710          LD      HL,HITBUF
2F00 CD6D28     22720          CALL    WRSYS          ;Write back dest HIT
2F03 3E17       22730          LD      A,23           ;Init "HIT write error
2F05 CC4F34     22740          CALL    Z,HITRD        ;Verify if write OK
2F08 C29726     22750          JP      NZ,EXIT3       ;Quit on any error
                22760 ;
                22770 ;        Set up byte 'C0' in SYSINFO sector
                22780 ;
                22790          IF      @MOD2
                22800          LD      DE,(CKPROT2)   ;Get sysinfo sector
                22810          LD      E,2            ;Force sector 2
                22820          ENDIF
                22830 ;
                22840          IF      @MOD4
2F0B 110200     22850          LD      DE,02          ;P/u Mod4 SYSINFO sect
                22860          ENDIF
                22870 ;
                22880 ;        HL => to HITBUF at this point
                22890 ;
2F0E CD7228     22900          CALL    RDSEC          ;Read the sector
2F11 2EC0       22910          LD      L,0C0H         ;Point to type flag
2F13 36FF       22920          LD      (HL),0FFH      ;Set it
2F15 2E00       22930          LD      L,0            ;Reset buffer
2F17 CD6828     22940          CALL    WRSEC          ; Write it back
                22950 ;
                22960 CLSBU5
2F1A CD1A27     22970          CALL    PMTSRC         ;Set up for source disk
2F1D CD4F34     22980          CALL    HITRD          ;Read source HIT
2F20 C29726     22990          JP      NZ,EXIT3
                23000 ;
                23010 ;        Start the backup of files
                23020 ;
2F23 210036     23030          LD      HL,HITBUF      ;Init to start of HIT
2F26 1834       23040          JR      SCNH3          ;Branch to start
2F28 D2         23050 OPENIT   DB      'R'!80H        ;R2
```

Backup By Class

```
2F29 E1         23Ø6Ø SCNHIT  POP     HL                ;Remove top stack entry
2F2A C1         23Ø7Ø SCNH1   POP     BC                ;Recover DEC posn
2F2B 2636       23Ø8Ø         LD      H,HITBUF<-8       ;HIT buf hi-order
2F2D 68         23Ø9Ø         LD      L,B               ;  and lo-order
2F2E 7D         231ØØ SCNH2   LD      A,L               ;Get the current DEC posn
2F2F C62Ø       2311Ø         ADD     A,2ØH             ;Advance to next file on
2F31 6F         2312Ø         LD      L,A               ;  this dir sector until
2F32 3Ø28       2313Ø         JR      NC,SCNH3          ;  end, then go to next
2F34 2C         2314Ø         INC     L                 ;  dir sector in the HIT
2F35 CB6D       2315Ø         BIT     5,L               ;Did we go off the end?
2F37 2823       2316Ø         JR      Z,SCNH3           ;  (ie from 1F to 2Ø)
2F39 3EØØ       2317Ø         LD      A,Ø
2F3A            2318Ø SETBIT  EQU     $-1
2F3B B7         2319Ø         OR      A
2F3C 281B       232ØØ         JR      Z,TOEXIT1         ;If not, all done
2F3E CD8727     2321Ø         CALL    PMTDST            ;Get dest DCT in IY
2F41 21ØØ36     2322Ø         LD      HL,HITBUF
2F44 FD56Ø9     2323Ø         LD      D,(IY+9)          ;Get dir cyl
2F47 5D         2324Ø         LD      E,L               ;Point to GAT sector
2F48 CD7228     2325Ø         CALL    RDSEC             ;  & read it
2F4B FEØ6       2326Ø         CP      6
2F4D 3E14       2327Ø         LD      A,2Ø              ;Init "GAT read error
2F4F C29726     2328Ø         JP      NZ,EXIT3
2F52 2ECD       2329Ø         LD      L,ØCDH            ;Point to config byte
2F54 CBE6       233ØØ         SET     4,(HL)
2F56 CDBF33     2331Ø         CALL    WRGAT
2F59 C38526     2332Ø TOEXIT1 JP      EXIT1
                2333Ø ;
                2334Ø ;       Continue to scan the major loop
                2335Ø ;
2F5C 7E         2336Ø SCNH3   LD      A,(HL)            ;Is HIT entry spare?
2F5D B7         2337Ø         OR      A
2F5E 28CE       2338Ø         JR      Z,SCNH2           ;Loop back if so
2F6Ø 7D         2339Ø         LD      A,L
2F61 E6FE       234ØØ         AND     ØFEH              ;Bypass if BOOT or DIR
2F63 28C9       2341Ø         JR      Z,SCNH2
2F65 45         2342Ø         LD      B,L               ;Save DEC
2F66 C5         2343Ø         PUSH    BC
2F67 CD1A27     2344Ø         CALL    PMTSRC            ;Set up for source disk
2F6A FD56Ø9     2345Ø         LD      D,(IY+9)          ;P/u DIR cyl
2F6D 78         2346Ø         LD      A,B               ;Pt to dir sector of
2F6E E61F       2347Ø         AND     1FH               ;  this file
2F7Ø C6Ø2       2348Ø         ADD     A,2               ;Adj for GAT & HIT
2F72 5F         2349Ø         LD      E,A
2F73 21ØØ2C     235ØØ         LD      HL,BUF2$          ;Read dir sector
2F76 CD7228     2351Ø         CALL    RDSEC
2F79 FEØ6       2352Ø         CP      6                 ;Proper errcod?
2F7B C29226     2353Ø         JP      NZ,DIRERR
2F7E 78         2354Ø         LD      A,B               ;Pt to dir record for
2F7F E6EØ       2355Ø         AND     ØEØH              ;  the source file
2F81 6F         2356Ø         LD      L,A
2F82 262C       2357Ø         LD      H,BUF2$<-8        ;Pt to hi-order dir buf
2F84 7E         2358Ø         LD      A,(HL)            ;Ignore file if not
2F85 326D31     2359Ø         LD      (ATTRIB+1),A      ;  assigned in directory
2F88 CB67       236ØØ         BIT     4,A
2F8A 2831       2361Ø         JR      Z,NODOIT
2F8C CB7F       2362Ø         BIT     7,A               ;Ignore file if FXDE
2F8E C22A2F     2363Ø         JP      NZ,SCNH1
2F91 2C         2364Ø         INC     L                 ;Bump to DIR+1
```

Backup By Class

```
2F92 3A1226                LD      A,(MODPRM$)      ;Bypass if Mod parm
2F95 B7                    OR      A                ;  not entered
2F96 28Ø4                  JR      Z,SCNH4
2F98 CB76                  BIT     6,(HL)           ;If Mod parm and bit not set
2F9A 2821                  JR      Z,NODOIT         ;  skip the file
                   ;
2F9C CB66          SCNH4   BIT     4,(HL)           ;Check date not current
2F9E 28Ø9                  JR      Z,SCNH4A
2FAØ 3AA128                LD      A,(SVCTR)
2FA3 B7                    OR      A                ;Was date set?
2FA4 2817                  JR      Z,NODOIT         ;Bypass if not
2FA6 3C                    INC     A                ;Is date current?
2FA7 2814                  JR      Z,NODOIT         ;Bypass if not
                   ;
2FA9 2D            SCNH4A  DEC     L                ;DIR + Ø
2FAA 3A8426                LD      A,(CLSFLG$)      ;P/u CLASS parm byte
2FAD CB76                  BIT     6,(HL)           ;Bypass if not SYS file
2FAF 28Ø6                  JR      Z,CKINV
2FB1 CB77                  BIT     6,A              ;Ok, it is, was SYS used?
2FB3 28Ø8                  JR      Z,NODOIT         ;Go if no SYS parm
2FB5 18Ø9                  JR      CKNAM            ;  else back it up
2FB7 CB5E          CKINV   BIT     3,(HL)           ;Test if file is INV
2FB9 28Ø5                  JR      Z,CKNAM
2FBB CB5F                  BIT     3,A              ;File is, want INV files?
2FBD CA2A2F        NODOIT  JP      Z,SCNH1          ;Don't want invisibles
2FCØ 3AØ226        CKNAM   LD      A,(SPCFLD$)      ;Now test filespec match
2FC3 FE2Ø                  CP      ' '              ;If blank, don't bother
2FC5 2ØØ7                  JR      NZ,CKNAMØ        ;  to match, take it
2FC7 3AØA26                LD      A,(SPCFLD$+8)    ;How about the extension?
2FCA FE2Ø                  CP      ' '
2FCC 282C                  JR      Z,SCNH6          ;Go if no ext either
                   ;
                   ;       Test for a filespec match
                   ;
2FCE E5            CKNAMØ  PUSH    HL
2FCF 7D                    LD      A,L
2FDØ C6Ø5                  ADD     A,5              ;Pt to filename in dir
2FD2 6F                    LD      L,A
2FD3 11Ø226                LD      DE,SPCFLD$       ;Pt to user filespec
2FD6 Ø6ØB                  LD      B,11             ;11 char max
2FD8 1A            CKNAM1  LD      A,(DE)           ;P/u user entry
2FD9 FE24                  CP      '$'              ;Wild card character?
2FDB 28Ø8                  JR      Z,CKNAM2         ;Always matches
2FDD BE                    CP      (HL)             ;Same as filespec?
2FDE 28Ø5                  JR      Z,CKNAM2         ;Loop if so
2FEØ FE2Ø                  CP      ' '              ;Ignore any further?
2FE2 C2F22F                JP      NZ,TSTMFLG       ;If not blank, no match
2FE5 23            CKNAM2  INC     HL               ;Match so far
2FE6 13                    INC     DE
2FE7 1ØEF                  DJNZ    CKNAM1
                   ;
                   ;       Filespec class matches, check if NOT used
                   ;
2FE9 3AØD26                LD      A,(MFLG$)        ;Bypass if a match but
2FEC B7                    OR      A                ;  - exclude given
2FED C2292F                JP      NZ,SCNHIT        ;- was used, skip file
2FFØ 18Ø7                  JR      SCNH5
                   ;
2FF2 3AØD26        TSTMFLG LD      A,(MFLG$)        ;Ignore if NG match &
```

Backup By Class

```
2FF5 B7         2424Ø          OR      A               ;  no exclude given
2FF6 CA292F     2425Ø          JP      Z,SCNHIT
2FF9 E1         2426Ø SCNH5    POP     HL              ;Rcvr ptr to DIR+Ø
2FFA E5         2427Ø SCNH6    PUSH    HL
                2428Ø ;
                2429Ø ;        Now check if date matches
                243ØØ ;
2FFB 23         2431Ø          INC     HL              ;Pt to date field
2FFC CDAE33     2432Ø          CALL    UNPACK          ;Alter date for cpr
2FFF 3AØ126     2433Ø          LD      A,(FTFLG$)
3ØØ2 Ø7         2434Ø          RLCA                    ;Tst From bit
3ØØ3 3Ø1Ø       2435Ø          JR      NC,SCNH7
3ØØ5 7A         2436Ø          LD      A,D             ;Ignore if date was
3ØØ6 B3         2437Ø          OR      E               ;  ØØ/ØØ/ØØ for file
3ØØ7 CA292F     2438Ø          JP      Z,SCNHIT
3ØØA 2A8Ø26     2439Ø          LD      HL,(FMPAKD$)    ;P/u user entry
3ØØD EB         244ØØ          EX      DE,HL
3ØØE CD8233     2441Ø          CALL    CPHLDE          ;HL-DE
3Ø11 EB         2442Ø          EX      DE,HL
3Ø12 DA292F     2443Ø          JP      C,SCNHIT        ;Bypass if date range bad
3Ø15 3AØ126     2444Ø SCNH7    LD      A,(FTFLG$)
3Ø18 ØF         2445Ø          RRCA                    ;Test TO bit
3Ø19 3ØØE       2446Ø          JR      NC,MATCHES      ;Go if no TOPARM else
3Ø1B 7A         2447Ø          LD      A,D             ;  ck if file is dated
3Ø1C B3         2448Ø          OR      E
3Ø1D CA292F     2449Ø          JP      Z,SCNHIT        ;Bypass if date was ØØ
3Ø2Ø 2A8226     245ØØ          LD      HL,(TOPAKD$)    ;P/u user's packed date
3Ø23 CD8233     2451Ø          CALL    CPHLDE          ;HL-DE
3Ø26 DA292F     2452Ø          JP      C,SCNHIT        ;Bypass if out of range
3Ø29 E1         2453Ø MATCHES  POP     HL
3Ø2A 7D         2454Ø DONAM    LD      A,L             ;Pt to start of dir rec
3Ø2B E6EØ       2455Ø          AND     ØEØH
3Ø2D 6F         2456Ø          LD      L,A             ;Make sure it's on stack
3Ø2E E5         2457Ø          PUSH    HL
3Ø2F C6Ø5       2458Ø          ADD     A,5             ;Pt to start of filename
3Ø31 6F         2459Ø          LD      L,A
3Ø32 111826     246ØØ          LD      DE,FCB1$        ;Move filename into fcb
3Ø35 Ø6Ø8       2461Ø          LD      B,8             ;Init 8 chars for filename
3Ø37 7E         2462Ø DONAM1   LD      A,(HL)          ;P/u a char from the dir
3Ø38 FE2Ø       2463Ø          CP      ' '             ;Space = end of name
3Ø3A 28Ø5       2464Ø          JR      Z,DONAM2
3Ø3C 12         2465Ø          LD      (DE),A          ;Move char to FCB
3Ø3D 23         2466Ø          INC     HL              ;Bump both ptrs
3Ø3E 13         2467Ø          INC     DE
3Ø3F 1ØF6       2468Ø          DJNZ    DONAM1          ;Loop for more
3Ø41 7D         2469Ø DONAM2   LD      A,L             ;Pt to file extension
3Ø42 8Ø         247ØØ          ADD     A,B             ;  by adding the
3Ø43 6F         2471Ø          LD      L,A             ;  loop remainder
3Ø44 7E         2472Ø          LD      A,(HL)
3Ø45 FE2Ø       2473Ø          CP      ' '
3Ø47 281Ø       2474Ø          JR      Z,DONAM5        ;Bypass if none there
3Ø49 3E2F       2475Ø          LD      A,'/'           ;  else set separator
3Ø4B 12         2476Ø          LD      (DE),A          ;  into the FCB
3Ø4C 13         2477Ø          INC     DE
3Ø4D Ø6Ø3       2478Ø          LD      B,3             ;Now move in ext
3Ø4F 7E         2479Ø DONAM4   LD      A,(HL)          ;P/u ext char
3Ø5Ø FE2Ø       248ØØ          CP      ' '             ;End if no more
3Ø52 28Ø5       2481Ø          JR      Z,DONAM5
3Ø54 12         2482Ø          LD      (DE),A          ;Put in in the FCB
```

Backup By Class

```
3Ø55 23        2483Ø          INC     HL               ;Bump both ptrs
3Ø56 13        2484Ø          INC     DE
3Ø57 1ØF6      2485Ø          DJNZ    DONAM4           ;Loop for more
3Ø59 3EØ3      2486Ø DONAM5   LD      A,3              ;Terminate with ETX
3Ø5B 12        2487Ø          LD      (DE),A
3Ø5C D5        2488Ø          PUSH    DE               ;Save pointer to spec end
               2489Ø ;
               249ØØ ;        Check for NEW or OLD option
               2491Ø ;
3Ø5D 3A1Ø26    2492Ø          LD      A,(OLDPRM$)      ;P/u parm & merge
3Ø6Ø 21ØE26    2493Ø          LD      HL,NEWPRM$       ;  with new
3Ø63 B6        2494Ø          OR      (HL)             ;If neither, bypass
3Ø64 284F      2495Ø          JR      Z,BYPASS
3Ø66 211826    2496Ø          LD      HL,FCB1$         ;Save current spec
3Ø69 115826    2497Ø          LD      DE,FCB3$
3Ø6C Ø12ØØØ    2498Ø          LD      BC,32
3Ø6F EDBØ      2499Ø          LDIR
3Ø71 D1        25ØØØ          POP     DE               ;Recover spec end
3Ø72 D5        25Ø1Ø          PUSH    DE               ;  needed to add drivespec
3Ø73 CD8833    25Ø2Ø          CALL    MAKSPC           ;Make it a file spec
3Ø76 CD4634    25Ø3Ø          CALL    GETDST           ;Bring in the dest disk
3Ø79 2A1626    25Ø4Ø          LD      HL,(BUFFER$)     ;Buffer is irrelevant
3Ø7C 113826    25Ø5Ø          LD      DE,FCB2$         ;Pt to dest spec
3Ø7F FDE5      25Ø6Ø          PUSH    IY
3Ø81           25Ø7Ø          @@FLAGS                  ;IY => flag table base
3Ø81 3E65      ØØ186          LD      A,1Ø1
3Ø83 EF        ØØ187          RST     4Ø
3Ø84 FDCB12C6  25Ø8Ø          SET     Ø,(IY+'S'-'A')   ;Inhibit file open bit
3Ø88 FDE1      25Ø9Ø          POP     IY
3Ø8A           251ØØ          @@OPEN                   ;Attempt to open
3Ø8A 3E3B      ØØ188          LD      A,59
3Ø8C EF        ØØ189          RST     4Ø
3Ø8D D1        2511Ø          POP     DE               ;Keep stack proper
3Ø8E 2812      2512Ø          JR      Z,CKOLD          ;If file exists, ck OLD
3Ø9Ø FE19      2513Ø          CP      25               ;File access denied?
3Ø92 28ØE      2514Ø          JR      Z,CKOLD          ;  means it exists
3Ø94 FE18      2515Ø          CP      24               ;File not found?
3Ø96 C2292F    2516Ø          JP      NZ,SCNHIT        ;Ignore if not
3Ø99 3AØE26    2517Ø          LD      A,(NEWPRM$)      ;Check if NEW  requested
3Ø9C B7        2518Ø          OR      A
3Ø9D 2ØØA      2519Ø          JR      NZ,GODOIT        ;Go if NEW & not found
3Ø9F C3292F    252ØØ          JP      SCNHIT
3ØA2 3A1Ø26    2521Ø CKOLD    LD      A,(OLDPRM$)      ;Was found, backup old
3ØA5 B7        2522Ø          OR      A                ; files this time?
3ØA6 CA292F    2523Ø          JP      Z,SCNHIT         ;Ignore if not OLD
3ØA9 D5        2524Ø GODOIT   PUSH    DE
3ØAA 215826    2525Ø          LD      HL,FCB3$         ;Recover the original
3ØAD 111826    2526Ø          LD      DE,FCB1$         ;  file name
3ØBØ Ø12ØØØ    2527Ø          LD      BC,32
3ØB3 EDBØ      2528Ø          LDIR
               2529Ø ;
               253ØØ ;        Check if prompting or not (Q parm)
               2531Ø ;
3ØB5 3A1526    2532Ø BYPASS   LD      A,(QPARM$+1)     ;Query each file?
3ØB8 B7        2533Ø          OR      A
3ØB9 CA4931    2534Ø          JP      Z,NOPRMPT        ;Not if not entered
3ØBC           2535Ø          @@DSPLY QUERY            ;"backup filespec ?
               ØØ19Ø          IFEQ    Ø1H,1
3ØBC 217534    ØØ191          LD      HL,QUERY
```

Backup By Class

```
                         ENDIF
30BF 3E0A                LD      A,10
30C1 EF                  RST     40
                  ;
                  ;      Display file info for user decision
                  ;
30C2 D1                  POP     DE               ;Rcvr ptr to file buf
30C3 E1                  POP     HL               ;Rcvr ptr to 1st dir byte
30C4 D5                  PUSH    DE
30C5 23                  INC     HL               ;Pt to MOD bit
30C6 CB76                BIT     6,(HL)           ;Test MOD flag
30C8 2808                JR      Z,SCDAT1         ;Go if not set
30CA 3E20                LD      A,' '            ;Put a space
30CC 12                  LD      (DE),A
30CD 13                  INC     DE
30CE 3E2B                LD      A,'+'
30D0 12                  LD      (DE),A           ;Display '+' if MOD
30D1 13                  INC     DE
30D2 3E20         SCDAT1 LD      A,' '            ;Write a space
30D4 12                  LD      (DE),A
30D5 13                  INC     DE
30D6 23                  INC     HL               ;Advance to date field
30D7 EB                  EX      DE,HL
30D8 367B                LD      (HL),'{'         ;Stuff left brace
30DA 23                  INC     HL
30DB EB                  EX      DE,HL
30DC 7E                  LD      A,(HL)           ;If no date, then skip
30DD B7                  OR      A
30DE 283D                JR      Z,SCDAT4         ;Ignore if no date saved
30E0 0F                  RRCA                     ;Has date, get day
30E1 0F                  RRCA
30E2 0F                  RRCA
30E3 E61F                AND     1FH
30E5 062F                LD      B,2FH            ;Convert day to decimal
30E7 04           SCDAT2 INC     B                ;  by counting # of 10's
30E8 D60A                SUB     10               ;Sub 10 from day #
30EA 30FB                JR      NC,SCDAT2
30EC C63A                ADD     A,3AH            ;Cvrt lo order to ASCII
30EE F5                  PUSH    AF               ;Save day low order
30EF 78                  LD      A,B              ;Stuff day hi order
30F0 12                  LD      (DE),A
30F1 13                  INC     DE               ;Bump
30F2 F1                  POP     AF               ;Rcvr lo order day #
30F3 12                  LD      (DE),A           ;Stuff low order
30F4 13                  INC     DE               ;Bump pointer to msg
30F5 3E2D                LD      A,'-'
30F7 12                  LD      (DE),A           ;Stuff '-'
30F8 13                  INC     DE               ;Pt t0 month field
30F9 E5                  PUSH    HL               ;Save DIR ptr
30FA F5                  PUSH    AF               ;Save separator char
30FB 2B                  DEC     HL               ;Pt to DIR+1 (month+)
30FC 7E                  LD      A,(HL)           ;P/u month etc
30FD E60F                AND     0FH              ;Strip off flags
30FF 3D                  DEC     A                ;(mon-1)*3 to index
3100 4F                  LD      C,A              ;   string conversion table
3101 07                  RLCA                     ;X2
3102 81                  ADD     A,C              ;X3
3103 4F                  LD      C,A              ;Results to BC
3104 0600                LD      B,0
```

Backup By Class

```
31Ø6 217335    2592Ø          LD      HL,MONTBL        ;Ptr to month names
31Ø9 Ø9        2593Ø          ADD     HL,BC            ;Add offset to tbl start
31ØA ØEØ3      2594Ø          LD      C,3
31ØC EDBØ      2595Ø          LDIR                     ;Move 3-char month
31ØE F1        2596Ø          POP     AF
31ØF 12        2597Ø          LD      (DE),A
311Ø 13        2598Ø          INC     DE               ;Advance to year field
3111 3E38      2599Ø          LD      A,'8'            ;Stuff 8 of 198Ø
3113 12        26ØØØ          LD      (DE),A
3114 13        26Ø1Ø          INC     DE               ;Bump msg ptr
3115 E1        26Ø2Ø          POP     HL               ;Rcvr DIR+2
3116 7E        26Ø3Ø          LD      A,(HL)           ;P/u year field
3117 E6Ø7      26Ø4Ø          AND     7                ;Remove day
3119 C63Ø      26Ø5Ø          ADD     A,'Ø'            ;Cvrt to ASCII
311B 12        26Ø6Ø          LD      (DE),A           ;Stuff -> msg
311C 13        26Ø7Ø          INC     DE
311D 3EØ3      26Ø8Ø SCDAT4   LD      A,3              ;Show etx for display
311F 12        26Ø9Ø          LD      (DE),A
312Ø           261ØØ          @@DSPLY FCB1$            ;Display filename
               ØØ195          IFEQ    Ø1H,1
312Ø 211826    ØØ196          LD      HL,FCB1$
               ØØ197          ENDIF
3123 3EØA      ØØ198          LD      A,1Ø
3125 EF        ØØ199          RST     4Ø
3126           2611Ø          @@DSPLY QMARK$           ;" } ? "
               ØØ2ØØ          IFEQ    Ø1H,1
3126 216E35    ØØ2Ø1          LD      HL,QMARK$
               ØØ2Ø2          ENDIF
3129 3EØA      ØØ2Ø3          LD      A,1Ø
312B EF        ØØ2Ø4          RST     4Ø
312C 2A1626    2612Ø          LD      HL,(BUFFER$)     ;Get user response
312F Ø1ØØØ3    2613Ø          LD      BC,3<8           ;3 char max
3132           2614Ø          @@KEYIN
3132 3EØ9      ØØ2Ø5          LD      A,9
3134 EF        ØØ2Ø6          RST     4Ø
3135 DAAC26    2615Ø          JP      C,ABRTBU         ;Quit on Break
3138 7E        2616Ø          LD      A,(HL)           ;Get the 1st char
3139 CBAF      2617Ø          RES     5,A              ;Strip lc if present
313B FE59      2618Ø          CP      'Y'              ;Yes means move the file
313D 28Ø8      2619Ø          JR      Z,CPYMSG         ;Go if so
               262ØØ ;
               2621Ø ;        Accept 'C' for response to set QUERY=N
               2622Ø ;
313F D643      2623Ø          SUB     'C'              ;Was response "C"?
3141 C2292F    2624Ø          JP      NZ,SCNHIT        ;Don't backup if not
3144 321526    2625Ø          LD      (QPARM$+1),A     ;Set QUERY=N
3147 E3        2626Ø CPYMSG   EX      (SP),HL          ;Place dummy HL below
3148 E5        2627Ø          PUSH    HL               ;  FCB1$ ETX pointer
               2628Ø ;
               2629Ø ;        Display copying file info
               263ØØ ;
3149           2631Ø NOPRMPT  @@CKBRKC                 ;Ck if BREAK
3149 3E6A      ØØ2Ø7          LD      A,1Ø6
314B EF        ØØ2Ø8          RST     4Ø
314C C2AC26    2632Ø          JP      NZ,ABRTBU        ;Quit if so
314F           2633Ø          @@LOGOT CPYFIL$          ;"copying file...
               ØØ2Ø9          IFEQ    Ø1H,1
314F 216534    ØØ21Ø          LD      HL,CPYFIL$
               ØØ211          ENDIF
```

Backup By Class

```
3152 3EØC                 LD      A,12
3154 EF                   RST     4Ø
3155 E1                   POP     HL              ;Get pointer where ETX
3156 36ØD                 LD      (HL),CR         ;  is & replace with CR
3158 E5                   PUSH    HL
3159                      @@LOGOT FCB1$           ;Display the filespec
                          IFEQ    Ø1H,1
3159 211826               LD      HL,FCB1$
                          ENDIF
315C 3EØC                 LD      A,12
315E EF                   RST     4Ø
315F D1                   POP     DE              ;Rcvr ptr to CR
316Ø E1                   POP     HL
                 ;
                 ;        Put in the drive spec
                 ;
3161 CD8833      DOBU     CALL    MAKSPC          ;Make the filespec
3164 C1                   POP     BC              ;Get DEC of source
3165 C5                   PUSH    BC
3166 78                   LD      A,B             ;Test if a SYS DEC
3167 E6D8                 AND     ØD8H
3169 C23A32               JP      NZ,DOFILØ       ;Jump if not SYS
316C 3EØØ        ATTRIB   LD      A,Ø             ;P/u attribute byte
316E CB77                 BIT     6,A             ;Don't do if not SYS
317Ø CA3A32               JP      Z,DOFILØ
                 ;
                 ;        Routine to copy over SYS files
                 ;
3173 CD8727               CALL    PMTDST          ;Prompt dest drive
3176 FD56Ø9               LD      D,(IY+9)        ;P/u dir cyl of dest
3179 78                   LD      A,B             ;Get DEC & calc sector
317A E61F                 AND     1FH
317C C6Ø2                 ADD     A,2             ;Adj for GAT & HIT
317E 5F                   LD      E,A
317F 2A1626               LD      HL,(BUFFER$)    ;P/u buffer addr
3182 CD7228               CALL    RDSEC           ;Read dir sect
3185 FEØ6                 CP      6               ;Proper errcod?
3187 C29226               JP      NZ,DIRERR
318A 78                   LD      A,B             ;Pt to 1st byte of
318B E6EØ                 AND     ØEØH            ;  dir record
318D 6F                   LD      L,A
318E CB66                 BIT     4,(HL)          ;Go if already assigned
319Ø 2Ø19                 JR      NZ,DOSYS1
3192 365F                 LD      (HL),5FH        ;Show assigned, SYS, INV
3194 23                   INC     HL              ;  & no access
3195 36ØØ                 LD      (HL),Ø          ;Zero out DIR+1 to DIR+4
3197 54                   LD      D,H
3198 5D                   LD      E,L
3199 13                   INC     DE
319A Ø1Ø3ØØ               LD      BC,3
319D EDBØ                 LDIR
319F 7D                   LD      A,L             ;Pt HL to DIR+16
31AØ C6ØC                 ADD     A,12
31A2 6F                   LD      L,A
31A3 3C                   INC     A
31A4 5F                   LD      E,A             ;Pt DE to DIR+17
31A5 36FF                 LD      (HL),ØFFH       ;Stuff X'FF' into extent
31A7 ØEØF                 LD      C,15            ;  & pswd fields
31A9 EDBØ                 LDIR
```

Backup By Class

```
31AB 7D         2686Ø DOSYS1  LD      A,L              ;Pt HL to Dir+Ø
31AC E6EØ       2687Ø         AND     ØEØH             ;  of dest
31AE CB76       2688Ø         BIT     6,(HL)           ;Guard against writing
31BØ CAE72E     2689Ø         JP      Z,NOTSYS         ;  over a non-SYS file
31B3 C6Ø5       269ØØ         ADD     A,5              ;Pt to name field
31B5 6F         2691Ø         LD      L,A
31B6 5F         2692Ø         LD      E,A              ;Pt DE to name field of
31B7 262C       2693Ø         LD      H,BUF2$<-8       ;  destination
31B9 3A1726     2694Ø         LD      A,(BUFFER$+1)    ;P/u buffer hi-order addr
31BC 57         2695Ø         LD      D,A
31BD Ø1ØDØØ     2696Ø         LD      BC,13            ;Move name/ext into dest
31CØ EDBØ       2697Ø         LDIR
31C2 FD56Ø9     2698Ø         LD      D,(IY+9)         ;P/u dir cyl of dest
31C5 C1         2699Ø         POP     BC               ;Rcvr DEC of source
31C6 C5         27ØØØ         PUSH    BC
31C7 78         27Ø1Ø         LD      A,B              ;Calc dir sector for
31C8 E61F       27Ø2Ø         AND     1FH              ;  source SYS module
31CA C6Ø2       27Ø3Ø         ADD     A,2
31CC 5F         27Ø4Ø         LD      E,A
31CD 2A1626     27Ø5Ø         LD      HL,(BUFFER$)     ;P/u buffer ptr for dest
31DØ CD6D28     27Ø6Ø         CALL    WRSYS            ;Write the dir to dest
31D3 3E12       27Ø7Ø         LD      A,18             ;Init "Dir write error
31D5 C29726     27Ø8Ø         JP      NZ,EXIT3         ;  and quit on bad write
                27Ø9Ø ;
                271ØØ ;       The HIT entries were transferred prior
                2711Ø ;
31D8 C1         2712Ø         POP     BC               ;Rcvr DEC of source
31D9 C5         2713Ø         PUSH    BC
31DA 78         2714Ø         LD      A,B              ;Test for SYSØ
31DB FEØ2       2715Ø         CP      2
31DD C23A32     2716Ø         JP      NZ,DOFILØ        ;Bypass if not SYSØ
31EØ CD1A27     2717Ø         CALL    PMTSRC           ;Prompt source
                2718Ø         IF      @MOD4
31E3 Ø61Ø       2719Ø         LD      B,16             ;Init to xfer BOOT track
31E5 11ØØØØ     272ØØ         LD      DE,Ø             ;Init track Ø, sector Ø
                2721Ø         ENDIF
                2722Ø         IF      @MOD2
                2723Ø         LD      DE,(PROTSEC)     ;Get sysinfo sector
                2724Ø         LD      A,D
                2725Ø         OR      A
                2726Ø         LD      B,5
                2727Ø         JR      Z,NBTSEC2
                2728Ø         LD      B,16
                2729Ø NBTSEC2 LD      E,Ø
                273ØØ         ENDIF
                2731Ø ;
31E8 2A1626     2732Ø         LD      HL,(BUFFER$)     ;Set disk buffer
31EB CD7228     2733Ø RDBOOT  CALL    RDSEC            ;Read sector and
31EE C29726     2734Ø         JP      NZ,EXIT3         ;  quit on error
31F1 24         2735Ø         INC     H                ;Pt to next block
31F2 1C         2736Ø         INC     E                ;Point to next sector
31F3 1ØF6       2737Ø         DJNZ    RDBOOT           ;Continue reading boot
                2738Ø ;
                2739Ø ;       Turn off CONFIG on destination disk
                274ØØ ;
31F5 2A1626     2741Ø         LD      HL,(BUFFER$)     ;Start cyl image
31F8 11Ø1Ø2     2742Ø         LD      DE,1ØØH*2+1      ;Offset to sector 2 +1
31FB 19         2743Ø         ADD     HL,DE            ;HL => config byte
31FC 36C9       2744Ø         LD      (HL),ØC9H        ;Config off
```

```
             ;
31FE CD8727  DOSYS2  CALL    PMTDST          ;Prompt destination
                     IF      @MOD4
32Ø1 Ø61Ø            LD      B,16            ;Sector count for boot
32Ø3 11ØØØØ          LD      DE,Ø            ;Init track and sector Ø
                     ENDIF
                     IF      @MOD2
                     LD      DE,(CKPROT2)    ;Get dest cyl number
                     LD      A,(PROTSEC+1)
                     LD      B,5             ;Default 5 sectors
                     OR      A
                     JR      Z,NBTSECS
                     AND     D
                     JR      Z,NBTSECS
                     LD      B,16            ;Use 16 sectors
             NBTSECS LD      E,Ø
                     ENDIF
32Ø6 2A1626          LD      HL,(BUFFER$)    ;P/u buffer start
32Ø9 7B      WRBOOT  LD      A,E             ;If sector Ø or 1,
32ØA FEØ2            CP      2               ;  correct DIRCYL &
32ØC 3Ø15            JR      NC,WRBOOT2      ;  BOOT step rate
32ØE B7              OR      A
32ØF 28ØA            JR      Z,WRBOOT1       ;If sec Ø only dir cyl
             ;
3211 3AØØ26          LD      A,(BOOTST$)     ;P/u step pointer
3214 6F              LD      L,A
3215 7E              LD      A,(HL)          ;P/u BOOT step rate
3216 E6FC            AND     ØFCH            ;Strip the rate
3218 F6ØØ    BSCLS   OR      Ø               ;Merge dest rate
321A 77              LD      (HL),A
321B FD7EØ9  WRBOOT1 LD      A,(IY+9)        ;P/u DIR cyl
321E 2EØ2            LD      L,2
322Ø 77              LD      (HL),A
3221 2EØØ            LD      L,Ø             ;Restart to buf start
3223 CD6828  WRBOOT2 CALL    WRSEC           ;Write dest boot sector
3226 C29726          JP      NZ,EXIT3        ;Quit on error
3229 24              INC     H               ;Bump buffer page
322A 1C              INC     E               ;Bump sector
322B 1ØDC            DJNZ    WRBOOT
             ;
             ;       Verify this track
             ;
                     IF      @MOD4
322D Ø61Ø            LD      B,16            ;16 sector just written
322F 11ØØØØ          LD      DE,Ø            ;  on track Ø
                     ENDIF
                     IF      @MOD2
                     LD      A,(PROTSEC+1)
                     LD      B,5
                     LD      DE,(CKPROT2)
                     OR      A
                     JR      Z,NBTSEC1
                     AND     D
                     JR      Z,NBTSEC1
                     LD      B,16
             NBTSEC1 LD      E,Ø
                     ENDIF
3232 CD7728  VRBOOT  CALL    VERSEC          ;Verify a boot sector
3235 C29726          JP      NZ,EXIT3        ;Quit on an error
```

Backup By Class

```
3238 1ØF8                 DJNZ    VRBOOT
                  ;
                  ;       Mod II check if cyl Ø to be formatted on dest
                  ;
                          IF      @MOD2
                          LD      DE,(CKPROT2)    ;Get sysinfo sector
                          LD      A,(PROTSEC+1)
                          AND     D
                          JR      Z,COPYØE        ;Go if yes
                  OKWRTØ  CALL    PMTSRC          ;Get source disk
                          CALL    READØ           ;Read cyl Ø
                          JP      NZ,EXIT3        ;Go on disk error
                          CALL    PMTDST          ;Get dest disk
                          CALL    FORMATØ         ;Format cyl
                          JP      NZ,EXIT3        ;Go on disk error
                  ;
                  ;       Setup new track length into boot data
                  ;
                          LD      HL,(BUFFER$)    ;Get I/O buffer
                          PUSH    HL              ;Save start
                          INC     HL              ;+1
                          INC     HL              ;+2 (dir cyl)
                          LD      A,(IY+9)        ;Get dir cyl
                          LD      (HL),A          ;To buffer
                          INC     HL              ;+3 (boot step rate)
                          LD      A,(BSCLS+1)     ;Get step rate
                          AND     3               ;Step rate only
                          LD      (HL),A          ;Load into buffer
                          INC     HL              ;Bump
                          LD      A,(IY+7)        ;Get data
                          AND     1FH             ;Highest sector #
                          INC     A               ;Sectors / track
                          LD      (HL),A          ;To buffer
                          INC     HL              ;Bump
                          LD      A,(IY+3)        ;Get data
                          ADD     A,A             ;Density => bit 7
                          AND     8ØH             ;Keep only
                          LD      (HL),A          ;To buffer
                          POP     HL              ;HL => buffer start
                          LD      D,H             ;Pass to DE
                          LD      E,L             ;DE => buffer start
                          LD      BC,8ØH          ;Buffer length
                          ADD     HL,BC           ;HL => dest
                          EX      DE,HL           ;HL=>source, DE=>dest
                          LDIR                    ;Copy sector Ø => sec 1
                          CALL    PMTDST          ;Re-fetch DCT
                          CALL    WRITEØ          ;Write the cylinder
                          JP      NZ,EXIT3        ;Go on disk error
                  COPYØE  EQU     $
                          ENDIF
                  ;
                  ;       Routine to perform the file copy to destination
                  ;
323A 11282F       DOFILØ  LD      DE,OPENIT       ;Check the name
323D                      @@RENAM
323D 3E38                 LD      A,56
323F EF                   RST     4Ø
324Ø Ø6ØØ                 LD      B,Ø             ;Lrl = 256
3242 CD3D34               CALL    GETSRC          ;Prompt source & set fcb
```

Backup By Class

```
3245 2A1626             LD      HL,(BUFFER$)    ;Get buffer addr
3248                    @@FLAGS
3248 3E65               LD      A,1Ø1
324A EF                 RST     4Ø
324B FDCB12C6           SET     Ø,(IY+'S'-'A')  ;Inhibit file open bit
324F                    @@OPEN                  ;Open the source file
324F 3E3B               LD      A,59
3251 EF                 RST     4Ø
3252 C29726             JP      NZ,EXIT3        ;Quit on open error
                ;
                ;       Check if source file can fit on destination disk
                ;
3255 2A2426             LD      HL,(FCB1$+12)   ;P/u ERN
3258 11ØØØØ     SIZSAV  LD      DE,$-$          ;P/u disk capacity
325B AF                 XOR     A
325C ED52               SBC     HL,DE           ;If < size, then OK
325E 38Ø9               JR      C,SIZOK
326Ø 21FC34             LD      HL,SIZBIG$      ;  else file to big
3263                    @@LOGOT                 ;Inform user & continue
                        IFEQ    ØØH,1
                        LD      HL,
                        ENDIF
3263 3EØC               LD      A,12
3265 EF                 RST     4Ø
3266 C32A2F             JP      SCNH1           ;Loop back for another file
3269 11282F     SIZOK   LD      DE,OPENIT       ;Check the name
326C                    @@RENAM
326C 3E38               LD      A,56
326E EF                 RST     4Ø
326F Ø6ØØ               LD      B,Ø             ;Lrl = 256
3271 CD4634             CALL    GETDST          ;Prompt dest & set fcb
3274 2A1626             LD      HL,(BUFFER$)    ;Get buffer addr
3277                    @@INIT                  ;Init the dest
3277 3E3A               LD      A,58
3279 EF                 RST     4Ø
327A 28Ø7               JR      Z,LRLOK         ;If no error, cont.
327C FE2A               CP      42              ;Was it LRL error?
327E 28Ø3               JR      Z,LRLOK         ;Ignore if so
328Ø C39726             JP      EXIT3           ;  else real error, abort
3283 3A3F26     LRLOK   LD      A,(FCB2$+7)     ;P/u DEC of dest
3286 32FE32             LD      (DOFIL11+1),A
3289 ED4B2426           LD      BC,(FCB1$+12)   ;P/u ERN & ck for enuf
328D CDF333             CALL    WRERN           ; dest space on disk
329Ø C1                 POP     BC              ;Recover DEC
3291 68                 LD      L,B             ;Reset HL to dir
3292 262C               LD      H,BUF2$<-8
3294 C5                 PUSH    BC              ;Save DEC
3295 28Ø6               JR      Z,DOFILØ2       ;Go if there was room
3297 CD1A27             CALL    PMTSRC          ;  else make source current, loop
329A C32A3Ø             JP      DONAM           ;  back because dest was swapped
329D 7D         DOFILØ2 LD      A,L             ;Check if date current
329E E6EØ               AND     ØEØH            ;Index to proper direc
32AØ 3C                 INC     A
32A1 6F                 LD      L,A
32A2 CB66               BIT     4,(HL)          ;Check if bit set
32A4 28Ø3               JR      Z,$+5
32A6 323A2F             LD      (SETBIT),A
                ;
32A9 21ØØØØ             LD      HL,Ø
```

Backup By Class

```
32AC 224426              LD      (FCB2$+12),HL    ;Set dest ERN to Ø
32AF                     @@REW                    ;Rewind the dest
32AF 3E44                LD      A,68
32B1 EF                  RST     4Ø
32B2 2A1626     DOFILØ3  LD      HL,(BUFFER$)     ;Buffer addr
32B5 221B26     DOFILØ4  LD      (FCB1$+3),HL     ;Set buffer addr in fcb
32B8 CD3D34              CALL    GETSRC           ;Prompt source & set fcb
32BB                     @@READ                   ;Read a source file sector
32BB 3E43                LD      A,67
32BD EF                  RST     4Ø
32BE 28ØB                JR      Z,DOFILØ5        ;Go if no error
32CØ FE1C                CP      1CH              ;Eof?
32C2 2824                JR      Z,DOFILØ9        ;Yes, finished loading
32C4 FE1D                CP      1DH              ;Nrn > ern?
32C6 282Ø                JR      Z,DOFILØ9        ;Also means load done
32C8 C39726              JP      EXIT3            ;Abort on any other error
32CB 24         DOFILØ5  INC     H                ;Bump the buffer ptr
32CC 7C                  LD      A,H
32CD FEØØ       DOFILØ6  CP      $-$              ;Test out of memory
32CF 2ØE4                JR      NZ,DOFILØ4       ;Loop if more room
32D1 2A1626              LD      HL,(BUFFER$)     ;P/u buffer start
32D4 223B26     DOFILØ7  LD      (FCB2$+3),HL     ;  & set into dest fcb
32D7 CD4634              CALL    GETDST           ;Prompt dest & set fcb
32DA                     @@VER                    ;Write dest w/verify
32DA 3E49                LD      A,73
32DC EF                  RST     4Ø
32DD C29726              JP      NZ,EXIT3         ;Quit on error
32EØ 24                  INC     H                ;Bump buffer page
32E1 7C                  LD      A,H
32E2 FEØØ       DOFILØ8  CP      $-$              ;Out of memory?
32E4 2ØEE                JR      NZ,DOFILØ7       ;Write another if not
32E6 18CA                JR      DOFILØ3          ;  else back to loading
                ;
                ;        Reached the end of the source file
                ;
32E8 CDD433     DOFILØ9  CALL    LSTBUF           ;Write remaining buffer
32EB 2A2Ø26              LD      HL,(FCB1$+8)     ;P/u DEC & LRL
32EE 224Ø26              LD      (FCB2$+8),HL     ;  & stuff into dest
32F1 CD4634              CALL    GETDST           ;Set for dest fcb
32F4                     @@CLOSE                  ;Close 'er up
32F4 3E3C                LD      A,6Ø
32F6 EF                  RST     4Ø
32F7 C29726              JP      NZ,EXIT3         ;Abort on close error
                ;
                ;        Now remove the mod flag from destination
                ;         and do CLONE function
                ;
32FA FD56Ø9              LD      D,(IY+9)         ;P/u dir cyl
32FD Ø6ØØ       DOFIL11  LD      B,$-$            ;P/u DEC
32FF 78                  LD      A,B              ;Pt to dir sector
33ØØ E61F                AND     1FH
33Ø2 C6Ø2                ADD     A,2              ;Bypass GAT and HIT
33Ø4 5F                  LD      E,A
33Ø5 D5                  PUSH    DE               ;Save cyl/sect
33Ø6 2A1626              LD      HL,(BUFFER$)     ;P/u buffer addr
33Ø9 CD7228              CALL    RDSEC            ;Read the dir sect
33ØC FEØ6                CP      6                ;Proper errcod?
33ØE 3E11                LD      A,17             ;Init "Dir read error
331Ø C29726              JP      NZ,EXIT3
```

Backup By Class

```
3313 78                 LD      A,B             ;Pt to dir record
3314 E6E0               AND     0E0H
3316 5F                 LD      E,A             ;Pt to DIR lo order
3317 3A1726             LD      A,(BUFFER$+1)   ;P/u hi order buffer pos
331A 57                 LD      D,A
331B E1                 POP     HL
331C C1                 POP     BC              ;P/u DEC & buffer of src
331D C5                 PUSH    BC
331E E5                 PUSH    HL
331F 78                 LD      A,B             ;Get source DEC
3320 E6E0               AND     0E0H            ;  and pt to the direc
3322 6F                 LD      L,A             ;  of the current file
3323 262C               LD      H,BUF2$<-8
3325 2C                 INC     L               ;Pt to mod flag byte
3326 CBB6               RES     6,(HL)          ;Reset the MOD bit
3328 2D                 DEC     L               ;Point to DIR+0
3329 010500             LD      BC,5            ;Transfer up thru
332C EDB0               LDIR                    ;  DIR+4
332E 7B         BYSPACE LD      A,E             ;Point DE to the dest
332F C60B               ADD     A,11            ;  password fields
3331 5F                 LD      E,A
3332 7D                 LD      A,L             ;Point HL to the source
3333 C60B               ADD     A,11            ;  password fields
3335 6F                 LD      L,A
3336 010400             LD      BC,4            ;Move both pswds
3339 EDB0               LDIR
333B 2A1626             LD      HL,(BUFFER$)    ;P/u buffer addr
333E D1                 POP     DE              ;Rcvr cyl/sect
333F CD6D28             CALL    WRSYS           ;Write back
3342 3E12               LD      A,18            ;Init "Dir write error
3344 C29726             JP      NZ,EXIT3        ;Quit on error
                ;
                ;       Attempt to clear mod flag of source
                ;
3347 3E00       DOFIL12 LD      A,0             ;Test for write prot src
3349 B7                 OR      A               ;Which implies, can't
334A C22A2F             JP      NZ,SCNH1        ;  clear mod flags
334D C1                 POP     BC              ;P/u DEC of source
334E C5                 PUSH    BC
334F 78                 LD      A,B             ;Clear mod flag on source
3350 E6E0               AND     0E0H            ;Dir sector is resident
3352 3C                 INC     A               ;In a buffer at BUF2
3353 6F                 LD      L,A
3354 262C               LD      H,BUF2$<-8
3356 CBB6               RES     6,(HL)          ;Reset mod bit
3358 CD1A27             CALL    PMTSRC          ;Set for source i/o
335B FD5609             LD      D,(IY+9)        ;P/u dir cyl
335E 78                 LD      A,B             ;Pt to dir sect of source
335F E61F               AND     1FH
3361 C602               ADD     A,2             ;Adjust for GAT and HIT
3363 5F                 LD      E,A
3364 21002C             LD      HL,BUF2$
3367 CD6D28             CALL    WRSYS           ;Write it back
336A CA2A2F             JP      Z,SCNH1         ;Back on good write
336D FE0F               CP      15              ;Accept only "write prot error
336F 3E12               LD      A,18            ;Any other, "Dir write error
3371 C29726             JP      NZ,EXIT3        ;  and quit
3374 3EFF               LD      A,0FFH          ;Turn off clear mod
3376 324833             LD      (DOFIL12+1),A   ;  flag test
```

Backup By Class

```
3379                     @@LOGOT CCMOD$          ;"can't clear...
                         IFEQ    Ø1H,1
3379 21C629              LD      HL,CCMOD$
                         ENDIF
337C 3EØC                LD      A,12
337E EF                  RST     4Ø
337F C32A2F              JP      SCNH1           ;Loop to next file
                 ;
                 ;       Routine to compare HL to DE, ret Z if equal
                 ;
3382 7C          CPHLDE  LD      A,H             ;Test H=D
3383 92                  SUB     D
3384 CØ                  RET     NZ              ;Back if not
3385 7D                  LD      A,L             ;Test L=E
3386 93                  SUB     E
3387 C9                  RET                     ;Back with condition
                 ;
                 ;       Routine to construct filespec from name/ext
                 ;
3388 3E3A        MAKSPC  LD      A,':'           ;Prepare for drivespec
338A 12                  LD      (DE),A
338B 13                  INC     DE
338C D5                  PUSH    DE              ;Save pointer
338D 3A7B27              LD      A,(DSTDRV$+1)   ;P/u dest drive #
339Ø E6Ø7                AND     7               ;Cvrt to ASCII
3392 C63Ø                ADD     A,'Ø'
3394 12                  LD      (DE),A          ; & stuff at filespec end
3395 13                  INC     DE
3396 3EØ3                LD      A,3             ;Terminate with ETX
3398 12                  LD      (DE),A
3399 211826              LD      HL,FCB1$        ;Copy source fcb to
339C 113826              LD      DE,FCB2$        ;  dest fcb
339F Ø12ØØØ              LD      BC,32
33A2 EDBØ                LDIR
33A4 D1                  POP     DE              ;Rcvr where source spec
33A5 3AØE27              LD      A,(SRCDRV$+1)   ;P/u source drive #
33A8 E6Ø7                AND     7               ;Cvrt to ASCII
33AA C63Ø                ADD     A,'Ø'
33AC 12                  LD      (DE),A          ;Stuff in dest fcb
33AD C9                  RET
                 ;
                 ;       Routine to extract date from directory
                 ;
33AE 7E          UNPACK  LD      A,(HL)          ;P/u DIR+1
33AF E6ØF                AND     ØFH             ;Remove flags
33B1 57                  LD      D,A             ;Save month
33B2 23                  INC     HL              ;Pt to DIR+2
33B3 7E                  LD      A,(HL)          ;P/u day and year
33B4 E6F8                AND     ØF8H            ;Strip year
33B6 5F                  LD      E,A             ;Save day in E
33B7 7E                  LD      A,(HL)          ;Get the year back
33B8 AB                  XOR     E               ;Strip the day
33B9 ØF                  RRCA                    ;Shift year to 5-7
33BA ØF                  RRCA
33BB ØF                  RRCA
33BC B2                  OR      D               ;Merge with month
33BD 57                  LD      D,A
33BE C9                  RET
                 ;
```

Backup By Class

```
                ;       Write the GAT back to disk
                ;
33BF 2EØØ       WRGAT   LD      L,Ø             ;HL to start of buffer
33C1 CD6D28             CALL    WRSYS           ;Write dir sector
33C4 3E15               LD      A,21            ;Init GAT write error
33C6 C29726             JP      NZ,EXIT3        ;  and quit on error
33C9 CD7728             CALL    VERSEC          ;Verify good write
33CC FEØ6               CP      6               ;Expect error 6
33CE 3E14               LD      A,2Ø            ;Init GAT read error
33DØ C29726             JP      NZ,EXIT3        ;Quit on any other error
33D3 C9                 RET
                ;
                ;       Write last buffer if needed
                ;
33D4 3A1726     LSTBUF  LD      A,(BUFFER$+1)   ;P/u hi order buffer start
33D7 BC                 CP      H               ;Are we there now?
33D8 C8                 RET     Z               ;Back if so, nothing loaded
33D9 3EØØ       LSTBUF1 LD      A,$-$           ;P/u last available page
33DB BC                 CP      H               ;There now?
33DC C8                 RET     Z               ;Already written if so
33DD 44                 LD      B,H             ;Need to write to this page
33DE 2A1626             LD      HL,(BUFFER$)    ;P/u buffer start
33E1 223B26     LSTBUF2 LD      (FCB2$+3),HL    ;  and put in dest fcb
33E4 CD4634             CALL    GETDST          ;Prompt dest
33E7                    @@VER                   ;Write with verify
33E7 3E49               LD      A,73
33E9 EF                 RST     4Ø
33EA C29726             JP      NZ,EXIT3        ;Quit on bad write
33ED 24                 INC     H               ;Bump buffer page
33EE 7C                 LD      A,H
33EF B8                 CP      B               ;At the end?
33FØ 2ØEF               JR      NZ,LSTBUF2      ;Loop if more
33F2 C9                 RET
                ;
                ;       Check if enough space on destination disk
                ;
33F3 78         WRERN   LD      A,B             ;If ERN = Ø, don't
33F4 B1                 OR      C               ; write a ERN
33F5 C8                 RET     Z
33F6 ØB                 DEC     BC              ;Adjust for Ø offset
33F7 CD4634             CALL    GETDST          ;Prompt dest
33FA D5                 PUSH    DE              ;Save fcb pointer
33FB                    @@POSN                  ;Position to end
33FB 3E42               LD      A,66
33FD EF                 RST     4Ø
33FE 2A1626             LD      HL,(BUFFER$)    ;P/u buffer addr
34Ø1 54                 LD      D,H             ;Construct a format
34Ø2 5D                 LD      E,L             ;  sector of all X'E5's
34Ø3 13                 INC     DE
34Ø4 Ø1FFØØ             LD      BC,255
34Ø7 36E5               LD      (HL),ØE5H
34Ø9 EDBØ               LDIR
34ØB D1                 POP     DE              ;Rcvr fcb ptr
34ØC                    @@VER                   ;Write with verify
34ØC 3E49               LD      A,73
34ØE EF                 RST     4Ø
34ØF C8                 RET     Z               ;Ret if no error
341Ø FE1B               CP      27              ;Disk Full?
3412 2Ø26               JR      NZ,NOTDF        ;No - quit on real error
```

Backup By Class

```
3414             3124Ø           @@REMOV                   ;Remove what can't fit
3414 3E39        ØØ253           LD      A,57
3416 EF          ØØ254           RST     4Ø
3417 FDCBØ35E 3125Ø              BIT     3,(IY+3)          ;Is this a rigid disk?
341B 28ØB        3126Ø           JR      Z,NOTHARD         ;Go if not
341D FDCBØ356 3127Ø              BIT     2,(IY+3)          ;Shown as Removable?
3421 28Ø5        3128Ø           JR      Z,NOTHARD         ;Prompt disk swap if so
3423 217D34      3129Ø           LD      HL,FULDRV$        ;Prepare disk full error
3426 183A        313ØØ           JR      DOING1
3428             3131Ø NOTHARD @@FLAGS
3428 3E65        ØØ255           LD      A,1Ø1
342A EF          ØØ256           RST     4Ø
342B FDCB126E 3132Ø              BIT     5,(IY+'S'-'A')  ;Can't switch while DOing
342F 2Ø2E        3133Ø           JR      NZ,DOING
3431 218B34      3134Ø           LD      HL,NEWDISK        ;"disk full, enter new...
3434 CDD327      3135Ø           CALL    FLASH
3437 F6Ø1        3136Ø           OR      1                 ;Show switched dest
3439 C9          3137Ø           RET
343A             3138Ø NOTDF     EQU     $
343A C39726      3139Ø           JP      EXIT3             ;Error exit
                 314ØØ ;
343D C5          3141Ø GETSRC    PUSH    BC
343E 111826      3142Ø           LD      DE,FCB1$          ;Pt to source FCB
3441 CD1A27      3143Ø           CALL    PMTSRC            ;Show source is current
3444 C1          3144Ø           POP     BC                ;  for disk I/O
3445 C9          3145Ø           RET
                 3146Ø ;
3446 C5          3147Ø GETDST    PUSH    BC
3447 113826      3148Ø           LD      DE,FCB2$          ;Pt to dest FCB
344A CD8727      3149Ø           CALL    PMTDST            ;Show dest is current
344D C1          315ØØ           POP     BC                ;  for disk I/O
344E C9          3151Ø           RET
                 3152Ø ;
344F FD56Ø9      3153Ø HITRD     LD      D,(IY+9)          ;P/u dir cyl of source
3452 1EØ1        3154Ø           LD      E,1               ;Read HIT
3454 21ØØ36      3155Ø           LD      HL,HITBUF         ;Into HIT buffer
3457 CD7228      3156Ø           CALL    RDSEC
345A FEØ6        3157Ø           CP      6                 ;Errcod correct?
345C 3E17        3158Ø           LD      A,17H             ;Init "HIT read error
345E C9          3159Ø           RET                       ;Return w/condition
                 316ØØ ;
345F 21CA34      3161Ø DOING     LD      HL,DOMSG
3462 C3AF26      3162Ø DOING1    JP      EXIT4
                 3163Ø ;
3465 1D          3164Ø CPYFIL$ DB        29,'Copying file: ',3
     43 6F 7Ø 79 69 6E 67 2Ø
     66 69 6C 65 3A 2Ø Ø3
3475 42          3165Ø QUERY     DB      'Backup ',3
     61 63 6B 75 7Ø 2Ø Ø3
347D 44          3166Ø FULDRV$ DB        'Disk is full ',CR
     69 73 6B 2Ø 69 73 2Ø 66
     75 6C 6C 2Ø ØD
348B 44          3167Ø NEWDISK DB        'Disk is full - Insert new formatted '
     69 73 6B 2Ø 69 73 2Ø 66
     75 6C 6C 2Ø 2D 2Ø 49 6E
     73 65 72 74 2Ø 6E 65 77
     2Ø 66 6F 72 6D 61 74 74
     65 64 2Ø
34AF 64          3168Ø           DB      'destination disk, <ENTER>',29,3
```

Backup By Class

```
     65 73 74 69 6E 61 74 69
     6F 6E 2Ø 64 69 73 6B 2C
     2Ø 3C 45 4E 54 45 52 3E
     1D Ø3
34CA 44          3169Ø DOMSG    DB      'Disk is full! - Can''t switch '
     69 73 6B 2Ø 69 73 2Ø 66
     75 6C 6C 21 2Ø 2D 2Ø 43
     61 6E 27 74 2Ø 73 77 69
     74 63 68 2Ø
34E7 77          317ØØ          DB      'while <DO> in effect',CR
     68 69 6C 65 2Ø 3C 44 4F
     3E 2Ø 69 6E 2Ø 65 66 66
     65 63 74 ØD
34FC 2Ø          3171Ø SIZBIG$ DB       '  File is larger than destination '
     2Ø 46 69 6C 65 2Ø 69 73
     2Ø 6C 61 72 67 65 72 2Ø
     74 68 61 6E 2Ø 64 65 73
     74 69 6E 61 74 69 6F 6E
     2Ø
351E 63          3172Ø          DB      'capacity - backup is bypassed',CR
     61 7Ø 61 63 69 74 79 2Ø
     2D 2Ø 62 61 63 6B 75 7Ø
     2Ø 69 73 2Ø 62 79 7Ø 61
     73 73 65 64 ØD
353C 43          3173Ø NOTSYS$ DB       'Can''t create SYSTEM disk - '
     61 6E 27 74 2Ø 63 72 65
     61 74 65 2Ø 53 59 53 54
     45 4D 2Ø 64 69 73 6B 2Ø
     2D 2Ø
3557 64          3174Ø          DB      'directory slots in use',CR
     69 72 65 63 74 6F 72 79
     2Ø 73 6C 6F 74 73 2Ø 69
     6E 2Ø 75 73 65 ØD
356E 7D          3175Ø QMARK$   DB      '} ? ',3
     2Ø 3F 2Ø Ø3
3573 4A          3176Ø MONTBL   DM      'JanFebMarAprMayJunJulAugSepOctNovDec'
     61 6E 46 65 62 4D 61 72
     41 7Ø 72 4D 61 79 4A 75
     6E 4A 75 6C 41 75 67 53
     65 7Ø 4F 63 74 4E 6F 76
     44 65 63
3597 A2          3177Ø SYSDEC   DB      ØA2H,ØC4H,2EH,2FH,2CH,2DH,2AH,2BH
     C4 2E 2F 2C 2D 2A 2B
359F 28          3178Ø          DB      28H,29H,26H,27H,27H,ØA7H,26H,ØA6H
     29 26 27 27 A7 26 A6
                 3179Ø ;
35A7 ØØ          318ØØ          DC      64,Ø            ;PATCH space
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ
                 3181Ø ;
36ØØ             3182Ø          ORG     $<-8+1<+8
Ø1ØØ             3183Ø HITBUF   DS      256
                 3184Ø ;
```

```
37ØØ          3185Ø         SUBTTL  '<Backup Misc. routines>'
```

Backup Misc. routines

```
                ;
0900            CLSSIZ  EQU     $-BACKUP
                ;
                ;       Establish PC for rest of BACKUP initialization
                ;
4100                    ORG     CORE$+MIRSIZ+CLSSIZ
4100                    LORG    $                   ;No offset here
                ;
                ;       Shift in Mirror or By-file module
                ;
4100 3E00       CLSTST  LD      A,0                 ;Non-zero if any option
4102 B7                 OR      A
4103 C21341             JP      NZ,MVBYCLS          ;Bypass if special
4106 210032             LD      HL,MIRBU            ;Move in standard code
4109 11002E             LD      DE,BACKUP
410C 010006             LD      BC,MIRSIZ
410F EDB0               LDIR
4111 1846               JR      SETBFR
                ;
4113 3ACF27     MVBYCLS LD      A,(SXORD+1)         ;Restrict by class
4116 B7                 OR      A                   ; if a single drive
4117 2009               JR      NZ,MVBYC1
4119 211B44             LD      HL,CLS1DB$          ;Can't by class on 1 drv
411C            MOVNOT  @@DSPLY                     ;Display the error
                        IFEQ    00H,1
                        LD      HL,
                        ENDIF
411C 3E0A               LD      A,10
411E EF                 RST     40
411F C3AC26             JP      ABRTBU              ;  and abort the backup
                ;
4122 3ACA26     MVBYC1  LD      A,(XPARM$+1)        ;By class backup requires
4125 B7                 OR      A                   ; either non (X) or residency
4126 2826               JR      Z,MVBYC2            ; of SYS 2, 3, 10, and 12
4128 110000     RESLOC  LD      DE,$-$              ;Store location (RES$)
412B 7B                 LD      A,E
412C B2                 OR      D                   ;Check if there
412D 214744             LD      HL,RESREQ$          ;Init "Must be resident
4130 28EA               JR      Z,MOVNOT            ;Error if not in use
4132 D5                 PUSH    DE                  ;OK, it's in use,
4133 DDE1               POP     IX                  ;  are all modules
4135 DD7E09             LD      A,(IX+2*2+5)        ;  present and accounted
4138 B7                 OR      A                   ;SYS2 resident?
4139 28E1               JR      Z,MOVNOT
413B DD7E0B             LD      A,(IX+3*2+5)        ;Is SYS3 resident?
413E B7                 OR      A
413F 28DB               JR      Z,MOVNOT
4141 DD7E19             LD      A,(IX+10*2+5)       ;Is SYS10 resident?
4144 B7                 OR      A
4145 28D5               JR      Z,MOVNOT
4147 DD7E1D             LD      A,(IX+12*2+5)       ;Is SYS12 resident?
414A B7                 OR      A
414B CA1C41             JP      Z,MOVNOT
414E 210038     MVBYC2  LD      HL,CLSBU            ;Move in special code
4151 11002E             LD      DE,BACKUP
4154 010009             LD      BC,CLSSIZ
4157 EDB0               LDIR
4159 1B         SETBFR  DEC     DE                  ;Set the buffer
415A 14                 INC     D                   ;  one page above the code
415B 1E00               LD      E,0
```

Backup Misc. routines

```
415D ED531626 3242Ø         LD      (BUFFER$),DE    ;  and save starting posn
4161 C3ØØ2E   3243Ø         JP      BACKUP
              3244Ø ;
              3245Ø ;       Routine to get password
              3246Ø ;
4164 CD6D41   3247Ø GETMPW  CALL    GMPW1
4167 3EE4     3248Ø         LD      A,ØE4H          ;Get SYS2 for hash
4169 EF       3249Ø         RST     28H
              325ØØ ;
416A 3E84     3251Ø GETSYS2 LD      A,84H           ;Load SYS2, no function
416C EF       3252Ø         RST     28H
              3253Ø ;
416D 7A       3254Ø GMPW1   LD      A,D             ;Pswd entered as parm?
416E B3       3255Ø         OR      E
416F 281A     3256Ø         JR      Z,GMPW3         ;Prompt if not
4171 21ØØ2D   3257Ø         LD      HL,BUF3$
4174 E5       3258Ø         PUSH    HL
4175 Ø6Ø8     3259Ø         LD      B,8
4177 1A       326ØØ GMPW2   LD      A,(DE)          ;P/u pswd character
4178 FEØD     3261Ø         CP      CR              ;At end of line?
417A 282A     3262Ø         JR      Z,GMPW4         ;Space out if yes
417C FE2C     3263Ø         CP      ','             ;Comma separator?
417E 2826     3264Ø         JR      Z,GMPW4
418Ø FE22     3265Ø         CP      '"'             ;Closing quote?
4182 2822     3266Ø         JR      Z,GMPW4
4184 13       3267Ø         INC     DE
4185 77       3268Ø         LD      (HL),A          ;Xfer the character
4186 23       3269Ø         INC     HL
4187 1ØEE     327ØØ         DJNZ    GMPW2
4189 182Ø     3271Ø         JR      GMPW5
              3272Ø ;
              3273Ø ;       Not entered as parm, grab from keyboard
              3274Ø ;
418B          3275Ø GMPW3   @@DSPLY                 ;Display request
              ØØ262         IFEQ    ØØH,1
              ØØ263         LD      HL,
              ØØ264         ENDIF
418B 3EØA     ØØ265         LD      A,1Ø
418D EF       ØØ266         RST     4Ø
418E Ø1ØØØ8   3276Ø         LD      BC,8<8          ;Max 8 chars input
4191 21ØØ2D   3277Ø         LD      HL,BUF3$        ;Point to buffer
4194 E5       3278Ø         PUSH    HL
4195          3279Ø         @@KEYIN                 ;Grab password
4195 3EØ9     ØØ267         LD      A,9
4197 EF       ØØ268         RST     4Ø
4198 DAAC26   328ØØ         JP      C,ABRTBU        ;Abort on BREAK
419B EB       3281Ø         EX      DE,HL           ;Buf start to DE
419C 26ØØ     3282Ø         LD      H,Ø             ;Buf length to HL
419E 68       3283Ø         LD      L,B
419F 19       3284Ø         ADD     HL,DE           ;Pt to 1st unused pos
41AØ 3EØ8     3285Ø         LD      A,8             ;Calculate spaces needed
41A2 9Ø       3286Ø         SUB     B
41A3 28Ø6     3287Ø         JR      Z,GMPW5         ;Don't put any if 8 input
41A5 47       3288Ø         LD      B,A             ;Set space counter
41A6 362Ø     3289Ø GMPW4   LD      (HL),' '
41A8 23       329ØØ         INC     HL
41A9 1ØFB     3291Ø         DJNZ    GMPW4
41AB E1       3292Ø GMPW5   POP     HL              ;Rcvr pointer to buf
41AC E5       3293Ø         PUSH    HL
```

Backup Misc. routines

```
41AD Ø6Ø8      3294Ø        LD      B,8             ;Loop thru field
41AF 7E        3295Ø GMPW6  LD      A,(HL)
41BØ FE61      3296Ø        CP      'a'
41B2 38Ø6      3297Ø        JR      C,GMPW7
41B4 FE7B      3298Ø        CP      'z'+1
41B6 3ØØ2      3299Ø        JR      NC,GMPW7
41B8 CBAE      33ØØØ        RES     5,(HL)          ;Lc -> UC
41BA 23        33Ø1Ø GMPW7  INC     HL
41BB 1ØF2      33Ø2Ø        DJNZ    GMPW6
41BD D1        33Ø3Ø        POP     DE              ;Rcvr pointer to start
41BE C9        33Ø4Ø        RET
               33Ø5Ø ;
               33Ø6Ø ;      Check a drive for availability
               33Ø7Ø ;
               33Ø8Ø CKDRV
41BF 3AC827    33Ø9Ø        LD      A,(CURDSK+1)    ;P/u drive spec
41C2 4F        331ØØ        LD      C,A             ;Place in C
41C3 FD7EØØ    3311Ø        LD      A,(IY+Ø)        ;P/u drive vector
41C6 FEC3      3312Ø        CP      ØC3H            ;Ck for enabled
41C8 C24242    3313Ø        JP      NZ,CKDR5        ;Bypass if disabled
41CB E5        3314Ø        PUSH    HL
41CC D5        3315Ø        PUSH    DE
41CD FD7EØ6    3316Ø        LD      A,(IY+6)        ;Make sure the current
41DØ FDBEØ5    3317Ø        CP      (IY+5)          ;  cylinder count is in range
41D3 D2DC41    3318Ø        JP      NC,CKDRV1       ;Go if in range
41D6 CD5E28    3319Ø        CALL    RESTOR          ;Restore drive
41D9 C24F42    332ØØ        JP      NZ,CKDR7A       ;Go if error
               3321Ø ;
41DC FD56Ø5    3322Ø CKDRV1 LD      D,(IY+5)        ;P/u current track
41DF 1EØØ      3323Ø        LD      E,Ø             ;Set for sector Ø
41E1           3324Ø        @@SEEK                  ;Set track info to FDC
41E1 3E2E      ØØ269        LD      A,46
41E3 EF        ØØ27Ø        RST     4Ø
41E4 2Ø69      3325Ø        JR      NZ,CKDR7A       ;Go if error
41E6 CD6328    3326Ø        CALL    RSELCT          ;Wait until not busy
41E9 2Ø64      3327Ø        JR      NZ,CKDR7A       ;Not there - ret NZ
41EB FDCBØ35E  3328Ø        BIT     3,(IY+3)        ;If hard drive, bypass
41EF 2Ø47      3329Ø        JR      NZ,CKDR3A       ;  GAT data update
41F1 FDCBØ466  333ØØ        BIT     4,(IY+4)        ;If "ALIEN" by pass
41F5 2Ø1E      3331Ø        JR      NZ,CKDR2B       ;  test of index pulses
               3332Ø        IF      @MOD4
41F7 3EØ9      3333Ø        LD      A,Ø9            ;Set MSB of count down
41F9 F3        3334Ø        DI
               3335Ø        ENDIF
               3336Ø        IF      @MOD2
               3337Ø        LD      A,2Ø
               3338Ø        ENDIF
41FA 32Ø642    3339Ø INTRON LD      (CDCNT+1),A     ;Store in 'LD H' instruction
41FD 212ØØØ    334ØØ        LD      HL,ØØ2ØH        ;Set up count (short)
               3341Ø ;
               3342Ø ;      Test for diskette in drive & rotating
               3343Ø ;
42ØØ CD4342    3344Ø CKDR1  CALL    INDEX           ;Test index pulse
42Ø3 2ØFB      3345Ø        JR      NZ,CKDR1        ;Jump on index
42Ø5 26ØØ      3346Ø CDCNT  LD      H,ØØH           ;CKDRV counter (long)
               3347Ø                                ;Count set from above
42Ø7 CD4342    3348Ø CKDR2  CALL    INDEX           ;Test index pulse
42ØA 28FB      3349Ø        JR      Z,CKDR2         ;Jump on no index
               335ØØ        IF      @MOD4
```

Backup Misc. routines

```
42ØC FB         3351Ø           EI                      ;OK for INTs now
                3352Ø           ENDIF
42ØD 212ØØØ     3353Ø           LD      HL,ØØ2ØH        ;Index off wait (short)
421Ø CD4342     3354Ø CKDR2A    CALL    INDEX
4213 2ØFB       3355Ø           JR      NZ,CKDR2A       ;Jump on index
                3356Ø ;
                3357Ø ;         Diskette is rotating
                3358Ø ;
4215 F5         3359Ø CKDR2B    PUSH    AF              ;Save FDC status
4216 FD56Ø9     336ØØ           LD      D,(IY+9)
4219 21ØØ46     3361Ø           LD      HL,CKDRBUF      ;Point to HIT buffer
421C 5D         3362Ø           LD      E,L             ;Sector Ø for GAT
421D            3363Ø           @@RDSSC                 ;Read the GAT
421D 3E55       ØØ271           LD      A,85
421F EF         ØØ272           RST     4Ø
422Ø 2Ø2C       3364Ø           JR      NZ,CKDR7        ;Jump on error
4222 2ACC46     3365Ø           LD      HL,(CKDRBUF+ØCCH)       ;P/u excess tracks
4225 3E22       3366Ø           LD      A,22H           ;Add offset
4227 85         3367Ø           ADD     A,L
4228 FD77Ø6     3368Ø           LD      (IY+6),A        ;Max track # to DCT
422B FDCBØ4AE   3369Ø           RES     5,(IY+4)        ;Set to side Ø
422F CB6C       337ØØ           BIT     5,H             ;Test double sided
4231 28Ø4       3371Ø           JR      Z,CKDR3         ;Jump if only single
4233 FDCBØ4EE   3372Ø           SET     5,(IY+4)        ;Set for side 2
4237 F1         3373Ø CKDR3     POP     AF              ;Recover FDC status
4238 Ø7         3374Ø CKDR3A    RLCA                    ;Shift write prot to 7
4239 FDB6Ø3     3375Ø           OR      (IY+3)          ;Merge Soft WP bit
423C E68Ø       3376Ø           AND     8ØH             ;Strip all but 7
423E 87         3377Ø           ADD     A,A             ;Write prot to carry flg
                3378Ø ;
423F            3379Ø CKDR4     EQU     $
423F FB         338ØØ           EI
424Ø D1         3381Ø           POP     DE
4241 E1         3382Ø           POP     HL
4242 C9         3383Ø CKDR5     RET
4243 7C         3384Ø INDEX     LD      A,H             ;Count down tries
4244 B5         3385Ø           OR      L
4245 28Ø7       3386Ø           JR      Z,CKDR7         ;Error if counted out
4247 2B         3387Ø           DEC     HL              ;Dec the count
4248 CD6328     3388Ø           CALL    RSELCT          ;Check for index pulse
424B CB4F       3389Ø           BIT     1,A             ;Test index
424D C9         339ØØ           RET                     ;Back with condition
424E F1         3391Ø CKDR7     POP     AF
424F 3EØ8       3392Ø CKDR7A    LD      A,8             ;Set Device not avail
4251 B7         3393Ø           OR      A               ;Set NZ ret
4252 18EB       3394Ø           JR      CKDR4           ;Leave
                3395Ø ;
                3396Ø ;         Data area
                3397Ø ;
                3398Ø PRMTBL$
ØØ8Ø            3399Ø VAL       EQU     8ØH
ØØ4Ø            34ØØØ SW        EQU     4ØH
ØØ2Ø            34Ø1Ø STR       EQU     2ØH
ØØ1Ø            34Ø2Ø SGL       EQU     1ØH
4254 D3         34Ø3Ø           DB      'S'!8ØH
4255 63         34Ø4Ø           DB      SW!STR!3,'MPW',Ø
     4D 5Ø 57   ØØ
ØØØ5            34Ø5Ø MPWRSP    EQU     $-PRMTBL$-1
425A DA3Ø       34Ø6Ø           DW      MPWPRM
```

Backup Misc. routines

```
425C 73         34Ø7Ø           DB      SW!STR!SGL!3,'SYS',Ø
     53 59 53 ØØ
ØØØC            34Ø8Ø SYSRSP    EQU     $-PRMTBL$-1
4261 1Ø2F       34Ø9Ø           DW      SYSPRM+1
4263 53         341ØØ           DB      SW!SGL!3,'INV',Ø
     49 4E 56 ØØ
ØØ13            3411Ø INVRSP    EQU     $-PRMTBL$-1
4268 192F       3412Ø           DW      INVPRM+1
426A 53         3413Ø           DB      SW!SGL!3,'MOD',Ø
     4D 4F 44 ØØ
ØØ1A            3414Ø MODRSP    EQU     $-PRMTBL$-1
426F 1226       3415Ø           DW      MODPRM$
4271 55         3416Ø           DB      SW!SGL!5,'QUERY',Ø
     51 55 45 52 59 ØØ
ØØ23            3417Ø QRSP      EQU     $-PRMTBL$-1
4278 1426       3418Ø           DW      QPARM$
427A 41         3419Ø           DB      SW!1,'X',Ø
     58 ØØ
ØØ28            342ØØ XRSP      EQU     $-PRMTBL$-1
427D CA26       3421Ø           DW      XPARM$+1
427F 34         3422Ø           DB      STR!SGL!4,'DATE',Ø
     44 41 54 45 ØØ
ØØ3Ø            3423Ø DATRSP    EQU     $-PRMTBL$-1
4285 D82E       3424Ø           DW      DATPRM+1
4287 53         3425Ø           DB      SW!SGL!3,'NEW',Ø
     4E 45 57 ØØ
ØØ37            3426Ø NEWRSP    EQU     $-PRMTBL$-1
428C ØE26       3427Ø           DW      NEWPRM$
428E 53         3428Ø           DB      SW!SGL!3,'OLD',Ø
     4F 4C 44 ØØ
ØØ3E            3429Ø OLDRSP    EQU     $-PRMTBL$-1
4293 1Ø26       343ØØ           DW      OLDPRM$
4295 ØØ         3431Ø           NOP
                3432Ø ;
4296 53         3433Ø NOINDO$   DB      'Single drive backup invalid during'
     69 6E 67 6C 65 2Ø 64 72
     69 76 65 2Ø 62 61 63 6B
     75 7Ø 2Ø 69 6E 76 61 6C
     69 64 2Ø 64 75 72 69 6E
     67
42B8 2Ø         3434Ø           DB      ' <DO> processing',CR
     3C 44 4F 3E 2Ø 7Ø 72 6F
     63 65 73 73 69 6E 67 ØD
42C9 44         3435Ø NOFMT$    DB      'Destination disk not formatted'
     65 73 74 69 6E 61 74 69
     6F 6E 2Ø 64 69 73 6B 2Ø
     6E 6F 74 2Ø 66 6F 72 6D
     61 74 74 65 64
42E7 2Ø         3436Ø           DB      ' - Backup aborted',CR
     2D 2Ø 42 61 63 6B 75 7Ø
     2Ø 61 62 6F 72 74 65 64
     ØD
42F9 42         3437Ø HELLO$    DB      'BACKUP'
     41 43 4B 55 5Ø
42FF            3438Ø *GET      CLIENT:3
                3439Ø ;CLIENTS/ASM - File to establish sign-on headers
                344ØØ ;
42FF 2Ø         3441Ø           DB      ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
```

Backup Misc. routines

```
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
4329 2Ø          3442Ø          DB       ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
                 3443Ø ;
433E 41          3444Ø          DB       'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
4366 2Ø          3445Ø          DB       ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
437E 43          3446Ø LDOS$    DB       'Command executes only from DOS Ready',CR
     6F 6D 6D 61 6E 64 2Ø 65
     78 65 63 75 74 65 73 2Ø
     6F 6E 6C 79 2Ø 66 72 6F
     6D 2Ø 44 4F 53 2Ø 52 65
     61 64 79 ØD
43A3 5Ø          3447Ø PRMERR$ DB        'Parameter error',CR
     61 72 61 6D 65 74 65 72
     2Ø 65 72 72 6F 72 ØD
43B3 53          3448Ø SRCNUM$ DB        'Source drive number ?        ',3
     6F 75 72 63 65 2Ø 64 72
     69 76 65 2Ø 6E 75 6D 62
     65 72 2Ø 3F 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø Ø3
43D1 44          3449Ø DSTNUM$ DB        'Destination drive number ?   ',3
     65 73 74 69 6E 61 74 69
     6F 6E 2Ø 64 72 69 76 65
     2Ø 6E 75 6D 62 65 72 2Ø
     3F 2Ø 2Ø 2Ø Ø3
43EF 4E          345ØØ NODAT$  DB        'No date established',CR
     6F 2Ø 64 61 74 65 2Ø 65
     73 74 61 62 6C 69 73 68
     65 64 ØD
44Ø3 42          3451Ø CLASS$  DB        'Backup by class invoked',CR
     61 63 6B 75 7Ø 2Ø 62 79
     2Ø 63 6C 61 73 73 2Ø 69
     6E 76 6F 6B 65 64 ØD
441B ØA          3452Ø CLS1DB$ DB        LF,'Single drive BACKUP invalid by files',CR
     53 69 6E 67 6C 65 2Ø 64
     72 69 76 65 2Ø 42 41 43
     4B 55 5Ø 2Ø 69 6E 76 61
     6C 69 64 2Ø 62 79 2Ø 66
     69 6C 65 73 ØD
                 3453Ø          IF       .NOT.SMALL
4441 53          3454Ø RES$     DB       'SYSRES'        ;Terminate with LF
     59 53 52 45 53
4447 ØA          3455Ø RESREQ$ DB        LF,'This backup requires residency '
     54 68 69 73 2Ø 62 61 63
     6B 75 7Ø 2Ø 72 65 71 75
     69 72 65 73 2Ø 72 65 73
```

Backup Misc. routines

```
     69 64 65 6E 63 79 2Ø
4467 6F          3456Ø          DB      'of SYS''s: 2, 3, 1Ø & 12.',CR
     66 2Ø 53 59 53 27 73 3A
     2Ø 32 2C 2Ø 33 2C 2Ø 31
     3Ø 2Ø 26 2Ø 31 32 2E ØD
                 3457Ø          ENDIF
                 3458Ø          IF      SMALL
                 3459Ø RESREQ$ DB      'Backup by class requires the us'
                 346ØØ          DB      'e of a SYSTEM diskette!       ',CR
                 3461Ø          ENDIF
448Ø 42          3462Ø RECON$  DB      'Backup-reconstruct invoked',CR
     61 63 6B 75 7Ø 2D 72 65
     63 6F 6E 73 74 72 75 63
     74 2Ø 69 6E 76 6F 6B 65
     64 ØD
449B 43          3463Ø MIRROR$ DB      'Cylinder count differs - '
     79 6C 69 6E 64 65 72 2Ø
     63 6F 75 6E 74 2Ø 64 69
     66 66 65 72 73 2Ø 2D 2Ø
44B4 41          3464Ø          DB      'Attempt mirror-image backup ? ',3
     74 74 65 6D 7Ø 74 2Ø 6D
     69 72 72 6F 72 2D 69 6D
     61 67 65 2Ø 62 61 63 6B
     75 7Ø 2Ø 3F 2Ø Ø3
44D3 4D          3465Ø PMTMPW$ DB      'Master password ?      ',3
     61 73 74 65 72 2Ø 7Ø 61
     73 73 77 6F 72 64 2Ø 3F
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø Ø3
44EB 1F          3466Ø MAXDAYS DB      31,28,31,3Ø,31,3Ø,31,31,3Ø,31,3Ø,31
     1C 1F 1E 1F 1E 1F 1F 1E
     1F 1E 1F
44F7 42          3467Ø BADFMT$ DB      'Bad date format',CR
     61 64 2Ø 64 61 74 65 2Ø
     66 6F 72 6D 61 74 ØD
46ØØ             3468Ø CKDRBUF EQU     $<-8+1<8
Ø1ØØ             3469Ø          DS      256
46Ø7             347ØØ LAST    EQU     $
                 ØØ14Ø ;
46Ø7             ØØ15Ø          SUBTTL <>
2EØØ             ØØ16Ø          END     BACKUP
```

```
$A1             2E9E $A2             2F1D $EX4            2EBB
@@1             ØØØØ @@2             ØØØØ @@3             ØØØØ
@@4             ØØØØ @MOD2           ØØØØ @MOD4           FFFF
ABRTBU          26AC ABRTBU$         2AØD ATTRIB          316C
AUTO            ØØEØ BACKUP          2EØØ BACKUPA         2EØ9
BADFMT          314E BADFMT$         44F7 BADMPW$         28E6
BCK1            2E2B BCK2            2E3F BCK3            2E5Ø
BCK4            2E6B BCK5            2E77 BCK6            2E9C
BOOTST$         26ØØ BREAK           26AC BSCLS           3218
BSMIR           3ØØ5 BUCAO$          29FC BUCORE$         2A69
BUF1$           2BØØ BUF2$           2CØØ BUF3$           2DØØ
BUFFER$         2616 BYCLAS          3ØAB BYPASS          3ØB5
BYSPACE         332E CANTBU          2FEC CANTBU$         2A1F
CCMOD$          29C6 CDCNT           42Ø5 CKBOOT          2FF7
CKCLA1          2F21 CKCLAS          2FØD CKDR1           42ØØ
CKDR2           42Ø7 CKDR2A          421Ø CKDR2B          4215
CKDR3           4237 CKDR3A          4238 CKDR4           423F
CKDR5           4242 CKDR7           424E CKDR7A          424F
CKDRBUF         46ØØ CKDRV           41BF CKDRV1          41DC
CKDST           3Ø5F CKGAT           2FF2 CKINV           2FB7
CKNAM           2FCØ CKNAMØ          2FCE CKNAM1          2FD8
CKNAM2          2FE5 CKOLD           3ØA2 CKSWDD          2889
CKTO            2EF8 CLASS$          44Ø3 CLS1DB$         441B
CLSBU           38ØØ CLSBUØ          2EA9 CLSBUØ1         2ECC
CLSBU1          2EDE CLSBU2          2EE4 CLSBU3          2EED
CLSBU4          2EF6 CLSBU5          2F1A CLSFLG$         2684
CLSSIZ          Ø9ØØ CLSTST          41ØØ CNTBAK1         312C
CORE$           32ØØ CPHLDE          3382 CPRID           2E36
CPRLOK          2EA6 CPYFIL$         3465 CPYMSG          3147
CR              ØØØD CURDSK          27C7 CVD1            31A8
CVD2            31AA CVD3            31BØ CVD7            31B9
CVTDEC          3196 CYL$            32Ø1 DAT             ØØD8
DATFLD$         2678 DATPRM          2ED7 DATRSP          ØØ3Ø
DIFDST$         298F DIFID$          3233 DIFSRC          276B
DIFSRC$         295D DIO1            287A DIRERR          2692
DOBU            3161 DOFILØ          323A DOFILØ2         329D
DOFILØ3         32B2 DOFILØ4         32B5 DOFILØ5         32CB
DOFILØ6         32CD DOFILØ7         32D4 DOFILØ8         32E2
DOFILØ9         32E8 DOFIL11         32FD DOFIL12         3347
DOING           345F DOING1          3462 DOMSG           34CA
DONAM           3Ø2A DONAM1          3Ø37 DONAM2          3Ø41
DONAM4          3Ø4F DONAM5          3Ø59 DOSYS1          31AB
DOSYS2          31FE DSTDFT          3Ø1A.DSTDIR          3ØØE
DSTDRV$         277A DSTNUM$         43D1 DSTWP$          28C1
DUCYL           2FA4 DUCYL$          31D7 DUCYL1          2FA6
DUCYL2          2FE1 DUCYL2A         3ØØB DUCYL2B         3ØØD
DUCYL3          3Ø1A DUCYL4          3Ø22 DUCYL5          3Ø25
DUCYL6          3Ø3Ø ERREXIT         26BA EX1             28B4
EX2             28BA EXIT            26BD EXIT1           2685
EXIT2           2695 EXIT3           2697 EXIT4           26AF
EXIT5           26C9 EXIT5A          26D8 EXIT5B          26DF
FCB1$           2618 FCB2$           2638 FCB3$           2658
FCNT1           1111 FCNT2           1555 FLASH           27D3
FLASHØ          27E3 FLS1            27F9 FLS2            2814
FLS4            2827 FLS5            2828 FLSH6           283D
FMPAKD$         268Ø FMT             ØØØØ FRCDAT          2FØ1
FRCPMT          27C1 FTFLG$          26Ø1 FULDRV$         347D
GETDAT          2F5D GETDAT1         2F7B GETDST          3446
```

```
GETGM          2F6D GETMPW         4164 GETSRC         343D
GETSYS2        416A GMPW1          416D GMPW2          4177
GMPW3          418B GMPW4          41A6 GMPW5          41AB
GMPW6          41AF GMPW7          41BA GODOIT         3ØA9
GOTDST         3Ø47 GOTSRC         2FAA HELLO$         42F9
HITBUF         36ØØ HITRD          344F IDMATCH        2E9A
INDEX          4243 INTRON         41FA INVPRM         2F18
INVRSP         ØØ13 LAST           46Ø7 LDCYL$         31C2
LDCYL2         2F7Ø LDCYL3         2F7A LDCYL4         2F7D
LDCYL5         2F81 LDCYL6         2F88 LDCYL7         2F8D
LDCYL8         2F9B LDOS$          437E LDTKS          2F3Ø
LDTKS1         2F37 LF             ØØØA LILBUF$        2658
LOCK           ØØ6Ø LRLOK          3283 LSTBUF         33D4
LSTBUF1        33D9 LSTBUF2        33E1 MAKSPC         3388
MATCHES        3Ø29 MAXDAYS        44EB MFLG$          26ØD
MIRBU          32ØØ MIRROR         3ØB7 MIRROR$        449B
MIRSIZ         Ø6ØØ MODPRM$        2612 MODRSP         ØØ1A
MONTBL         3573 MOVID          3Ø8F MOVNOT         411C
MPWPRM         3ØDA MPWRSP         ØØØ5 MVBYC1         4122
MVBYC2         414E MVBYCLS        4113 NDSYS$         26FB
NEWDISK        348B NEWPRM$        26ØE NEWRSP         ØØ37
NODAT$         43EF NODOIT         2FBD NOFMT$         42C9
NOINDO$        4296 NOPRMPT        3149 NOTDF          343A
NOTHARD        3428 NOTMIR         31BC NOTMIR$        32Ø5
NOTSYS         2EE7 NOTSYS$        353C OLDMPW         2E66
OLDMPW$        3272 OLDPRM$        261Ø OLDRSP         ØØ3E
OPENIT         2F28 PACKID$        3255 PACKNDO        2E97
PAKDAT         31ØB PARSDAT        3154 PASSWORD       42EØ
PMTDD          3Ø3D PMTDST         2787 PMTDST$        293A
PMTDST1        27BØ PMTMPW$        44D3 PMTSRC         271A
PMTSRC$        291C PMTSYS$        28FE PMTYN          2E7E
PMTYN$         32A4 PRMERR$        43A3 PRMTBL$        4254
PROT$          2A4A PROTSEC        2897 PRS4           318Ø
PRSD1          3159 PRSD2          3169 PRSD3          317E
PRSPEC         3ØFØ PS1            3ØFE PSRC1          275F
PSRC3          2774 PSWD           ØØCE QM1            3ØCØ
QMARK$         356E QPARM$         2614 QRSP           ØØ23
QUERY          3475 RDBOOT         31EB RDSEC          2872
RECON          3ØAE RECON$         448Ø RES$           4441
RESKFLG        284C RESLOC         4128 RESMF          3ØDØ
RESMF1         3ØDC RESMF2         3ØFØ RESMF2A        314E
RESMF2B        3157 RESMF3         3162 RESMF4         316E
RESMF5         318D RESMF6         318F RESREQ$        4447
RESTOR         285E RETCOD         26C1 RSELCT         2863
SCDAT1         3ØD2 SCDAT2         3ØE7 SCDAT4         311D
SCNH1          2F2A SCNH2          2F2E SCNH3          2F5C
SCNH4          2F9C SCNH4A         2FA9 SCNH5          2FF9
SCNH6          2FFA SCNH7          3Ø15 SCNHIT         2F29
SELECT         2859 SETØ           3ØØ8 SETBFR         4159
SETBIT         2F3A SETSYS         2EA2 SGL            ØØ1Ø
SHOPROT        3Ø8F SIZBIG$        34FC SIZOK          3269
SIZSAV         3258 SMALL          ØØØØ SPCFLD$        26Ø2
SPSAV          26BD SRCDFT         2F95 SRCDRV$        27ØD
SRCNUM$        43B3 STR            ØØ2Ø STRDIR$        31Ø3
SVCTR          28A1 SW             ØØ4Ø SXORD          27CE
SYSDEC         3597 SYSDRV$        27ØØ SYSPRM         2FØF
SYSRSP         ØØØC TKCAP          ØØCC TOEXIT1        2F59
TOPAKD$        2682 TST5_8         3Ø4C TSTCAP         3Ø97
TSTDRV         2855 TSTMFLG        2FF2 TSTMPW         3ØCF
```

```
UNPACK         33AE VAL           ØØ8Ø VECYL$          31EC
VECYL1         3Ø3C VECYL2        3Ø6E VECYL3          3Ø78
VECYL4         3Ø7A VECYL5        3Ø7E VECYL6          3Ø84
VERSEC         2877 VRBOOT        3232 WRBOOT          32Ø9
WRBOOT1        321B WRBOOT2       3223 WRERN           33F3
WRGAT          33BF WRSEC         2868 WRSYS           286D
XPARM$         26C9 XRSP          ØØ28 @@ABORT         6C65
@@ADTSK        6CF8 @@BANK        721Ø @@BKSP          6EFØ
@@BREAK        7226 @@CHNIO       6C5Ø @@CKBRKC        7274
@@CKDRV        6D4C @@CKEOF       6FØ5 @@CKTSK         6CE3
@@CLOSE        6EDB @@CLS         725E @@CMNDI         6C8F
@@CMNDR        6CA4 @@CTL         6AB4 @@DATE          6C26
@@DCSTAT       6D8B @@DEBUG       6CCE @@DECHEX        719Ø
@@DIRRD        7ØFD @@DIRWR       7112 @@DIV16         717B
@@DIV8         7166 @@DODIR       6D61 @@DSP           6A78
@@DSPLY        6B18 @@ERROR       6CB9 @@EXIT          6C7A
@@FEXT         7Ø6A @@FLAGS       71FA @@FNAME         7Ø7F
@@FSPEC        7Ø55 @@GATRD       7ØE8 @@GATWR         7127
@@GET          6A8C @@GTDCB       7ØA9 @@GTDCT         7Ø94
@@GTMOD        7ØBE @@HDFMT       6E33 @@HEX16         71CF
@@HEX8         71BA @@HEXDEC      71A5 @@HIGH$         71E4
@@INIT         6EB1 @@KBD         6AFØ @@KEY           6A64
@@KEYIN        6BØ4 @@KLTSK       6D37 @@LOAD          7Ø2B
@@LOC          6F1A @@LOF         6F2F @@LOGER         6B4F
@@LOGOT        6B64 @@MSG         6B9B @@MUL16         7151
@@MUL8         713C @@OPEN        6EC6 @@PARAM         6C11
@@PAUSE        6BFC @@PEOF        6F44 @@POSN          6F59
@@PRINT        6BBØ @@PRT         6AC8 @@PUT           6AAØ
@@RAMDIR       6D76 @@RDSEC       6EØ9 @@RDSSC         7ØD3
@@READ         6F6E @@REMOV       6E9C @@RENAM         6E87
@@REW          6F83 @@RMTSK       6DØD @@RPTSK         6D22
@@RREAD        6F98 @@RSLCT       6DF4 @@RSTOR         6DB5
@@RUN          7Ø4Ø @@RWRIT       6FAD @@SEEK          6DDF
@@SEEKSC       6FC2 @@SKIP        6FD7 @@SLCT          6DAØ
@@STEPI        6DCA @@TIME        6C3B @@VDCTL         6BE7
@@VER          6FEC @@VRSEC       6E1E @@WEOF          7ØØ1
@@WHERE        6ADC @@WRITE       7Ø16 @@WRSEC         6E48
@@WRSSC        6E5D @@WRTRK       6E72
2EØØ is the transfer address
ØØØØØ Total errors
```

NOTES:

NOTES:

CLICK/FLT - Sound click device filter

The Click filter can be used to generate a short clicking sound on the occurence of all characters sent to a device, or on a specific character only. Click will always install itself in high memory, and will not attempt to load in the low driver zone. It is installed with the SET and FILTER Library commands.

```
                ;CLICK/ASM - Device Click Filter
ØØØØ                    TITLE   <CLICK/FLT - LS-DOS 6.2>
                ;
                ;
                        IF      @MOD4
ØØ48            TONE    EQU     48H
ØØ18            LEN     EQU     18H
ØØ9Ø            SNDPORT EQU     9ØH
                        ENDIF
                        IF      @MOD2
                LEN     EQU     18ØH            ;Length
                SNDPORT EQU     ØAØH
                        ENDIF
                ;
ØØØØ            *GET    SVCMAC:3                ;SVC Macro equivalents
                ;SVCMAC/ASM - LS-DOS Version VI
                *LIST   OFF
                *LIST   ON
ØØØØ            *GET    VALUES:3                ;Misc. equates
                ;VALUES/ASM - Version 6
                *LIST OFF
                *LIST ON
ØØØØ            *GET    COPYCOM:3               ;Copyright messages
                ; COPYCOM - File for Copyright COMment block
                ;
ØØØØ                    COM     '<*(C) 1982,83,84 by LSI*>'
                ;
24ØØ                    ORG     24ØØH
                ;
                START
24ØØ                    @@CKBRKC
24ØØ 3E6A               LD      A,1Ø6
24Ø2 EF                 RST     4Ø
24Ø3 28Ø4               JR      Z,STARTA        ;Continue if no BREAK
24Ø5 21FFFF             LD      HL,-1           ; set up abort RET
24Ø8 C9                 RET
                ;
24Ø9 ED73ØB25   STARTA  LD      (EXIT+1),SP     ;Save stack for error exit
24ØD CD1724             CALL    DOINIT          ;Do initialization
241Ø CD9624             CALL    INSTFLT         ;Relocate/install filter
2413 21ØØØØ     NORMEX  LD      HL,Ø            ;Good exit
2416 C9                 RET
                ;
                ;       Xfer DCB ptr to IX & stuff addrs' in driver
                ;
2417 D5         DOINIT  PUSH    DE              ;DE => DCB+Ø
2418 DDE1               POP     IX              ;Xfer to IX
241A ED535F24           LD      (DCB),DE        ;Xfer into header
                ;
                ;       Sign-on
                ;
241E E5                 PUSH    HL
241F 215125             LD      HL,HELLO$       ;Sign on message
2422 CDEC24             CALL    DSPLY
                ;
                ;       Check PARMS and if entry from SET command
                ;
2425 111125             LD      DE,PRMTBL       ;Point to parms
2428 E1                 POP     HL              ;Recover cmdline posn
2429                    @@PARAM                 ;Parse the parms
2429 3E11               LD      A,17
```

```
242B EF                     RST     4Ø
242C C2F224                 JP      NZ,IOERR         ;Exit on parm error
                    ;
242F                        @@FLAGS                  ;IY => System Flags Base
242F 3E65                   LD      A,1Ø1
2431 EF                     RST     4Ø
2432 FDCBØ25E               BIT     3,(IY+'C'-'A')  ;System request?
2436 CAFD24                 JP      Z,VIASET         ;"Install with SET
                    ;
                    ;       Before anything - Make sure hi-mem is avail
                    ;
2439 FDCBØ246               BIT     Ø,(IY+CFLAG$)    ;High memory available ?
243D C2Ø125                 JP      NZ,CANT          ;No - display error
                    ;
                    ;       Set up filter for CHAR if entered
                    ;
244Ø 11ØØØØ         CHARPRM LD      DE,ØØ            ;Char parm lands here
2443 7A                     LD      A,D              ;Check if entered and
2444 BB                     CP      E                ;  is normal character
2445 C8                     RET     Z                ;Done if not entered
2446 FEØØ                   CP      Ø                ;Check is MSB is altered
2448 3E2C                   LD      A,44             ;Init "Parameter error
244A C2F224                 JP      NZ,IOERR         ;Bad if so
                    ;
244D 53                     LD      D,E              ;Set up CP nn
244E 1EFE                   LD      E,ØFEH           ;Reverse it and
245Ø ED537424               LD      (CKCHAR),DE      ; put it in the filter
2454 C9                     RET
                    ;*=*=*
                    ;       Actual CLICK filter Code
                    ;*=*=*
2455 18ØC           HEADER  JR      FILTER
2457 ØØØØ           OLDHI   DW      Ø                ;HIGH$ before CLICK
2459 Ø5                     DB      5,'CLICK'
     43 4C 49 43 4B
245F ØØØØ           DCB     DW      $-$              ;DCB pointing to CLICK
2461 ØØØØ           SPARE   DW      Ø                ;System wants it
                    ;
                    ;       Is there a character here?
                    ;
2463 DD2A5F24       FILTER  LD      IX,(DCB)         ;P/u DCB address
2467 38Ø6                   JR      C,NOTCTL         ;Go if Get
2469 28Ø4                   JR      Z,NOTCTL         ;  or Put
246B                IS_CTL  @@CHNIO                  ;Pass the CTL call
246B 3E14                   LD      A,2Ø
246D EF                     RST     4Ø
246E C9                     RET
246F                NOTCTL  @@CHNIO                  ;Go to next in line
246F 3E14                   LD      A,2Ø
2471 EF                     RST     4Ø
2472 CØ                     RET     NZ               ;None - RETurn NZ
                    ;
                    ;       Generate short Click
                    ;
2473 F5             SOUND   PUSH    AF               ;Save registers
2474 ØØØØ           CKCHAR  DW      ØØ               ;Space for a CP instruct
2476 2Ø1C                   JR      NZ,POPAF         ; exit if CP above fails
2478 C5             SNDNOW  PUSH    BC
2479 D5                     PUSH    DE
                            IF      @MOD2
                            LD      BC,LEN           ;D·ration
```

```
               Ø112Ø         LD      A,-1            ;ON value
               Ø113Ø         OUT     (SNDPORT),A     ;Turn on sound
               Ø114Ø         LD      A,16            ;Svc @PAUSE
               Ø115Ø         RST     28H             ;Delay
               Ø116Ø         XOR     A               ;OFF value
               Ø117Ø         OUT     (SNDPORT),A     ;Turn off sound
               Ø118Ø         ENDIF
               Ø119Ø ;
               Ø12ØØ         IF      @MOD4
               Ø121Ø ;
247A 111848    Ø122Ø STFVALS LD      DE,TONE<8!LEN   ;D = Tone, E = Length
247D 3EØØ      Ø123Ø         LD      A,Ø             ;Init on/off toggle
247F ØE9Ø      Ø124Ø         LD      C,SNDPORT       ;Point to port
               Ø125Ø ;
               Ø126Ø ;       ON portion
               Ø127Ø ;
2481 3C        Ø128Ø DURLP   INC     A               ;Hold output high
2482 ED79      Ø129Ø         OUT     (C),A           ;  for count of (B)
2484 42        Ø13ØØ         LD      B,D             ;Play tone
2485 1ØFE      Ø131Ø         DJNZ    $
               Ø132Ø ;
               Ø133Ø ;OFF portion
               Ø134Ø ;
2487 3D        Ø135Ø         DEC     A               ;  for count of (B)
2488 ED79      Ø136Ø         OUT     (C),A
248A 42        Ø137Ø         LD      B,D             ;Hold output low for
248B 1ØFE      Ø138Ø         DJNZ    $
               Ø139Ø ;
248D 1D        Ø14ØØ         DEC     E               ;Dec the duration
248E 2ØF1      Ø141Ø         JR      NZ,DURLP
249Ø 1ØFE      Ø142Ø         DJNZ    $               ;Hold for 256 count
               Ø143Ø         ENDIF
               Ø144Ø ;
2492 D1        Ø145Ø         POP     DE              ;Restore regs
2493 C1        Ø146Ø         POP     BC
2494 F1        Ø147Ø POPAF   POP     AF
2495 C9        Ø148Ø         RET                     ;And RETurn
               Ø149Ø ;
ØØ41           Ø15ØØ LENGTH  EQU     $-HEADER        ;Length of Filter
               Ø151Ø ;
               Ø152Ø ;       INSTFLT - Relocate & Install Filter
               Ø153Ø ;
2496 DD36ØØ47  Ø154Ø INSTFLT LD      (IX+Ø),47H      ;Set Filter,Ctl,Get,Put
               Ø155Ø ;
               Ø156Ø ;       Pick up Old HIGH$ and save in driver
               Ø157Ø ;
249A 21ØØØØ    Ø158Ø         LD      HL,Ø            ;Get HIGH$
249D 45        Ø159Ø         LD      B,L
249E           Ø16ØØ         @@HIGH$
249E 3E64      ØØØ11         LD      A,1ØØ
24AØ EF        ØØØ12         RST     4Ø
24A1 225724    Ø161Ø         LD      (OLDHI),HL      ;Stuff into header
               Ø162Ø ;
               Ø163Ø ;       Calculate New HIGH$ & stuff into DCB
               Ø164Ø ;
24A4 Ø141ØØ    Ø165Ø         LD      BC,LENGTH       ;Length of driver
24A7 C5        Ø166Ø         PUSH    BC              ;Save length
24A8 B7        Ø167Ø         OR      A
24A9 ED42      Ø168Ø         SBC     HL,BC           ;HL => New HIGH$
24AB           Ø169Ø         @@HIGH$                 ;(B=Ø) set new HIGH$
24AB 3E64      ØØØ13         LD      A,1ØØ
```

```
24AD EF                      RST     40
24AE 23                      INC     HL               ;Pt to driver
24AF DD7501                  LD      (IX+1),L         ;Stuff driver address
24B2 DD7402                  LD      (IX+2),H         ;  into DCB
                    ;
                    ;        Calc offset between source & dest for relo
                    ;
24B5 115524                  LD      DE,HEADER        ;Start of driver
24B8 E5                      PUSH    HL               ;Save Source & Dest ptrs
24B9 D5                      PUSH    DE
24BA B7                      OR      A                ;Clear carry
24BB ED52                    SBC     HL,DE            ;Get offset
                    ;
                    ;        Relocate internal references in driver
                    ;
24BD DD21DC24                LD      IX,RELTBL        ;Point to relocation tbl
24C1 44                      LD      B,H              ;Move to BC
24C2 4D                      LD      C,L
24C3 DD6E00         RLOOP    LD      L,(IX)           ;Get address to change
24C6 DD6601                  LD      H,(IX+1)
24C9 7C                      LD      A,H
24CA B5                      OR      L
24CB 2819                    JR      Z,RELDUN
24CD 5E                      LD      E,(HL)           ;P/U address
24CE 23                      INC     HL
24CF 56                      LD      D,(HL)
24D0 EB                      EX      DE,HL            ;Offset it
24D1 09                      ADD     HL,BC
24D2 EB                      EX      DE,HL
24D3 72                      LD      (HL),D           ;Put it back
24D4 2B                      DEC     HL
24D5 73                      LD      (HL),E
24D6 DD23                    INC     IX
24D8 DD23                    INC     IX
24DA 18E7                    JR      RLOOP            ;Loop till done
                    ;
                    ;        Relocation Table for Driver
                    ;
24DC 6524           RELTBL   DW      FILTER+2,0,0,0,0
     0000 0000 0000 0000
                    ;
                    ;        Transfer Filter code to high memory
                    ;
24E6 E1             RELDUN   POP     HL               ;HL => Source DE => Dest
24E7 D1                      POP     DE
24E8 C1                      POP     BC               ;BC = length of filter
24E9 EDB0                    LDIR                     ;Block move
24EB C9                      RET                      ;RETurn
                    ;
                    ;        DSPLY - Display a string
                    ;
24EC D5             DSPLY    PUSH    DE               ;Save DE
24ED                         @@DSPLY                  ;Display it
                             IFEQ    00H,1
                             LD      HL,
                             ENDIF
24ED 3E0A                    LD      A,10
24EF EF                      RST     40
24F0 D1                      POP     DE               ;
24F1 C8                      RET     Z                ;Return if good
                    ;
```

```
               Ø224Ø ;        IOERR - Any fatal Errors come here
               Ø225Ø ;
24F2 6F        Ø226Ø IOERR    LD      L,A            ;Xfer error # to HL
24F3 26ØØ      Ø227Ø          LD      H,Ø            ;
24F5 F6CØ      Ø228Ø          OR      ØCØH           ;Short msg & RETurn
24F7 4F        Ø229Ø          LD      C,A
24F8           Ø23ØØ          @@ERROR                ;Display error
24F8 3E1A      ØØØ2Ø          LD      A,26
24FA EF        ØØØ21          RST     4Ø
24FB 18ØD      Ø231Ø          JR      EXIT           ;Go to exit routine
               Ø232Ø ;
               Ø233Ø ;        Error Handler
               Ø234Ø ;
24FD 213C25    Ø235Ø VIASET   LD      HL,VIASET$     ;"Install with Set
25ØØ DD        Ø236Ø          DB      ØDDH
25Ø1 212225    Ø237Ø CANT     LD      HL,CANT$       ;"No memory space
               Ø238Ø ;
25Ø4           Ø239Ø          @@LOGOT                ;Log error
               ØØØ22          IFEQ    ØØH,1
               ØØØ23          LD      HL,
               ØØØ24          ENDIF
25Ø4 3EØC      ØØØ25          LD      A,12
25Ø6 EF        ØØØ26          RST     4Ø
25Ø7 21FFFF    Ø24ØØ          LD      HL,-1          ;Set abort code
               Ø241Ø ;
25ØA 31ØØØØ    Ø242Ø EXIT     LD      SP,$-$         ;P/u original SP
25ØD           Ø243Ø          @@CKBRKC               ;Clear out break
25ØD 3E6A      ØØØ27          LD      A,1Ø6
25ØF EF        ØØØ28          RST     4Ø
251Ø C9        Ø244Ø          RET                    ;  and RETurn
               Ø245Ø ;
2511 43        Ø246Ø PRMTBL   DB      'CHAR  '
     48 41 52 2Ø 2Ø
2517 4124      Ø247Ø          DW      CHARPRM+1
2519 43        Ø248Ø          DB      'C     '
     2Ø 2Ø 2Ø 2Ø 2Ø
251F 4124      Ø249Ø          DW      CHARPRM+1
2521 ØØ        Ø25ØØ          NOP                    ;End of table
               Ø251Ø ;
               Ø252Ø ;
2522 4E        Ø253Ø CANT$    DB      'No memory space available',CR
     6F 2Ø 6D 65 6D 6F 72 79
     2Ø 73 7Ø 61 63 65 2Ø 61
     76 61 69 6C 61 62 6C 65
     ØD
253C 4D        Ø254Ø VIASET$ DB       'Must install via SET',CR
     75 73 74 2Ø 69 6E 73 74
     61 6C 6C 2Ø 76 69 61 2Ø
     53 45 54 ØD
               Ø255Ø ;
2551 43        Ø256Ø HELLO$  DB       'CLICK'
     4C 49 43 4B
2556           Ø257Ø *GET    CLIENT:3
               Ø424Ø ;CLIENTS/ASM - File to establish sign-on headers
               Ø425Ø ;
2556 2Ø        Ø426Ø         DB       ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
258Ø 2Ø         Ø427Ø          DB      ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
                Ø428Ø ;
2595 41         Ø429Ø          DB      'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
25BD 2Ø         Ø43ØØ          DB      ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
                Ø258Ø ;
24ØØ            Ø259Ø          END     START
```

```
@@1             ØØØØ @@2             ØØØØ @@3             ØØØØ
@@4             ØØØØ @MOD2           ØØØØ @MOD4           FFFF
ABB             ØØ1Ø AP              ØØ27 BREAK           ØØ8Ø
BS              ØØØ8 CANT            25Ø1 CANT$           2522
CFLAG$          ØØØ2 CHARPRM         244Ø CKCHAR          2474
CR              ØØØD DCB             245F DFLAG$          ØØØ3
DOINIT          2417 DSPLY           24EC DURLP           2481
ETX             ØØØ3 EXIT            25ØA FILTER          2463
FLAG            ØØ4Ø HEADER          2455 HELLO$          2551
INSTFLT         2496 IOERR           24F2 IS_CTL          246B
KFLAG$          ØØØA LEN             ØØ18 LENGTH          ØØ41
LF              ØØØA NORMEX          2413 NOTCTL          246F
NUM             ØØ8Ø OLDHI           2457 PAR_ERR         ØØ2C
POPAF           2494 PRMTBL          2511 RELDUN          24E6
RELTBL          24DC RLOOP           24C3 SFLAG$          ØØ12
SNDNOW          2478 SNDPORT         ØØ9Ø SOUND           2473
SPARE           2461 START           24ØØ STARTA          24Ø9
STFVALS         247A STR             ØØ2Ø TAB             ØØØ9
TONE            ØØ48 VFLAG$          ØØ15 VIASET          24FD
VIASET$         253C @@ABORT         8Ø2Ø @@ADTSK         8ØB3
@@BANK          85CB @@BKSP          82AB @@BREAK         85E1
@@CHNIO         8ØØB @@CKBRKC        862F @@CKDRV         81Ø7
@@CKEOF         82CØ @@CKTSK         8Ø9E @@CLOSE         8296
@@CLS           8619 @@CMNDI         8Ø4A @@CMNDR         8Ø5F
@@CTL           7E6F @@DATE          7FE1 @@DCSTAT        8146
@@DEBUG         8Ø89 @@DECHEX        854B @@DIRRD         84B8
@@DIRWR         84CD @@DIV16         8536 @@DIV8          8521
@@DODIR         811C @@DSP           7E33 @@DSPLY         7ED3
@@ERROR         8Ø74 @@EXIT          8Ø35 @@FEXT          8425
@@FLAGS         85B5 @@FNAME         843A @@FSPEC         841Ø
@@GATRD         84A3 @@GATWR         84E2 @@GET           7E47
@@GTDCB         8464 @@GTDCT         844F @@GTMOD         8479
@@HDFMT         81EE @@HEX16         858A @@HEX8          8575
@@HEXDEC        856Ø @@HIGH$         859F @@INIT          826C
@@KBD           7EAB @@KEY           7E1F @@KEYIN         7EBF
@@KLTSK         8ØF2 @@LOAD          83E6 @@LOC           82D5
@@LOF           82EA @@LOGER         7FØA @@LOGOT         7F1F
@@MSG           7F56 @@MUL16         85ØC @@MUL8          84F7
@@OPEN          8281 @@PARAM         7FCC @@PAUSE         7FB7
@@PEOF          82FF @@POSN          8314 @@PRINT         7F6B
@@PRT           7E83 @@PUT           7E5B @@RAMDIR        8131
@@RDSEC         81C4 @@RDSSC         848E @@READ          8329
@@REMOV         8257 @@RENAM         8242 @@REW           833E
@@RMTSK         8ØC8 @@RPTSK         8ØDD @@RREAD         8353
@@RSLCT         81AF @@RSTOR         817Ø @@RUN           83FB
@@RWRIT         8368 @@SEEK          819A @@SEEKSC        837D
@@SKIP          8392 @@SLCT          815B @@STEPI         8185
@@TIME          7FF6 @@VDCTL         7FA2 @@VER           83A7
@@VRSEC         81D9 @@WEOF          83BC @@WHERE         7E97
@@WRITE         83D1 @@WRSEC         82Ø3 @@WRSSC         8218
@@WRTRK         822D
24ØØ is the transfer address
ØØØØØ Total errors
```

NOTES:

NOTES:

COM/DVR - RS232 hardware driver

The Com driver program will initialize the UART and allow characters to be sent and received via the RS232 hardware. The driver will attempt to install itself in the low driver zone, but will relocate to high memory if necessary. It must be installed with the SET Library command.

```
              ;COM/ASM - RS232 Driver Program
ØØØØ                  TITLE   '<COM/DVR - LS-DOS 6.2>'
              ;
ØØØA          LF      EQU     1Ø
ØØØD          CR      EQU     13
              ;
ØØØØ          *GET    COPYCOM:3                 ;Copyright message
              ; COPYCOM - File for Copyright COMment block
              ;
ØØØØ                  COM     '<*(C) 1982,83,84 by LSI*>'
ØØØØ          *GET    SVCMAC:3                  ;SVC Macro equivalents
              ;SVCMAC/ASM - LS-DOS Version VI
              *LIST   OFF
              *LIST   ON
              ;
24ØØ                  ORG     24ØØH
              ;
              BEGIN
24ØØ                  @@CKBRKC
24ØØ 3E6A             LD      A,1Ø6
24Ø2 EF               RST     4Ø
24Ø3 28Ø4             JR      Z,BEGINA          ;Continue if no BREAK
24Ø5 21FFFF           LD      HL,-1
24Ø8 C9               RET                       ;Return with abort code
              ;
24Ø9 D5       BEGINA  PUSH    DE                ;Save DCB address
24ØA DDE1             POP     IX                ;  in index reg
24ØC ED537F26         LD      (CLDCB),DE        ;  and in driver header
241Ø                  @@DSPLY HELLO$            ;Welcome the user
                      IFEQ    Ø1H,1
241Ø 215B25           LD      HL,HELLO$
                      ENDIF
2413 3EØA             LD      A,1Ø
2415 EF               RST     4Ø
              ;
              ;       Check if entry from SET command
              ;
2416                  @@FLAGS                   ;IY => flag table base
2416 3E65             LD      A,1Ø1
2418 EF               RST     4Ø
2419 FDCBØ25E         BIT     3,(IY+'C'-'A')    ;System request?
241D CA3325           JP      Z,VIASET          ;"Install with Set
              ;
              ;       Grab system dependent vectors
              ;
242Ø FDE5             PUSH    IY                ;Set DE to flag base
2422 D1               POP     DE
2423 21ØAØØ           LD      HL,'K'-'A'        ;KFLAG$
2426 19               ADD     HL,DE
2427 223127           LD      (KFLAG),HL        ;Save keyboard flag locn
242A 2112ØØ           LD      HL,'S'-'A'        ;SFLAG$
242D 19               ADD     HL,DE
242E 225327           LD      (SFLAG),HL        ;Save system flag location
2431 2116ØØ           LD      HL,'W'-'A'        ;WRINT$
2434 19               ADD     HL,DE
2435 229Ø26           LD      (WRINT),HL        ;Save int mask
2438 21DEFF           LD      HL,1Ø-44          ;INTVC$+1Ø
243B 19               ADD     HL,DE             ;Save for receive int
243C 228D26           LD      (INTVC),HL        ;  vector
              ;
              ;       Move @ICNFG vector into driver
```

```
                00560 ;
243F FD7E1C     00570          LD      A,(IY+28)        ;Get current opcode
2442 329A26     00580          LD      (LINK),A         ;Save in driver
2445 FD6E1D     00590          LD      L,(IY+29)        ;Get current address
2448 FD661E     00600          LD      H,(IY+30)        ;Put in driver code
244B 229B26     00610          LD      (LINK+1),HL
                00620 ;
                00630 ;        Check if driver alread resident
                00640 ;
244E 115725     00650          LD      DE,CL$           ;Check if driver is
2451            00660          @@GTMOD                  ;  already resident
2451 3E53       00010          LD      A,83
2453 EF         00011          RST     40
2454 EB         00670          EX      DE,HL            ;Put DCB ptr to HL
2455 201A       00680          JR      NZ,NOTRES        ;Go if not
                00690 ;
                00700 ;        Make sure that the new DCB is same as the old
                00710 ;
2457 4E         00720          LD      C,(HL)           ;P/u DCB pointer LSB
2458 23         00730          INC     HL
2459 46         00740          LD      B,(HL)           ;P/u DCB pointer MSB
245A 210600     00750          LD      HL,6             ;Get old DCB name &
245D 09         00760          ADD     HL,BC            ;  stuff into error
245E 7E         00770          LD      A,(HL)           ;  message in case
245F 2C         00780          INC     L                ;  a different DCB
2460 66         00790          LD      H,(HL)           ;  is referenced
2461 6F         00800          LD      L,A
2462 221D26     00810          LD      (DCBNAM$),HL     ;Stuff message with spec
2465 2A7F26     00820          LD      HL,(CLDCB)       ;P/u DCB existing DCB
2468 B7         00830          OR      A                ;  pointer
2469 ED42       00840          SBC     HL,BC            ;Same DCB pointer?
246B C23725     00850          JP      NZ,DCBERR        ;Can't install if diff
246E C31425     00860          JP      ISRES
2471 114B49     00870 NOTRES   LD      DE,'IK'
2474            00880          @@GTDCB                  ;Locate low memory ptr
2474 3E52       00012          LD      A,82
2476 EF         00013          RST     40
2477 C24825     00890          JP      NZ,IOERR         ;Go if not found
247A 2D         00900          DEC     L
247B 56         00910          LD      D,(HL)           ;P/u pointer to
247C 2D         00920          DEC     L                ;  start of free
247D 5E         00930          LD      E,(HL)           ;  low core
247E 22FA24     00940          LD      (LCPTR+1),HL     ;Save ptr for later
2481 21EF00     00950          LD      HL,CLEND-CLDVR-1
2484 19         00960          ADD     HL,DE            ;Start + driver length
2485 22C424     00970          LD      (SVEND+1),HL
2488 010013     00980          LD      BC,1300H         ;Max addr + 1
248B AF         00990          XOR     A
248C ED42       01000          SBC     HL,BC            ;See if room low
248E 382D       01010          JR      C,PUTLOW         ;  and install there if so
                01020 ;
                01030 ;        Check if high memory available
                01040 ;
2490 FDCB0246   01050          BIT     0,(IY+'C'-'A')   ;Memory frozen?
2494 C23B25     01060          JP      NZ,NOROOM        ;Can't install if so
2497 210000     01070          LD      HL,0
249A 45         01080          LD      B,L              ;Get HIGH$
249B            01090          @@HIGH$
249B 3E64       00014          LD      A,100
249D EF         00015          RST     40
249E 22C424     01100          LD      (SVEND+1),HL     ;Top of driver
```

```
24A1 B7         Ø111Ø          OR      A
24A2 Ø1FØØØ     Ø112Ø          LD      BC,CLEND-CLDVR  ;  minus length
24A5 ED42       Ø113Ø          SBC     HL,BC
24A7 Ø6ØØ       Ø114Ø          LD      B,Ø
24A9 E5         Ø115Ø          PUSH    HL
24AA            Ø116Ø          @@HIGH$                 ;  is new HIGH$
24AA 3E64       ØØØ16          LD      A,1ØØ
24AC EF         ØØØ17          RST     4Ø
24AD E1         Ø117Ø          POP     HL
24AE 23         Ø118Ø          INC     HL              ;Plus one is start
24AF 225525     Ø119Ø          LD      (HCPTR),HL      ;Save it
24B2 215525     Ø12ØØ          LD      HL,HCPTR        ;  and point to it
24B5 22FA24     Ø121Ø          LD      (LCPTR+1),HL
24B8 3EFF       Ø122Ø          LD      A,ØFFH          ;Flag himem used
24BA 322525     Ø123Ø          LD      (HGHFLG),A
                Ø124Ø ;
                Ø125Ø ;        Relocate internal references in driver
                Ø126Ø ;
24BD DDE5       Ø127Ø PUTLOW   PUSH    IX
24BF DD216727   Ø128Ø          LD      IX,RELTAB       ;Point to relocation tbl
24C3 21ØØØØ     Ø129Ø SVEND    LD      HL,$-$          ;Find distance to move
24C6 227926     Ø13ØØ          LD      (CLDVR+2),HL    ;Set last byte used
24C9 116627     Ø131Ø          LD      DE,CLEND-1
24CC B7         Ø132Ø          OR      A               ;Clear carry flag
24CD ED52       Ø133Ø          SBC     HL,DE
24CF 44         Ø134Ø          LD      B,H             ;Move to BC
24DØ 4D         Ø135Ø          LD      C,L
24D1 3EØD       Ø136Ø          LD      A,TABLEN        ;Get table length
24D3 DD6EØØ     Ø137Ø RLOOP    LD      L,(IX)          ;Get address to change
24D6 DD66Ø1     Ø138Ø          LD      H,(IX+1)
24D9 5E         Ø139Ø          LD      E,(HL)          ;P/U address
24DA 23         Ø14ØØ          INC     HL
24DB 56         Ø141Ø          LD      D,(HL)
24DC EB         Ø142Ø          EX      DE,HL           ;Offset it
24DD Ø9         Ø143Ø          ADD     HL,BC
24DE EB         Ø144Ø          EX      DE,HL
24DF 72         Ø145Ø          LD      (HL),D          ;Put it back
24EØ 2B         Ø146Ø          DEC     HL
24E1 73         Ø147Ø          LD      (HL),E
24E2 DD23       Ø148Ø          INC     IX
24E4 DD23       Ø149Ø          INC     IX
24E6 3D         Ø15ØØ          DEC     A
24E7 2ØEA       Ø151Ø          JR      NZ,RLOOP        ;Loop till done
24E9 DDE1       Ø152Ø          POP     IX              ;Restore DCB
                Ø153Ø ;
                Ø154Ø ;        Set up @ICNFG
                Ø155Ø ;
24EB 218926     Ø156Ø          LD      HL,INIT         ;Get (relocated)
24EC            Ø157Ø RXØ1     EQU     $-2
24EE FD751D     Ø158Ø          LD      (IY+29),L       ;  init address & put
24F1 FD741E     Ø159Ø          LD      (IY+3Ø),H       ;  into system ICNFG area
24F4 3EC3       Ø16ØØ          LD      A,ØC3H          ;Get JP instruction
24F6 FD771C     Ø161Ø          LD      (IY+28),A       ;Turn on ICNFG
                Ø162Ø ;
                Ø163Ø ;        Move driver
                Ø164Ø ;
24F9 21ØØØØ     Ø165Ø LCPTR    LD      HL,$-$          ;Low core or himem pointer
24FC 5E         Ø166Ø          LD      E,(HL)
24FD 2C         Ø167Ø          INC     L
24FE 56         Ø168Ø          LD      D,(HL)
24FF D5         Ø169Ø          PUSH    DE              ;Save start
```

```
2500 217726                LD      HL,CLDVR
2503 01F000                LD      BC,CLEND-CLDVR   ;Calc driver length
2506 EDB0                  LDIR                     ;Move into place
2508 2AFA24                LD      HL,(LCPTR+1)     ;If driver went low,
250B 73                    LD      (HL),E           ;  need to update new
250C 2C                    INC     L                ;  driver zone pointer
250D 72                    LD      (HL),D
                   ;
                   ;       Initialize the driver
                   ;
250E F3                    DI
250F CD8926                CALL    INIT             ;Init the UART
2510               RX11    EQU     $-2
2512 FB                    EI
                   ;
2513 D1                    POP     DE               ;Pop filter start
                   ;
2514 212026        ISRES   LD      HL,CLACT$        ;Advise COM/DVR installed
2517 DD36000 7             LD      (IX),7           ;Init DCB type to "C/P/G"
251B DD7301                LD      (IX+1),E         ;  & stuff the driver
251E DD7202                LD      (IX+2),D         ;  address
2521                       @@LOGOT
                           IFEQ    00H,1
                           LD      HL,
                           ENDIF
2521 3E0C                  LD      A,12
2523 EF                    RST     40
2524 3E00                  LD      A,$-$            ;Did it use high memory?
2525               HGHFLG  EQU     $-1
2526 B7                    OR      A                ;NZ if high
2527 2806                  JR      Z,NTHGH
2529 215026                LD      HL,HMEM$         ;"Driver in himem...
252C                       @@LOGOT
                           IFEQ    00H,1
                           LD      HL,
                           ENDIF
252C 3E0C                  LD      A,12
252E EF                    RST     40
252F 210000        NTHGH   LD      HL,0             ;Init on error code
2532 C9                    RET                      ;  and exit
                   ;
                   ;       Error exits
                   ;
2533 213B26        VIASET  LD      HL,VIASET$       ;"Install with Set
2536 DD                    DB      0DDH
2537 210126        DCBERR  LD      HL,DCBERR$       ;"Driver being used already
253A DD                    DB      0DDH
253B 21E725        NOROOM  LD      HL,NOROOM$       ;"Memory frozen
253E                       @@LOGOT
                           IFEQ    00H,1
                           LD      HL,
                           ENDIF
253E 3E0C                  LD      A,12
2540 EF                    RST     40
2541 21FFFF                LD      HL,-1            ;Set abort code
2544                       @@CKBRKC                 ;Clear any break
2544 3E6A                  LD      A,106
2546 EF                    RST     40
2547 C9                    RET
                   ;
2548 6F            IOERR   LD      L,A              ;Error code to HL
```

```
2549 26ØØ      Ø214Ø          LD      H,Ø
254B F6CØ      Ø215Ø          OR      ØCØH            ;Set short,return
254D 4F        Ø216Ø          LD      C,A             ;Error to C
254E           Ø217Ø          @@ERROR                 ;  for error dsply
254E 3E1A      ØØØ35          LD      A,26
255Ø EF        ØØØ36          RST     4Ø
2551           Ø218Ø          @@CKBRKC                ;Clear any break
2551 3E6A      ØØØ37          LD      A,1Ø6
2553 EF        ØØØ38          RST     4Ø
2554 C9        Ø219Ø          RET
               Ø22ØØ ;
               Ø221Ø ;        Messages & Data tables
               Ø222Ø ;
2555 ØØØØ      Ø223Ø HCPTR    DW      Ø               ;Save start if going to HIGH$
2557 24        Ø224Ø CL$      DB      '$CL',3
     43 4C Ø3
255B 52        Ø225Ø HELLO$   DB      'RS-232 Driver'
     53 2D 32 33 32 2Ø 44 72
     69 76 65 72
               Ø226Ø ;
2568           Ø227Ø *GET     CLIENT:3
               Ø395Ø ;CLIENTS/ASM - File to establish sign-on headers
               Ø396Ø ;
2568 2Ø        Ø397Ø          DB      ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
2592 2Ø        Ø398Ø          DB      ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
               Ø399Ø ;
25A7 41        Ø4ØØØ          DB      'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
25CF 2Ø        Ø4Ø1Ø          DB      ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
               Ø228Ø ;
25E7 4E        Ø229Ø NOROOM$ DB       'No memory space available',CR
     6F 2Ø 6D 65 6D 6F 72 79
     2Ø 73 7Ø 61 63 65 2Ø 61
     76 61 69 6C 61 62 6C 65
     ØD
26Ø1 44        Ø23ØØ DCBERR$ DB       'Driver already attached to *xx',CR
     72 69 76 65 72 2Ø 61 6C
     72 65 61 64 79 2Ø 61 74
     74 61 63 68 65 64 2Ø 74
     6F 2Ø 2A 78 78 ØD
261D           Ø231Ø DCBNAM$ EQU      $-3
262Ø 43        Ø232Ø CLACT$  DB       'COM driver is now resident',CR
     4F 4D 2Ø 64 72 69 76 65
     72 2Ø 69 73 2Ø 6E 6F 77
     2Ø 72 65 73 69 64 65 6E
     74 ØD
263B 4D         VIASET$ DB      'Must install via SET',CR
     75 73 74 2Ø 69 6E 73 74
     61 6C 6C 2Ø 76 69 61 2Ø
     53 45 54 ØD
265Ø ØA         HMEM$   DB      LF,'Note: driver installed in high memory',CR
     4E 6F 74 65 3A 2Ø 64 72
     69 76 65 72 2Ø 69 6E 73
     74 61 6C 6C 65 64 2Ø 69
     6E 2Ø 68 69 67 68 2Ø 6D
     65 6D 6F 72 79 ØD
                ;
ØØEØ            @WRINT  EQU     ØEØH
ØØ8Ø            WRINT$  EQU     8ØH
                ;
ØØE8            MASRES  EQU     ØE8H            ;RS232 ports
ØØE8            MODSTAT EQU     ØE8H
ØØE9            BAUDSET EQU     ØE9H
ØØEA            UARTCTL EQU     ØEAH
ØØEA            UARTST  EQU     ØEAH
ØØEB            DATAREG EQU     ØEBH
                ;
                ;       Actual driver
                ;
2677            CLDVR   EQU     $
2677 1831               JR      CLBGN           ;Branch around linkage
2679 6727               DW      CLEND           ;Last byte used
267B Ø3                 DB      3,'$CL'
     24 43 4C
267F ØØØØ       CLDCB   DW      $-$
2681 ØØØØ               DW      Ø
2683            CLDATA$ EQU     $
ØØØØ            MSMASK  EQU     $-CLDATA$
2683 ØØ                 DB      Ø
                ;
                ;       UART control port image
                ;
                ;       bit 7: 1 = even parity, Ø = odd parity
                ;       bits 6,5: word length <ØØ=5, 1Ø=6, Ø1=7, 11=8>
                ;       bit 4: 1 = 2 stop bits, Ø = 1 stop bit
                ;       bit 3: 1 = disable parity, Ø = enable parity
                ;       bit 2: 1 = enable transmit data, Ø = break
                ;       bit 1: Ø = Data Terminal Ready
                ;       bit Ø: Ø = Request to Send
                ;
ØØØ1            UCIMAGE EQU     $-CLDATA$
2684 A5                 DB      ØA5H
2685 55         BAUDRT  DB      55H             ;Init 3ØØ baud
ØØØ3            LOGBRK  EQU     $-CLDATA$
2686 Ø3                 DB      3               ;Default is Control-C
ØØØ4            CLFLG   EQU     $-CLDATA$
2687 ØØ                 DB      Ø               ;Init no char in buf
ØØØ5            CLBUF   EQU     $-CLDATA$
2688 ØØ                 DB      Ø               ;One-char buffer
                ;
                ;       CL initialization routine. Set up DR interrupt
                ;       vector & initialize the hardware
                ;
2689 211827     INIT    LD      HL,RECVINT      ;Vector address
268A            RXØ2    EQU     $-2
268C 22ØØØØ             LD      ($-$),HL        ;INTVC$+1Ø
```

```
268D            Ø284Ø INTVC   EQU     $-2
268F 218ØØØ     Ø285Ø         LD      HL,WRINT$        ;Interrupt enable mask
269Ø            Ø286Ø WRINT   EQU     $-2
2692 CBEE       Ø287Ø         SET     5,(HL)           ;Enable RS232 DR
2694 7E         Ø288Ø         LD      A,(HL)
2695 D3EØ       Ø289Ø         OUT     (@WRINT),A
2697 CD9D26     Ø29ØØ         CALL    CTL2             ;Init the hardware
2698            Ø291Ø RXØ3    EQU     $-2
269A C9         Ø292Ø LINK    RET                      ;Link back thru any
269B ØØ         Ø293Ø         DB      Ø,Ø              ;  existing ICNFG
     ØØ
                Ø294Ø ;
                Ø295Ø ;       Initialize the UART & BRG
                Ø296Ø ;
269D ED4B8426 Ø297Ø CTL2      LD      BC,(CLDATA$+UCIMAGE)    ;P/u values from DCB
269F            Ø298Ø RXØ4    EQU     $-2
26A1 D3E8       Ø299Ø         OUT     (MASRES),A       ;Reprime UART
26A3 79         Ø3ØØØ         LD      A,C
26A4 D3EA       Ø3Ø1Ø         OUT     (UARTCTL),A
26A6 78         Ø3Ø2Ø         LD      A,B
26A7 D3E9       Ø3Ø3Ø         OUT     (BAUDSET),A
26A9 C9         Ø3Ø4Ø         RET
                Ø3Ø5Ø ;
26AA DD218326 Ø3Ø6Ø CLBGN     LD      IX,CLDATA$       ;Point to data area
26AC            Ø3Ø7Ø RXØ5    EQU     $-2
26AE 3855       Ø3Ø8Ø         JR      C,RECV           ;Go if @GET request
26BØ 2841       Ø3Ø9Ø         JR      Z,SEND           ;Go if @PUT request
26B2 79         Ø31ØØ         LD      A,C              ;P/U @CTL byte
26B3 B7         Ø311Ø         OR      A                ;@CTL ØØ ?
26B4 2826       Ø312Ø         JR      Z,CANISND        ;Go if so
26B6 3D         Ø313Ø         DEC     A                ;@CTL Ø1 ?
26B7 2857       Ø314Ø         JR      Z,CTL1           ;Go if so
26B9 3D         Ø315Ø         DEC     A                ;Was it CTL-2 "INIT UART"
26BA 28E1       Ø316Ø         JR      Z,CTL2           ;Go if so
26BC FEØ2       Ø317Ø         CP      4-2              ;Wakeup feature?
26BE 28Ø2       Ø318Ø         JR      Z,CTL4           ;Go if wakeup feature
26CØ AF         Ø319Ø         XOR     A
26C1 C9         Ø32ØØ         RET
                Ø321Ø ;
26C2 FDE5       Ø322Ø CTL4    PUSH    IY               ;Transfer pointer to HL
26C4 E1         Ø323Ø         POP     HL
26C5 7C         Ø324Ø         LD      A,H              ;Test if set or reset
26C6 B5         Ø325Ø         OR      L
26C7 3EC9       Ø326Ø         LD      A,ØC9H           ;Init disable wakeup
26C9 EB         Ø327Ø         EX      DE,HL            ;Switch new value to DE
26CA 2A2127     Ø328Ø         LD      HL,(WAKEADR+1)   ;  & p/u old in HL
26CB            Ø329Ø RXØ6    EQU     $-2
26CD 28Ø2       Ø33ØØ         JR      Z,SETWAK         ;Jump if disable
26CF 3EC3       Ø331Ø         LD      A,ØC3H           ;Make enable
26D1 322Ø27     Ø332Ø SETWAK  LD      (WAKEADR),A      ;Load the opcode
26D2            Ø333Ø RXØ7    EQU     $-2
26D4 ED532127 Ø334Ø           LD      (WAKEADR+1),DE   ;Then the address
26D6            Ø335Ø RXØ8    EQU     $-2
26D8 E5         Ø336Ø         PUSH    HL               ;Transfer pointer to IY
26D9 FDE1       Ø337Ø         POP     IY
26DB C9         Ø338Ø         RET
                Ø339Ø ;
                Ø34ØØ ;       Check if ready to send
                Ø341Ø ;
26DC DBEA       Ø342Ø CANISND IN      A,(UARTST)       ;Look at TX empty bit
26DE 2F         Ø343Ø         CPL                      ;Flip it
```

```
26DF E640               AND     40H             ;Mask out all else
26E1 DBE8               IN      A,(MODSTAT)     ;P/U modem status reg
26E3 C0                 RET     NZ              ;Return if can't send
26E4 47                 LD      B,A             ;Save modem status reg
26E5 DDAE00             XOR     (IX+MSMASK)     ;Mask for which to flip
26E8 1F                 RRA                     ;Move into bits 0-3
26E9 1F                 RRA
26EA 1F                 RRA
26EB 1F                 RRA
26EC DDA600             AND     (IX+MSMASK)     ;Mask for which to check
26EF E60F               AND     0FH             ;Mask off garbage
26F1 78                 LD      A,B             ;Get back reg
26F2 C9                 RET                     ;Ret with Z or NZ
                ;
                ;       Send character
                ;
26F3 DD7E01     SEND    LD      A,(IX+UCIMAGE)  ;Get UART ctrl reg
26F6 D3EA               OUT     (UARTCTL),A     ;Put it (clears BREAK)
26F8 CDDC26     SWAIT   CALL    CANISND         ;Poll
26F9            RX09    EQU     $-2
26FB 20FB               JR      NZ,SWAIT        ; until ready
26FD 79                 LD      A,C             ;Get byte to send
26FE D3EB               OUT     (DATAREG),A     ;Send it with Z-flag
2700 C9                 RET                     ; unchanged for return
                ;
                ;       Receive character - Get from buffer if available
                ;
2701 CD2327     RECV1   CALL    CKINP           ;Ck if avail from port
2702            RX10    EQU     $-2
2704 C0                 RET     NZ              ;Back if none
2705 DDCB0426   RECV    SLA     (IX+CLFLG)      ;Ck if avail from buf
2709 30F6               JR      NC,RECV1        ;Go if none avail
270B DD7E05             LD      A,(IX+CLBUF)    ;Get the char
270E BF                 CP      A               ;Set Z-flag & exit
270F C9                 RET
                ;
                ;       Break request
                ;
2710 DD7E01     CTL1    LD      A,(IX+UCIMAGE)  ;Pick up UART ctl image
2713 CB97               RES     2,A             ;Show BREAK bit
2715 D3EA               OUT     (UARTCTL),A
2717 C9                 RET                     ;With Z-flag
                ;
                ;       Data received interrupt handler
                ;
2718 DD218326   RECVINT LD      IX,CLDATA$      ;Base of data area
271A            RX13    EQU     $-2
271C CD2327             CALL    CKINP           ;See if available from port
271D            RX12    EQU     $-2
271F 78                 LD      A,B
2720 C9         WAKEADR RET                     ;Wakeup if enabled
2721 0000               DW      0               ;Space for address
                ;
                ;       Routine to check on a received character
                ;
2723 DBEA       CKINP   IN      A,(UARTST)      ;Check if actually RX
2725 47                 LD      B,A             ;Save status
2726 E680               AND     80H             ;Mask Data Received bit
2728 EE80               XOR     80H             ;Set NZ if none avail
272A 3E00               LD      A,0             ;Set "No error"
272C C0                 RET     NZ              ;Return if none
```

```
272D DBEB       Ø4Ø5Ø          IN       A,(DATAREG)      ;Pick up character
272F 4F         Ø4Ø6Ø          LD       C,A              ;Save tempy in reg-C
                Ø4Ø7Ø ;
                Ø4Ø8Ø ;        Break, Pause & Enter handler routine
                Ø4Ø9Ø ;
273Ø 21ØØØØ     Ø41ØØ          LD       HL,$-$           ;KFLAG$
2731            Ø411Ø KFLAG    EQU      $-2
2733 FEØD       Ø412Ø          CP       CR               ;ENTER char received?
2735 2ØØ4       Ø413Ø          JR       NZ,PAWSCK        ;Go if not
2737 CBD6       Ø414Ø          SET      2,(HL)           ;Set ENTER bit
2739 1823       Ø415Ø          JR       RECVEX
                Ø416Ø ;
273B FE6Ø       Ø417Ø PAWSCK   CP       6ØH              ;Pause char received?
273D 2ØØ4       Ø418Ø          JR       NZ,BRKCHK        ;Go if not
273F CBCE       Ø419Ø          SET      1,(HL)           ;Set pause bit
2741 181B       Ø42ØØ          JR       RECVEX
                Ø421Ø ;
2743 DD7EØ3     Ø422Ø BRKCHK   LD       A,(IX+LOGBRK)    ;Break char received?
2746 B7         Ø423Ø          OR       A                ;Check if LOGBRK=Ø
2747 2815       Ø424Ø          JR       Z,RECVEX         ;No valid break if =Ø
2749 B9         Ø425Ø          CP       C                ;Check if a valid BREAK
274A 28Ø6       Ø426Ø          JR       Z,BRKRECD        ;Go if so
274C DBEA       Ø427Ø          IN       A,(UARTST)       ;Check for framing error
274E CB67       Ø428Ø          BIT      4,A
275Ø 28ØC       Ø429Ø          JR       Z,RECVEX         ;Quit if none
                Ø43ØØ ;
                Ø431Ø ;        A BREAK was received, ck system's BREAK disable
                Ø432Ø ;
2752 3AØØØØ     Ø433Ø BRKRECD  LD       A,($-$)          ;Check if break key
2753            Ø434Ø SFLAG    EQU      $-2
2755 E61Ø       Ø435Ø          AND      1ØH              ;  is disabled
2757 3EØØ       Ø436Ø          LD       A,Ø              ;Return NZ & A=Ø if
2759 CØ         Ø437Ø          RET      NZ               ;  the BREAK is disabled
275A CBC6       Ø438Ø          SET      Ø,(HL)           ;Else set break bit
275C ØE8Ø       Ø439Ø          LD       C,8ØH            ;  & reset BREAK code
275E DD71Ø5     Ø44ØØ RECVEX   LD       (IX+CLBUF),C     ;Put char into 1-char buf
2761 DD36Ø48Ø   Ø441Ø          LD       (IX+CLFLG),8ØH   ;  & set char available
2765 AF         Ø442Ø          XOR      A                ;Set Z flag
2766 C9         Ø443Ø          RET
2767            Ø444Ø CLEND    EQU      $
                Ø445Ø ;
2767 EC24       Ø446Ø RELTAB   DW       RXØ1,RXØ2,RXØ3,RXØ4,RXØ5,RXØ6,RXØ7,RXØ8
     8A26 9826 9F26 AC26 CB26 D226 D626
2777 F926       Ø447Ø          DW       RXØ9,RX1Ø,RX11,RX12,RX13
     Ø227 1Ø25 1D27 1A27
ØØØD            Ø448Ø TABLEN   EQU      $-RELTAB/2
                Ø449Ø ;
24ØØ            Ø45ØØ          END      BEGIN
```

```
@@1            ØØØØ @@2            ØØØØ @@3            ØØØØ
@@4            ØØØØ @MOD2          ØØØØ @MOD4          FFFF
@WRINT         ØØEØ BAUDRT         2685 BAUDSET        ØØE9
BEGIN          24ØØ BEGINA         24Ø9 BRKCHK         2743
BRKRECD        2752 CANISND        26DC CKINP          2723
CL$            2557 CLACT$         262Ø CLBGN          26AA
CLBUF          ØØØ5 CLDATA$        2683 CLDCB          267F
CLDVR          2677 CLEND          2767 CLFLG          ØØØ4
CR             ØØØD CTL1           271Ø CTL2           269D
CTL4           26C2 DATAREG        ØØEB DCBERR         2537
DCBERR$        26Ø1 DCBNAM$        261D HCPTR          2555
HELLO$         255B HGHFLG         2525 HMEM$          265Ø
INIT           2689 INTVC          268D IOERR          2548
ISRES          2514 KFLAG          2731 LCPTR          24F9
LF             ØØØA LINK           269A LOGBRK         ØØØ3
MASRES         ØØE8 MODSTAT        ØØE8 MSMASK         ØØØØ
NOROOM         253B NOROOM$        25E7 NOTRES         2471
NTHGH          252F PAWSCK         273B PUTLOW         24BD
RECV           27Ø5 RECV1          27Ø1 RECVEX         275E
RECVINT        2718 RELTAB         2767 RLOOP          24D3
RXØ1           24EC RXØ2           268A RXØ3           2698
RXØ4           269F RXØ5           26AC RXØ6           26CB
RXØ7           26D2 RXØ8           26D6 RXØ9           26F9
RX1Ø           27Ø2 RX11           251Ø RX12           271D
RX13           271A SEND           26F3 SETWAK         26D1
SFLAG          2753 SVEND          24C3 SWAIT          26F8
TABLEN         ØØØD UARTCTL        ØØEA UARTST         ØØEA
UCIMAGE        ØØØ1 VIASET         2533 VIASET$        263B
WAKEADR        272Ø WRINT          269Ø WRINT$         ØØ8Ø
@@ABORT        948A @@ADTSK        951D @@BANK         9A35
@@BKSP         9715 @@BREAK        9A4B @@CHNIO        9475
@@CKBRKC       9A99 @@CKDRV        9571 @@CKEOF        972A
@@CKTSK        95Ø8 @@CLOSE        97ØØ @@CLS          9A83
@@CMNDI        94B4 @@CMNDR        94C9 @@CTL          92D9
@@DATE         944B @@DCSTAT       95BØ @@DEBUG        94F3
@@DECHEX       99B5 @@DIRRD        9922 @@DIRWR        9937
@@DIV16        99AØ @@DIV8         998B @@DODIR        9586
@@DSP          929D @@DSPLY        933D @@ERROR        94DE
@@EXIT         949F @@FEXT         988F @@FLAGS        9A1F
@@FNAME        98A4 @@FSPEC        987A @@GATRD        99ØD
@@GATWR        994C @@GET          92B1 @@GTDCB        98CE
@@GTDCT        98B9 @@GTMOD        98E3 @@HDFMT        9658
@@HEX16        99F4 @@HEX8         99DF @@HEXDEC       99CA
@@HIGH$        9AØ9 @@INIT         96D6 @@KBD          9315
@@KEY          9289 @@KEYIN        9329 @@KLTSK        955C
@@LOAD         985Ø @@LOC          973F @@LOF          9754
@@LOGER        9374 @@LOGOT        9389 @@MSG          93CØ
@@MUL16        9976 @@MUL8         9961 @@OPEN         96EB
@@PARAM        9436 @@PAUSE        9421 @@PEOF         9769
@@POSN         977E @@PRINT        93D5 @@PRT          92ED
@@PUT          92C5 @@RAMDIR       959B @@RDSEC        962E
@@RDSSC        98F8 @@READ         9793 @@REMOV        96C1
@@RENAM        96AC @@REW          97A8 @@RMTSK        9532
@@RPTSK        9547 @@RREAD        97BD @@RSLCT        9619
@@RSTOR        95DA @@RUN          9865 @@RWRIT        97D2
@@SEEK         96Ø4 @@SEEKSC       97E7 @@SKIP         97FC
@@SLCT         95C5 @@STEPI        95EF @@TIME         946Ø
@@VDCTL        94ØC @@VER          9811 @@VRSEC        9643
@@WEOF         9826 @@WHERE        93Ø1 @@WRITE        983B
@@WRSEC        966D @@WRSSC        9682 @@WRTRK        9697
```

```
24ØØ is the transfer address
ØØØØØ Total errors
```

NOTES:

NOTES:

COMM/CMD - Terminal program with file send and receive

The Comm utility program acts as a terminal for communications work. Its features include file send and receive, and fully buffered device I/O (including printer spooling).

```
0000            00100 *GET    LCOMM
                00010 ;LCOMM/ASM - COMM Communications Program
0000            00020         TITLE   <COMM - LS-DOS 6.2>
0000            00030         SUBTTL  '<Program Code Section>'
                00040 ;
FFFF            00050 BUFFRD  EQU     -1              ;Set true
0080            00060 BREAK   EQU     80H             ;Char fm keyboard
000A            00070 LF      EQU     10
000D            00080 CR      EQU     13
0013            00090 XOFF    EQU     'S'&1FH
                00100 ;
0000            00110 *GET    SVCMAC:3                ;SVC Macro equivalents
                00120 ;SVCMAC/ASM - LS-DOS Version VI
                00130 *LIST   OFF
                04010 *LIST   ON
0000            04030 *GET    COPYCOM:3               ;Copyright messages
                04040 ; COPYCOM - File for Copyright COMment block
                04050 ;
0000            04060         COM     '<*(C) 1982,83,84 by LSI*>'
                04070 ;
3000            04080 BASE    EQU     3000H
3000            04090         ORG     BASE
                04100 ;
3000 210000     04110 $EXIT   LD      HL,0            ;Init no error
3003 310000     04120 QUIT$   LD      SP,$-$          ;P/u original stack
3004            04130 STACK   EQU     $-2
3006            04140         @@CKBRKC                ;Clear break bit
3005 3E6A       00001         LD      A,106
3008 EF         00002         RST     40
3009 C9         04150         RET
                04160 ;
300A 21FFFF     04170 $ABORT  LD      HL,-1           ;Set abort code
300D 18F4       04180         JR      QUIT$
                04190 ;
300F E5         04200 $OPEN   PUSH    HL
3010 210000     04210         LD      HL,$-$          ;Address of SFLAG$
3011            04220 SFLG    EQU     $-2
3013 CBC6       04230         SET     0,(HL)          ;Set open inhibit bit
3015 E1         04240         POP     HL
3016            04250         @@OPEN                  ;Do the open
3016 3E3B       00003         LD      A,59
3018 EF         00004         RST     40
3019 C9         04260         RET                     ;Return with status
                04270 ;
301A C5         04280 $ERROR  PUSH    BC
301B F6C0       04290         OR      0C0H            ;Set short,return
301D 4F         04300         LD      C,A             ;Error code to C
301E            04310         @@ERROR                 ;  for error display
301E 3E1A       00005         LD      A,26
3020 EF         00006         RST     40
3021 C1         04320         POP     BC
3022 C9         04330         RET
                04340 ;
3023 3E00       04350 MAINLP  LD      A,0             ;Test warning flag set
3025 B7         04360         OR      A               ;  by OUTPUT on NEXTAP
3026 280F       04370         JR      Z,ENUFPG        ;Go if > 2K of space
3028 21AC37     04380         LD      HL,LILPG$       ;Display warning
302B            04390         @@DSPLY
                00007         IFEQ    00H,1
                00008         LD      HL,
                00009         ENDIF
```

Program Code Section

```
3Ø2B 3EØA     ØØØ1Ø          LD      A,1Ø
3Ø2D EF       ØØØ11          RST     4Ø
3Ø2E 3E13     Ø44ØØ          LD      A,XOFF          ;Schedule a forced PUT
3Ø2F          Ø441Ø XOFFP2   EQU     $-1
3Ø3Ø 325234   Ø442Ø          LD      (FRCPUT+1),A
3Ø33 AF       Ø443Ø          XOR     A
3Ø34 32243Ø   Ø444Ø          LD      (MAINLP+1),A    ;Inhibit until next page
3Ø37 DD219538 Ø445Ø ENUFPG   LD      IX,KIVCTR       ;Get key from buffer if
3Ø3B CDB438   Ø446Ø          CALL    PGMGET          ;  available
3Ø3E 2Ø22     Ø447Ø          JR      NZ,SENDIT       ;Bypass if got one
3Ø4Ø 3EØØ     Ø448Ø FSSW     LD      A,Ø             ;FS On/Off (XMIT File)
3Ø42 B7       Ø449Ø          OR      A
3Ø43 2832     Ø45ØØ          JR      Z,FSOFF         ;Bypass if not XMTG
3Ø45 3AAD38   Ø451Ø CKFREPG  LD      A,(FREEPG)      ;Don't get from file
3Ø48 FEØC     Ø452Ø          CP      12              ;  if < 3K buffer space
3Ø4A DA773Ø   Ø453Ø          JP      C,FSOFF         ;Go if less
3Ø4D 11Ø438   Ø454Ø          LD      DE,FS_FCB       ;Get sending FCB
3Ø5Ø          Ø455Ø FSSWGO   @@GET                   ;Get a byte to XMIT
3Ø5Ø 3EØ3     ØØØ12          LD      A,3
3Ø52 EF       ØØØ13          RST     4Ø
3Ø53 28ØD     Ø456Ø          JR      Z,SENDIT        ;Bypass if got byte
3Ø55 FE1C     Ø457Ø          CP      1CH             ;EOF encountered?
3Ø57 28Ø3     Ø458Ø          JR      Z,EOFFS         ;Bypass if EOF
3Ø59 CD1A3Ø   Ø459Ø          CALL    $ERROR          ;Output error message
3Ø5C CDDA33   Ø46ØØ EOFFS    CALL    FS_OFF          ;Turn off XMIT
3Ø5F C3F43Ø   Ø461Ø          JP      SKIPREC         ;  and ignore this round
3Ø62 4F       Ø462Ø SENDIT   LD      C,A             ;Xfer byte
3Ø63 FEØØ     Ø463Ø XLTS1    CP      Ø               ;Single character send
3Ø65 2ØØ2     Ø464Ø          JR      NZ,DPLXSW       ;  translate table
3Ø67 ØEØØ     Ø465Ø XLTS2    LD      C,Ø
3Ø69 Ø6ØØ     Ø466Ø DPLXSW   LD      B,Ø             ;Duplex On/Off
3Ø6B Ø4       Ø467Ø          INC     B
3Ø6C Ø5       Ø468Ø          DEC     B               ;Display on our devices
3Ø6D C41631   Ø469Ø          CALL    NZ,DEVOUT       ;  if duplex on (half)
3Ø7Ø 3AFA33   Ø47ØØ LCMON    LD      A,(TASK8A+2)    ;Ck CL on
3Ø73 B7       Ø471Ø          OR      A
3Ø74 C4Ø231   Ø472Ø          CALL    NZ,SNDOUT       ;Send char if ON
3Ø77 3AFA33   Ø473Ø FSOFF    LD      A,(TASK8A+2)    ;Test for CL ON
3Ø7A B7       Ø474Ø          OR      A
3Ø7B CAF43Ø   Ø475Ø          JP      Z,SKIPREC       ;Go if not
3Ø7E DD219D38 Ø476Ø          LD      IX,CLREC
3Ø82 CDB438   Ø477Ø          CALL    PGMGET          ;Ck for char avail
3Ø85 CAF43Ø   Ø478Ø          JP      Z,SKIPREC       ;Go if no char
3Ø88 Ø6ØØ     Ø479Ø DSPCTRL  LD      B,Ø             ;Ck if display of control
3Ø8A Ø4       Ø48ØØ          INC     B               ;  codes is in effect
3Ø8B Ø5       Ø481Ø          DEC     B
3Ø8C 2813     Ø482Ø          JR      Z,SAVCHR        ;Go if no ctrl display
3Ø8E FE2Ø     Ø483Ø          CP      2ØH
3Ø9Ø 3ØØF     Ø484Ø          JR      NC,SAVCHR       ;Go if not ctrl
3Ø92 F5       Ø485Ø          PUSH    AF              ;Save the char
3Ø93 21BF35   Ø486Ø          LD      HL,BRAKET+1     ;Pt to control char msg
3Ø96 4F       Ø487Ø          LD      C,A
3Ø97          Ø488Ø          @@HEX8                  ;Cvrt char & stuff in buf
3Ø97 3E62     ØØØ14          LD      A,98
3Ø99 EF       ØØØ15          RST     4Ø
3Ø9A 21BE35   Ø489Ø          LD      HL,BRAKET       ;Start of msg string
3Ø9D          Ø49ØØ          @@DSPLY                 ;Display ASCII control value
              ØØØ16          IFEQ    ØØH,1
              ØØØ17          LD      HL,
```

Program Code Section

```
                00018          ENDIF
309D 3E0A       00019          LD      A,10
309F EF         00020          RST     40
30A0 F1         04910          POP     AF                ;Rcvr char
30A1 4F         04920 SAVCHR   LD      C,A               ;Save char
30A2 0600       04930 SHAKE    LD      B,0               ;Handshake On/Off
30A4 04         04940          INC     B
30A5 05         04950          DEC     B
30A6 2820       04960          JR      Z,ECHOSW          ;Go if off
30A8 FE11       04970          CP      'Q'&1FH           ;Ctrl-Q?
30A9            04980 XONP1    EQU     $-1               ;Modify if PARM
30AA 2806       04990          JR      Z,CTLQ            ;Go if so
30AC FE13       05000          CP      'S'&1FH           ;Ctrl-S?
30AD            05010 XOFFP1   EQU     $-1               ;Modify if parm entered
30AE 2008       05020          JR      NZ,NOSQ           ;Go if neither
30B0 0600       05030          LD      B,0               ;Turn off
30B2 78         05040 CTLQ     LD      A,B               ;  or on
30B3 324534     05050          LD      (TASK8B+1),A      ;*CL send task
30B6 183C       05060          JR      SKIPREC           ;Discard ctrl code
30B8 FE12       05070 NOSQ     CP      'R'&1FH           ;Ctrl-R?
30BA 2806       05080          JR      Z,CTLR            ;Go if so
30BC FE14       05090          CP      'T'&1FH           ;Ctrl-T?
30BE 2008       05100          JR      NZ,ECHOSW         ;Go if neither
30C0 0600       05110          LD      B,0               ;Turn off
30C2 78         05120 CTLR     LD      A,B               ;  or on
30C3 322E31     05130          LD      (FRSW+1),A        ;FR device
30C6 182C       05140          JR      SKIPREC           ;Discard ctrl code
                05150 ;
                05160 ;        Test for ECHO after checking for handshake chars
                05170 ;
30C8 0600       05180 ECHOSW   LD      B,0               ;Echo On/Off?
30CA 04         05190          INC     B
30CB 05         05200          DEC     B
30CC C4FA30     05210          CALL    NZ,CLOUT          ;Send char back if ON
30CF 79         05220          LD      A,C
30D0 FE0D       05230          CP      CR                ;Was it a CR?
30D2 200B       05240          JR      NZ,NOTCR
30D4 CD0931     05250          CALL    ECLF1             ;Send LF back if needed
30D7 21E130     05260          LD      HL,CRSW+1         ;Flag for CR recvd
                05270 ;
                05280 ;        Move state of ACCEPT LF switch into CRSW+1 when CR recv'd
                05290 ;
30DA 3E00       05300 ACCLFSW  LD      A,0               ;Show CR found if accept
30DC 77         05310          LD      (HL),A            ;  LF switch is off
30DD 1812       05320          JR      TAKEREC           ;Dsp CR
                05330 ;
                05340 ;        When LF rcv'd, delete if ACCLFSW is off & last char was CR
                05350 ;
30DF 79         05360 NOTCR    LD      A,C               ;Check char
30E0 06FF       05370 CRSW     LD      B,0FFH            ;P/u del LF switch
30E2 21E130     05380          LD      HL,CRSW+1         ;Pt to switch
30E5 36FF       05390          LD      (HL),0FFH         ; (flip off switch -not CR)
30E7 FE0A       05400          CP      LF                ;Is line feed the char?
30E9 2006       05410          JR      NZ,TAKEREC        ;Go if not LF
30EB 3A1F34     05420          LD      A,(EIGHT+1)       ;Also skip if 8 bit
30EE B0         05430          OR      B                 ;  switch is off
30EF 2803       05440          JR      Z,SKIPREC         ;Skip LF if so
                05450 ;
30F1 CD1631     05460 TAKEREC  CALL    DEVOUT            ;Out to active devices
```

Program Code Section

```
3ØF4 CDE933    Ø547Ø SKIPREC CALL    TASKS           ;Do 3 tasks (incl kbd)
3ØF7 C3233Ø    Ø548Ø         JP      MAINLP          ;  & FRIO test then loop
               Ø549Ø ;
3ØFA 79        Ø55ØØ CLOUT   LD      A,C             ;Get char
3ØFB DD21A138  Ø551Ø         LD      IX,CLSEND       ;Set buffer pointers
3ØFF C3AE38    Ø552Ø         JP      OUTPGM          ;Put in output buffer
               Ø553Ø ;
31Ø2 CDFA3Ø    Ø554Ø SNDOUT  CALL    CLOUT           ;Send this character
31Ø5 79        Ø555Ø         LD      A,C             ;Is it CR?
31Ø6 FEØD      Ø556Ø         CP      CR
31Ø8 CØ        Ø557Ø         RET     NZ              ;Done if not
               Ø558Ø ;
31Ø9 3EØØ      Ø559Ø ECLF1   LD      A,$-$           ;Is echo linefeed on?
31ØA           Ø56ØØ ECOLF   EQU     $-1
31ØB B7        Ø561Ø         OR      A
31ØC C8        Ø562Ø         RET     Z               ;Done if not
31ØD 3EØA      Ø563Ø         LD      A,LF            ;Otherwise load a LF
31ØF DD21A138  Ø564Ø         LD      IX,CLSEND
3113 C3AE38    Ø565Ø         JP      OUTPGM          ;Add to buffer/ret to caller
               Ø566Ø ;
               Ø567Ø ;       Output to video
               Ø568Ø ;
3116 3EFF      Ø569Ø DEVOUT  LD      A,ØFFH          ;Is *DO On/Off?
3118 B7        Ø57ØØ         OR      A
3119 2812      Ø571Ø         JR      Z,FRSW          ;Bypass if off
311B 79        Ø572Ø         LD      A,C
311C FEØC      Ø573Ø         CP      ØCH             ;If formfeed,
311E 4F        Ø574Ø         LD      C,A
311F C5        Ø575Ø         PUSH    BC
312Ø 2ØØ7      Ø576Ø         JR      NZ,NOTCLS       ;  clear the screen
3122 ØE1C      Ø577Ø         LD      C,1CH           ;Cursor home
3124           Ø578Ø         @@DSP
3124 3EØ2      ØØØ21         LD      A,2
3126 EF        ØØØ22         RST     4Ø
3127 ØE1F      Ø579Ø         LD      C,1FH           ;Clear to end-of-frame
3129           Ø58ØØ NOTCLS  @@DSP
3129 3EØ2      ØØØ23         LD      A,2
312B EF        ØØØ24         RST     4Ø
312C C1        Ø581Ø         POP     BC
               Ø582Ø ;
               Ø583Ø ;       Send char to our disk if FR on
               Ø584Ø ;
312D 3EØØ      Ø585Ø FRSW    LD      A,Ø             ;FR On/Off - receive file
312F B7        Ø586Ø         OR      A
313Ø 28Ø8      Ø587Ø         JR      Z,PUTPR         ;Bypass if FR off
3132 79        Ø588Ø         LD      A,C
3133 DD21A938  Ø589Ø         LD      IX,FRVCTR       ;Put away into the
3137 CDAE38    Ø59ØØ         CALL    OUTPGM          ;  FR buffer
               Ø591Ø ;
               Ø592Ø ;       Place char into printer buffer if PR on
               Ø593Ø ;
313A 3EØØ      Ø594Ø PUTPR   LD      A,Ø             ;PR On/Off?
313C B7        Ø595Ø         OR      A
313D 28Ø8      Ø596Ø         JR      Z,FRIOSW        ;Go if off
313F 79        Ø597Ø         LD      A,C
314Ø DD219938  Ø598Ø         LD      IX,PRVCTR       ;Place the char in
3144 CDAE38    Ø599Ø         CALL    OUTPGM          ;  the printer buffer
               Ø6ØØØ ;
               Ø6Ø1Ø ;       Check if FR to disk is engaged
```

Program Code Section

```
               Ø6Ø2Ø ;
3147 3EFF      Ø6Ø3Ø FRIOSW   LD      A,-1            ;Ck if FR-to-disk is on
3149 B7        Ø6Ø4Ø          OR      A
314A C8        Ø6Ø5Ø          RET     Z               ;Go if not engaged
314B DD21A938  Ø6Ø6Ø          LD      IX,FRVCTR       ;Is a char available
314F CDB438    Ø6Ø7Ø          CALL    PGMGET          ;  for the disk?
3152 C8        Ø6Ø8Ø          RET     Z               ;Go if none for disk
3153 212438    Ø6Ø9Ø          LD      HL,FR_FCB       ;Put char to disk
3156 CB7E      Ø61ØØ          BIT     7,(HL)          ;OPEN FCB?
3158 C8        Ø611Ø          RET     Z               ;Skip if not
3159 EB        Ø612Ø          EX      DE,HL
315A 4F        Ø613Ø          LD      C,A             ;Place char in "C"
315B           Ø614Ø          @@PUT                   ;  and do the write
315B 3EØ4      ØØØ25          LD      A,4
315D EF        ØØØ26          RST     4Ø
315E C8        Ø615Ø          RET     Z               ;Back if good
315F CD1A3Ø    Ø616Ø          CALL    $ERROR
3162 CDE433    Ø617Ø          CALL    FRIO_OFF        ;Turn FRIO to disk off
3165 C3DF33    Ø618Ø          JP      FR_OFF          ;Turn FR off and return
               Ø619Ø ;
               Ø62ØØ ;        <CLEAR> command function entered - decode it
               Ø621Ø ;
3168 Ø1ØØØØ    Ø622Ø CMDKEY   LD      BC,Ø            ;Init no device vector
316B 11ØØØØ    Ø623Ø          LD      DE,Ø            ;Init no File FCB
316E 21893Ø    Ø624Ø          LD      HL,DSPCTRL+1    ;Pt to ctrl char dsply parm
               Ø625Ø          IF      @MOD4
3171 FEA7      Ø626Ø          CP      27H!8ØH         ;Display control chars?
               Ø627Ø          ENDIF
               Ø628Ø          IF      @MOD2
               Ø629Ø          CP      '&'+8ØH
               Ø63ØØ          ENDIF
3173 CA3332    Ø631Ø          JP      Z,QFUNC
               Ø632Ø ;
3176 216A3Ø    Ø633Ø          LD      HL,DPLXSW+1
3179 FEA1      Ø634Ø          CP      '!'+8ØH         ;Ck duplex
317B CA3332    Ø635Ø          JP      Z,QFUNC
               Ø636Ø ;
317E 21C93Ø    Ø637Ø          LD      HL,ECHOSW+1
               Ø638Ø          IF      @MOD4
3181 FEA2      Ø639Ø          CP      '"'+8ØH         ;Ck echo
               Ø64ØØ          ENDIF
               Ø641Ø          IF      @MOD2
               Ø642Ø          CP      '@'+8ØH
               Ø643Ø          ENDIF
3183 CA3332    Ø644Ø          JP      Z,QFUNC
               Ø645Ø ;
3186 21A33Ø    Ø646Ø          LD      HL,SHAKE+1      ;Check handshake
               Ø647Ø          IF      @MOD4
3189 FEAA      Ø648Ø          CP      '*'+8ØH
               Ø649Ø          ENDIF
               Ø65ØØ          IF      @MOD2
               Ø651Ø          CP      '_'+8ØH
               Ø652Ø          ENDIF
318B CA4232    Ø653Ø          JP      Z,QSHAKE
               Ø654Ø ;
318E 21ØA31    Ø655Ø          LD      HL,ECOLF
3191 FEA3      Ø656Ø          CP      '#'+8ØH         ;Echo line feed?
3193 CA3332    Ø657Ø          JP      Z,QFUNC
               Ø658Ø ;
```

Program Code Section

```
3196 21DB3Ø   Ø659Ø          LD     HL,ACCLFSW+1     ;Check accept-LF
3199 FEA4     Ø66ØØ          CP     '$'+8ØH
319B CA3332   Ø661Ø          JP     Z,QFUNC
              Ø662Ø ;
319E 211F34   Ø663Ø          LD     HL,EIGHT+1       ;Check 8-bit
              Ø664Ø          IF     @MOD4
31A1 FEA9     Ø665Ø          CP     ')'+8ØH
              Ø666Ø          ENDIF
              Ø667Ø          IF     @MOD2
              Ø668Ø          CP     '('+8ØH
              Ø669Ø          ENDIF
31A3 CA3332   Ø67ØØ          JP     Z,QFUNC
              Ø671Ø ;
31A6 Ø19538   Ø672Ø          LD     BC,KIVCTR        ;Init *KI put/get index
31A9 218134   Ø673Ø          LD     HL,KISW+1
31AC FEB1     Ø674Ø          CP     '1'+8ØH          ;CK *KI
31AE CA3332   Ø675Ø          JP     Z,QFUNC
              Ø676Ø ;
31B1 Ø1ØØØØ   Ø677Ø          LD     BC,Ø             ;No *DO put/get index
31B4 211731   Ø678Ø          LD     HL,DEVOUT+1
31B7 FEB2     Ø679Ø          CP     '2'+8ØH          ;CK *DO
31B9 2878     Ø68ØØ          JR     Z,QFUNC
              Ø681Ø ;
31BB Ø19938   Ø682Ø          LD     BC,PRVCTR        ;Init *PR put/get index
31BE 213B31   Ø683Ø          LD     HL,PUTPR+1
31C1 FEB3     Ø684Ø          CP     '3'+8ØH          ;CK *PR
31C3 286E     Ø685Ø          JR     Z,QFUNC
              Ø686Ø ;
31C5 Ø1A138   Ø687Ø          LD     BC,CLSEND        ;Init *CL-S put/get index
31C8 21FA33   Ø688Ø          LD     HL,TASK8A+2
31CB FEB4     Ø689Ø          CP     '4'+8ØH          ;CK *CL
31CD 2869     Ø69ØØ          JR     Z,QCL
              Ø691Ø ;
31CF Ø1A538   Ø692Ø          LD     BC,FSVCTR        ;Init *FS put/get index
31D2 11Ø438   Ø693Ø          LD     DE,FS_FCB        ;Init *FS FCB
31D5 DD21ØØ3A Ø694Ø          LD     IX,XMTBUF        ;Point to buffer
31D9 21413Ø   Ø695Ø          LD     HL,FSSW+1
31DC FEB5     Ø696Ø          CP     '5'+8ØH          ;CK FS
31DE 2853     Ø697Ø          JR     Z,QFUNC
              Ø698Ø ;
31EØ Ø1A938   Ø699Ø          LD     BC,FRVCTR        ;P/u *FR put/get index
31E3 112438   Ø7ØØØ          LD     DE,FR_FCB        ;P/u *FR FCB
31E6 DD21ØØ3B Ø7Ø1Ø          LD     IX,RCVBUF        ;Pt to buffer
31EA 212E31   Ø7Ø2Ø          LD     HL,FRSW+1
31ED FEB6     Ø7Ø3Ø          CP     '6'+8ØH          ;CK FR
31EF 2842     Ø7Ø4Ø          JR     Z,QFUNC
              Ø7Ø5Ø ;
31F1 214831   Ø7Ø6Ø          LD     HL,FRIOSW+1
31F4 11ØØØØ   Ø7Ø7Ø          LD     DE,Ø             ;No FCB here
31F7 FEB7     Ø7Ø8Ø          CP     '7'!8ØH          ;Check FR IO to disk?
31F9 2838     Ø7Ø9Ø          JR     Z,QFUNC
              Ø71ØØ ;
31FB FEB8     Ø711Ø          CP     '8'!8ØH          ;Menu request?
31FD CA9A32   Ø712Ø          JP     Z,MENU
              Ø713Ø ;
              Ø714Ø          IF     @MOD4
32ØØ FEA8     Ø715Ø          CP     '('!8ØH          ;Local clear screen?
              Ø716Ø          ENDIF
              Ø717Ø          IF     @MOD2
```

Program Code Section

```
                 Ø718Ø          CP      '*'+8ØH
                 Ø719Ø          ENDIF
32Ø2 CA8F32      Ø72ØØ          JP      Z,CLS
                 Ø721Ø ;
                 Ø722Ø          IF      @MOD4
32Ø5 FEAØ        Ø723Ø          CP      2ØH!8ØH         ;Clr-shf-Ø?
                 Ø724Ø          ENDIF
                 Ø725Ø          IF      @MOD2
                 Ø726Ø          CP      ')'+8ØH
                 Ø727Ø          ENDIF
32Ø7 CA6535      Ø728Ø          JP      Z,DOSCMD        ;Do CMDR
                 Ø729Ø ;
                 Ø73ØØ          IF      @MOD4
32ØA FEBD        Ø731Ø          CP      '='+8ØH         ;CK LDOS exit
                 Ø732Ø          ENDIF
                 Ø733Ø          IF      @MOD2
                 Ø734Ø          CP      '+'+8ØH
                 Ø735Ø          ENDIF
32ØC C27D32      Ø736Ø          JP      NZ,CMDERR
                 Ø737Ø ;
                 Ø738Ø ;
                 Ø739Ø ;        Exit from LCOMM - Remove task vectors
                 Ø74ØØ ;
                 Ø741Ø EXIT
                 Ø742Ø          IF      .NOT.BUFFRD
                 Ø743Ø          LD      C,8             ;Remove comm line scan task
32ØF             Ø744Ø          @@RMTSK
                 ØØØ27          LD      A,3Ø
                 ØØØ28          RST     4Ø
                 Ø745Ø ;
                 Ø746Ø          LD      C,9             ;Rmv printer task if used
32ØF             Ø747Ø          @@RMTSK
                 ØØØ29          LD      A,3Ø
                 ØØØ3Ø          RST     4Ø
                 Ø748Ø          ENDIF
                 Ø749Ø ;
                 Ø75ØØ          IF      BUFFRD
32ØF 11E437      Ø751Ø          LD      DE,CLDCB        ;Turn off wakeup feature
3212 FD21ØØØØ    Ø752Ø          LD      IY,$-$
3214             Ø753Ø OLDVEC   EQU     $-2             ;Restoring previous state
3216 ØEØ4        Ø754Ø          LD      C,4
3218             Ø755Ø          @@CTL
3218 3EØ5        ØØØ31          LD      A,5
321A EF          ØØØ32          RST     4Ø
                 Ø756Ø          ENDIF
                 Ø757Ø ;
321B CDDF33      Ø758Ø          CALL    FR_OFF          ;Turn off any receive file
321E 112438      Ø759Ø          LD      DE,FR_FCB
3221 1A          Ø76ØØ          LD      A,(DE)
3222 CB7F        Ø761Ø          BIT     7,A             ;Is it an open file?
3224 CAØØ3Ø      Ø762Ø          JP      Z,$EXIT         ;Exit if not else
3227             Ø763Ø          @@CLOSE                 ;  make sure it's closed
3227 3E3C        ØØØ33          LD      A,6Ø
3229 EF          ØØØ34          RST     4Ø
322A CAØØ3Ø      Ø764Ø          JP      Z,$EXIT         ;Exit if no error
322D CD1A3Ø      Ø765Ø          CALL    $ERROR
323Ø C3ØA3Ø      Ø766Ø          JP      $ABORT          ;Terminate
                 Ø767Ø ;
                 Ø768Ø ;        Query function ON or OFF
```

Program Code Section

```
              07690 ;
3233 CD5A32   07700 QFUNC   CALL    QONOFF          ;Get On or Off response
3236 77       07710         LD      (HL),A          ;Save which one
3237 C9       07720         RET
              07730 ;
              07740 ;       Query *CL on or off
              07750 ;
3238 CD5A32   07760 QCL     CALL    QONOFF
323B 77       07770         LD      (HL),A
323C B7       07780         OR      A               ;On or off?
323D C8       07790         RET     Z               ;Quit if off
323E 324534   07800         LD      (TASK8B+1),A    ;Force CL-send on as well
3241 C9       07810         RET
              07820 ;
              07830 ;       Query handshake on or off
              07840 ;
3242 D5       07850 QSHAKE  PUSH    DE
3243          07860         @@KEY                   ;Get one key
3243 3E01     00035         LD      A,1
3245 EF       00036         RST     40
3246 D1       07870         POP     DE
3247 A7       07880         AND     A               ;Be sure flags are set
3248 FA5132   07890         JP      M,QSHAKE1       ;Go if PF key
324B 326B34   07900         LD      (AUTXOFF+1),A   ;Save key as auto XOFF
324E 36FF     07910         LD      (HL),0FFH       ;Turn on handshake
3250 C9       07920         RET
3251 CD5F32   07930 QSHAKE1 CALL    QONOFF1         ;Parse ON or OFF
3254 77       07940         LD      (HL),A          ;Turn on or off
3255 AF       07950         XOR     A               ;Turn off auto XOFF
3256 326B34   07960         LD      (AUTXOFF+1),A
3259 C9       07970         RET
325A D5       07980 QONOFF  PUSH    DE              ;Hang on to register
325B          07990         @@KEY                   ;Get the operand key
325B 3E01     00037         LD      A,1
325D EF       00038         RST     40
325E D1       08000         POP     DE              ;Restore the register
325F          08010 QONOFF1 EQU     $
              08020         IF      @MOD4
325F FEAD     08030         CP      '-'+80H         ;Ck OFF
              08040         ENDIF
              08050         IF      @MOD2
              08060         CP      '='+80H
              08070         ENDIF
3261 2821     08080         JR      Z,TURNOF        ;  and go if off
              08090         IF      @MOD4
3263 FEBA     08100         CP      ':'+80H         ;Ck ON
              08110         ENDIF
              08120         IF      @MOD2
              08130         CP      '-'+80H
              08140         ENDIF
3265 281F     08150         JR      Z,TURNON        ;  and go if on
3267 E3       08160 POPERR  EX      (SP),HL         ;Discard ret address
3268 E1       08170         POP     HL
3269 FEB9     08180         CP      '9'+80H         ;Ck ID
326B CA9633   08190         JP      Z,FILID
              08200 ;
326E FEB0     08210         CP      '0'+80H         ;Ck RESET
3270 CA4C33   08220         JP      Z,FILRES
              08230 ;
```

Program Code Section

```
3273 FEA5     08240          CP      '%'+80H         ;Ck REWIND
3275 CA8433   08250          JP      Z,FILREW
              08260 ;
              08270          IF      @MOD4
3278 FEA6     08280          CP      '&'+80H         ;Ck PEOF
              08290          ENDIF
              08300          IF      @MOD2
              08310          CP      '^'+80H
              08320          ENDIF
327A CA8D33   08330          JP      Z,FILEOF
              08340 ;
327D 218D37   08350 CMDERR   LD      HL,CMDERR$      ;None of above, dsply
3280          08360          @@DSPLY                 ;  "Unacceptable command...
              00039          IFEQ    00H,1
              00040          LD      HL,
              00041          ENDIF
3280 3E0A     00042          LD      A,10
3282 EF       00043          RST     40
3283 C9       08370          RET
              08380 ;
              08390 ;        Process OFF
              08400 ;
3284 AF       08410 TURNOF   XOR     A               ;Off = 0
3285 C9       08420          RET
              08430 ;
              08440 ;        Process ON
              08450 ;
3286 EB       08460 TURNON   EX      DE,HL           ;Shift "FCB" to HL
3287 CB7E     08470          BIT     7,(HL)          ;FCB on or non-file?
3289 EB       08480          EX      DE,HL           ;If non-file, HL now
328A 3EFF     08490          LD      A,0FFH          ;  points to X'0000'
328C C0       08500          RET     NZ              ;  which contains X'F3'
328D 18D8     08510          JR      POPERR          ;Is an error
              08520 ;
              08530 ;        Process Clear Screen
              08540 ;
328F 0E1C     08550 CLS      LD      C,1CH           ;Cursor home
3291          08560          @@DSP
3291 3E02     00044          LD      A,2
3293 EF       00045          RST     40
3294 0E1F     08570          LD      C,1FH           ;Clear to end-of-frame
3296          08580          @@DSP
3296 3E02     00046          LD      A,2
3298 EF       00047          RST     40
3299 C9       08590          RET
              08600 ;
              08610 ;        Process MENU
              08620 ;
329A          08630 MENU     EQU     $
329A 21E635   08640          LD      HL,STAT1        ;Clear top row status
329D 11E735   08650          LD      DE,STAT1+1      ;1st char always a space
32A0 014200   08660          LD      BC,66
32A3 EDB0     08670          LDIR
32A5 210537   08680          LD      HL,STAT2        ;Clear bottom row status
32A8 110637   08690          LD      DE,STAT2+1
32AB 0E26     08700          LD      C,38
32AD EDB0     08710          LDIR
32AF 060F     08720          LD      B,15            ;Init loop count
32B1 212D37   08730          LD      HL,STATAB       ;Words where status stored
```

Program Code Section

```
32B4 5E         STATLP1 LD      E,(HL)          ;P/u lo-switch
32B5 23                 INC     HL
32B6 56                 LD      D,(HL)          ;P/u hi-switch
32B7 23                 INC     HL
32B8 7E                 LD      A,(HL)          ;P/u lo-stuff
32B9 23                 INC     HL
32BA E5                 PUSH    HL              ;Save pointer
32BB 66                 LD      H,(HL)          ;P/u hi-stuff
32BC 6F                 LD      L,A             ;Xfer lo-stuff
32BD 1A                 LD      A,(DE)          ;Get status
32BE B7                 OR      A               ;Active or not?
32BF 28Ø2               JR      Z,$+4           ;Go if not
32C1 362A               LD      (HL),'*'        ;  else stuf an '*'
32C3 E1                 POP     HL              ;Rcvr pointer
32C4 23                 INC     HL              ;Bump to next pos
32C5 1ØED               DJNZ    STATLP1
32C7 1A                 LD      A,(DE)          ;P/u shake again
32C8 B7                 OR      A
32C9 28ØD               JR      Z,STATLP2       ;Go if off
32CB 3A6B34             LD      A,(AUTXOFF+1)   ;Check if xoff char set
32CE B7                 OR      A
32CF 28Ø7               JR      Z,STATLP2       ;Skip if not special char
32D1 212536             LD      HL,STAT1+63     ;Auto x-off char posn
32D4 4F                 LD      C,A
32D5                    @@HEX8                  ;Cvrt to ASCII for display
32D5 3E62               LD      A,98
32D7 EF                 RST     4Ø
32D8 21E535     STATLP2 LD      HL,MNUMSG       ;Ptr to Comm menu
32DB                    @@DSPLY                 ;Display prelim status
                        IFEQ    ØØH,1
                        LD      HL,
                        ENDIF
32DB 3EØA               LD      A,1Ø
32DD EF                 RST     4Ø
32DE 21Ø438             LD      HL,FS_FCB       ;FS file open?
32E1 CB7E               BIT     7,(HL)
32E3 281C               JR      Z,STATLP3       ;Go if closed
32E5 114438             LD      DE,DUMMY        ;Recover its name w/o
32E8 D5                 PUSH    DE              ;   changing the FCB
32E9 Ø12ØØØ             LD      BC,32
32EC EDBØ               LDIR                    ;  by creating a duplicate
32EE D1                 POP     DE              ;  open FCB
32EF ED4B4A38           LD      BC,(DUMMY+6)    ;Get drive and DEC
32F3 D5                 PUSH    DE
32F4                    @@FNAME                 ;Call for name recover
32F4 3E5Ø               LD      A,8Ø
32F6 EF                 RST     4Ø
32F7 216937             LD      HL,FSNAME$      ;Output "FS-SPEC: "
32FA                    @@DSPLY
                        IFEQ    ØØH,1
                        LD      HL,
                        ENDIF
32FA 3EØA               LD      A,1Ø
32FC EF                 RST     4Ø
32FD E1                 POP     HL              ;Rcvr fcb pointer and
32FE                    @@DSPLY                 ;  display the filespec
                        IFEQ    ØØH,1
                        LD      HL,
                        ENDIF
```

Program Code Section

```
32FE 3EØA      ØØØ65          LD      A,1Ø
33ØØ EF        ØØØ66          RST     4Ø
33Ø1 212438    Ø916Ø STATLP3  LD      HL,FR_FCB        ;Is the FR file open?
33Ø4 CB7E      Ø917Ø          BIT     7,(HL)
33Ø6 281C      Ø918Ø          JR      Z,STATLP4        ;Go if closed
33Ø8 114438    Ø919Ø          LD      DE,DUMMY         ;Similar to above
33ØB D5        Ø92ØØ          PUSH    DE
33ØC Ø12ØØØ    Ø921Ø          LD      BC,32
33ØF EDBØ      Ø922Ø          LDIR                     ;Create a duplicate FCB
3311 D1        Ø923Ø          POP     DE
3312 ED4B4A38  Ø924Ø          LD      BC,(DUMMY+6)     ;P/u Drive & DEC
3316 D5        Ø925Ø          PUSH    DE
3317           Ø926Ø          @@FNAME                  ;Call for name recover
3317 3E5Ø      ØØØ67          LD      A,8Ø
3319 EF        ØØØ68          RST     4Ø
331A 217337    Ø927Ø          LD      HL,FRNAME$       ;"FR-SPEC:"
331D           Ø928Ø          @@DSPLY
               ØØØ69          IFEQ    ØØH,1
               ØØØ7Ø          LD      HL,
               ØØØ71          ENDIF
331D 3EØA      ØØØ72          LD      A,1Ø
331F EF        ØØØ73          RST     4Ø
332Ø E1        Ø929Ø          POP     HL               ;P/u name start
3321           Ø93ØØ          @@DSPLY                  ;  and dsply it
               ØØØ74          IFEQ    ØØH,1
               ØØØ75          LD      HL,
               ØØØ76          ENDIF
3321 3EØA      ØØØ77          LD      A,1Ø
3323 EF        ØØØ78          RST     4Ø
3324 3AAD38    Ø931Ø STATLP4  LD      A,(FREEPG)       ;How much buffer left
3327 ØF        Ø932Ø          RRCA                     ;Divide by 4 to show
3328 ØF        Ø933Ø          RRCA                     ;  in K
3329 E63F      Ø934Ø          AND     3FH              ;No bit 7 nor 6
332B 218937    Ø935Ø          LD      HL,PAGSPR$+1Ø    ;Where to stuff
332E Ø6FF      Ø936Ø          LD      B,-1             ;Init to count 1Ø's
333Ø Ø4        Ø937Ø CVD1     INC     B
3331 D6ØA      Ø938Ø          SUB     1Ø               ;How many tens?
3333 3ØFB      Ø939Ø          JR      NC,CVD1          ;Go if no more
3335 F5        Ø94ØØ CVD2     PUSH    AF               ;Save remainder
3336 78        Ø941Ø          LD      A,B              ;P/u tens
3337 B7        Ø942Ø          OR      A                ;Was it zero tens?
3338 Ø62Ø      Ø943Ø          LD      B,' '            ;Init for space
333A 28Ø2      Ø944Ø          JR      Z,$+4            ;Go if no tens
333C Ø63Ø      Ø945Ø          LD      B,'Ø'            ;Init for ASCII
333E 8Ø        Ø946Ø          ADD     A,B              ;Convert to ASCII
333F 77        Ø947Ø          LD      (HL),A           ;Stuff & bump
334Ø 23        Ø948Ø          INC     HL
3341 F1        Ø949Ø          POP     AF               ;Get remainder
3342 C63A      Ø95ØØ          ADD     A,3AH            ;Adjust units place
3344 77        Ø951Ø          LD      (HL),A
3345 217F37    Ø952Ø          LD      HL,PAGSPR$       ;"Memory:   K"
3348           Ø953Ø          @@DSPLY
               ØØØ79          IFEQ    ØØH,1
               ØØØ8Ø          LD      HL,
               ØØØ81          ENDIF
3348 3EØA      ØØØ82          LD      A,1Ø
334A EF        ØØØ83          RST     4Ø
334B C9        Ø954Ø          RET
               Ø955Ø ;
```

Program Code Section

```
               Ø956Ø ;        Process RESET of a "device"
               Ø957Ø ;
334C 78        Ø958Ø FILRES  LD      A,B             ;Check if a device vector
334D B1        Ø959Ø         OR      C               ;  was passed
334E CA7D32    Ø96ØØ         JP      Z,CMDERR        ;Go if not - is error
3351 7A        Ø961Ø         LD      A,D             ;Check for a possible
3352 B3        Ø962Ø         OR      E               ;  FCB for disk
3353 2Ø16      Ø963Ø         JR      NZ,FILR4        ;Go if disk else device
               Ø964Ø ;
               Ø965Ø ;        Reset the page buffer(s) for the device
               Ø966Ø ;
3355 F3        Ø967Ø FILR1   DI                      ;No interrupts until done
3356 6Ø        Ø968Ø         LD      H,B             ;Xfer vector table entry
3357 69        Ø969Ø         LD      L,C             ;  to grab put/get index
3358 4E        Ø97ØØ         LD      C,(HL)          ;P/u the PUT pointer
3359 23        Ø971Ø         INC     HL              ;  and make the GET
335A 46        Ø972Ø         LD      B,(HL)          ;  pointer equal so
335B 23        Ø973Ø         INC     HL              ;  buffer contents show
335C 71        Ø974Ø         LD      (HL),C          ;  as empty
335D 23        Ø975Ø         INC     HL
335E 7E        Ø976Ø         LD      A,(HL)          ;P/u the GET pointer to
335F 7Ø        Ø977Ø         LD      (HL),B          ;  check if in same page
336Ø B8        Ø978Ø FILR2   CP      B               ;Is put/get in same page?
3361 28Ø6      Ø979Ø         JR      Z,FILR3         ;Go if it is
3363 67        Ø98ØØ         LD      H,A             ;  else set up to free this
3364 CD4E35    Ø981Ø         CALL    FNPIU           ;  page by finding next
3367 18F7      Ø982Ø         JR      FILR2           ;Loop until next = 1st
3369 FB        Ø983Ø FILR3   EI                      ;Interrupts back on
336A C9        Ø984Ø         RET
               Ø985Ø ;
               Ø986Ø ;        Reset a file device
               Ø987Ø ;
336B 212438    Ø988Ø FILR4   LD      HL,FR_FCB       ;Turn off the FR or FS
336E AF        Ø989Ø         XOR     A
336F ED52      Ø99ØØ         SBC     HL,DE           ;Is this the FR?
3371 21413Ø    Ø991Ø         LD      HL,FSSW+1
3374 2ØØ6      Ø992Ø         JR      NZ,OFFS
3376 324831    Ø993Ø         LD      (FRIOSW+1),A    ;Turn off FR IO to disk
3379 212E31    Ø994Ø         LD      HL,FRSW+1       ;Turn off FR to buffer
337C 77        Ø995Ø OFFS    LD      (HL),A          ;Turn off FR or FS
337D           Ø996Ø         @@CLOSE                 ;Close the file
337D 3E3C      ØØØ84         LD      A,6Ø
337F EF        ØØØ85         RST     4Ø
338Ø C41A3Ø    Ø997Ø         CALL    NZ,$ERROR       ;Show any close error
3383 C9        Ø998Ø         RET
               Ø999Ø ;
               1ØØØØ ;        Process REWIND
               1ØØ1Ø ;
3384 7A        1ØØ2Ø FILREW  LD      A,D             ;Rewind the specified
3385 B3        1ØØ3Ø         OR      E               ;  file (FCB given) if
3386 CA7D32    1ØØ4Ø         JP      Z,CMDERR        ;  it is in use
3389           1ØØ5Ø         @@REW
3389 3E44      ØØØ86         LD      A,68
338B EF        ØØØ87         RST     4Ø
338C C9        1ØØ6Ø         RET
               1ØØ7Ø ;
               1ØØ8Ø ;        Process PEOF
               1ØØ9Ø ;
338D 7A        1Ø1ØØ FILEOF  LD      A,D             ;Check if a file device
```

Program Code Section

```
338E B3                OR      E              ;  was specified
338F CA7D32            JP      Z,CMDERR       ;Go if not - is error
3392                   @@PEOF                 ;  else position to end
3392 3E41              LD      A,65
3394 EF                RST     4Ø
3395 C9                RET
              ;
              ;        Process ID request
              ;
3396 7A       FILID    LD      A,D            ;Bad command if not
3397 B3                OR      E              ;  FS or FR specified
3398 CA7D32            JP      Z,CMDERR       ;Go on error
339B 1A                LD      A,(DE)         ;Make sure that it is
339C Ø7                RLCA                   ;  not already open
339D 3834              JR      C,NOTNOW       ;CF=already open
339F D5                PUSH    DE
33AØ DDE5              PUSH    IX             ;Save buffer pointer
33A2 21C335            LD      HL,FILEPMT     ;Prompt for filespec
33A5                   @@DSPLY
                       IFEQ    ØØH,1
                       LD      HL,
                       ENDIF
33A5 3EØA              LD      A,1Ø
33A7 EF                RST     4Ø
33A8 E1                POP     HL             ;Take file name
33A9 Ø1ØØ1F            LD      BC,31<8        ;31 chars max
33AC                   @@KEYIN                ;Get the filespec
33AC 3EØ9              LD      A,9
33AE EF                RST     4Ø
33AF F5                PUSH    AF             ;Save flag state
33BØ ØEØE              LD      C,ØEH          ;Turn the cursor back on
33B2                   @@DSP
33B2 3EØ2              LD      A,2
33B4 EF                RST     4Ø
33B5 F1                POP     AF             ;Rcvr KEYIN exit state
33B6 D1                POP     DE
33B7 D8                RET     C              ;Ret if BREAK from KEYIN
33B8 E5                PUSH    HL             ;Save ptr to buffer
33B9                   @@FSPEC                ;Fetch & parse filespec
33B9 3E4E              LD      A,78
33BB EF                RST     4Ø
33BC 21Ø438            LD      HL,FS_FCB      ;Ck if FILID req from
33BF AF                XOR     A              ;  FS or FR
33CØ ED52              SBC     HL,DE          ;What's the FCB?
33C2 E1                POP     HL             ;Recover buffer
33C3 Ø6ØØ              LD      B,Ø            ;LRL=256
33C5 2ØØ5              JR      NZ,FILFR       ;Go if req from FR
33C7 CDØF3Ø            CALL    $OPEN          ;Only OPEN a FS
33CA 18Ø3              JR      $+5            ;Branch around INIT
33CC          FILFR    @@INIT                 ;Open the receive file
33CC 3E3A              LD      A,58
33CE EF                RST     4Ø
33CF C41A3Ø            CALL    NZ,$ERROR      ;Show any open error
33D2 C9                RET
              ;
33D3 21D135   NOTNOW   LD      HL,OPENMSG     ;"File already open"
33D6                   @@DSPLY                ;Show why ID failed
                       IFEQ    ØØH,1
                       LD      HL,
```

Program Code Section

```
                             ENDIF
33D6 3E0A                    LD      A,10
33D8 EF                      RST     40
33D9 C9                      RET
                    ;
                    ;        Routines to turn off file devices
                    ;
33DA AF             FS_OFF   XOR     A                  ;File send
33DB 324130                  LD      (FSSW+1),A
33DE C9                      RET
33DF AF             FR_OFF   XOR     A                  ;File receive
33E0 322E31                  LD      (FRSW+1),A
33E3 C9                      RET
33E4 AF             FRIO_OFF         XOR     A          ;Dump to disk
33E5 324831                  LD      (FRIOSW+1),A
33E8 C9                      RET
                    ;
                    ;        Call various tasks (on each main loop)
                    ;
33E9 F3             TASKS    DI
                    ;
                             IF      .NOT.BUFFRD        ;W fcn does this if bfrd
                             CALL    TASK8A             ;Try to receive from *CL
                             ENDIF
                    ;
33EA CD4434                  CALL    TASK8B             ;Try to send to *CL
33ED FB                      EI
33EE CD7434                  CALL    TASKK              ;Allow interrupts here
                             IF      .NOT.BUFFRD
                             DI                         ;If RS232 does not interrupt
                             ENDIF                      ;Printer must be task
33F1 CDB834                  CALL    TASK9
33F4 FB                      EI
33F5 C34731                  JP      FRIOSW             ;Check on dump to disk
                    ;
                    ;        INTERRUPT TASK 8
                    ; WO/buffer    A is done once per main loop + int rate
                    ;              B is done once per main loop + int rate
                    ; W/buffer     A is done by wakeup feature + int rate
                    ;              B is done once per main loop + int rate
                    ;
                             IF      .NOT.BUFFRD
                    TCB8     DW      TASK8
                    TASK8    CALL    TASK8A
                             JP      TASK8B
                             ENDIF
                    ;
33F8 F3             TASK8A   DI
33F9 3EFF                    LD      A,0FFH             ;CL recv On/Off
33FB B7                      OR      A
33FC C8                      RET     Z                  ;Done if CL recv off
                    ;
                    ;        @GET handler to keep interrupts off if possible
                    ;
33FD 11E437                  LD      DE,CLDCB           ;=> OPEN DCB
3400 62             FNDDVR   LD      H,D                ;Xfer to HL
3401 6B                      LD      L,E
3402 7E                      LD      A,(HL)             ;Get DCB type
3403 CB6F                    BIT     5,A                ;Is it linked?
```

Program Code Section

```
34Ø5 2Ø13                  JR      NZ,LNKD         ;Need CHNIO if so
34Ø7 23                    INC     HL              ;=>address field of DCB
34Ø8 5E                    LD      E,(HL)          ;If routed, address is
34Ø9 23                    INC     HL              ;  next DCB to use
34ØA 56                    LD      D,(HL)          ;  else EP of driver
34ØB CB67                  BIT     4,A             ;Z = not routed
34ØD 2ØF1                  JR      NZ,FNDDVR       ;Loop till not routed
34ØF E6Ø8                  AND     ØØØØ1ØØØB       ;Can't talk to NIL device
3411 CØ                    RET     NZ
3412 EB                    EX      DE,HL           ;Address to HL
3413 111D34                LD      DE,RETADD       ;Put RET address on stack
3416 D5                    PUSH    DE              ;
3417 FEØ2                  CP      2               ;Set C,NZ for input request
3419 E9                    JP      (HL)            ;Go to driver
                 ;
341A             LNKD      @@GET                   ;Use SVC if LINKED
341A 3EØ3                  LD      A,3
341C EF                    RST     4Ø
341D CØ          RETADD    RET     NZ              ;NZ means no char rcv'd
                 ;
341E Ø6ØØ        EIGHT     LD      B,Ø             ;Eight bit mode switch
342Ø Ø4                    INC     B
3421 Ø5                    DEC     B
3422 2ØØ6                  JR      NZ,XLTR1        ;Go if 8 bit
3424 E67F                  AND     7FH             ;Strip bit 7
3426 C8                    RET     Z               ;Always ignore nulls
3427 FE7F                  CP      7FH             ;  & DELETE if not 8-bit
3429 C8                    RET     Z
                 ;
                 ;         Do XLATER after stripping high bit
                 ;
342A FEØØ        XLTR1     CP      $-$             ;Character to translate?
342C 2ØØ2                  JR      NZ,TSTNUL       ;Go if not a match
342E 3EØØ        XLTR2     LD      A,$-$           ;Replace with xlated char
                 ;
                 ;         NULL Parm now only affects 8-bit mode
                 ;
343Ø B7          TSTNUL    OR      A               ;Is char a null?
3431 2ØØ5                  JR      NZ,KEEPCH       ;Go if not
3433 Ø6FF        ACCNUL    LD      B,ØFFH          ;Default to accept nulls
3435 Ø4                    INC     B               ;NZ=nulls wanted
3436 Ø5                    DEC     B               ;Z=don't accept nulls
3437 C8                    RET     Z
                 ;
3438 DDE5        KEEPCH    PUSH    IX              ;Place in CL input buf
343A DD219D38              LD      IX,CLREC
343E CDD634                CALL    OUTPUT          ;Out to the buffer if
3441 DDE1                  POP     IX              ;  non-null or want nulls
3443 C9                    RET
                 ;
3444 3EFF        TASK8B    LD      A,ØFFH          ;CL send On/Off for
3446 B7                    OR      A               ;  handshaking
3447 C8                    RET     Z
3448 ØEØØ                  LD      C,Ø             ;Now xmit a CTLØ to
344A 11E437                LD      DE,CLDCB        ;Ck the status of the
344D                       @@CTL                   ;  CL
344D 3EØ5                  LD      A,5
344F EF                    RST     4Ø
345Ø CØ                    RET     NZ              ;Indicates not ready
```

Program Code Section

```
3451 ØEØØ      FRCPUT   LD      C,$-$             ;Force a char out?
3453 AF                 XOR     A                 ;Clear it after p/u
3454 325234             LD      (FRCPUT+1),A
3457 B1                 OR      C                 ;Check original status
3458 2ØØD               JR      NZ,FRCIT          ;Go if force on
345A DDE5               PUSH    IX
345C DD21A138           LD      IX,CLSEND         ;Do we have a char to
346Ø CD1635             CALL    BUFGET            ;  send to the CL?
3463 DDE1               POP     IX
3465 C8                 RET     Z                 ;RET if not
3466 4F                 LD      C,A               ;Save character
3467           FRCIT    @@PUT                     ;Put it out
3467 3EØ4               LD      A,4
3469 EF                 RST     4Ø
               ;
346A 3EØØ      AUTXOFF  LD      A,Ø               ;Check for auto XOFF
346C B7                 OR      A                 ;On?
346D C8                 RET     Z                 ;Quit if not
346E 91                 SUB     C                 ;Matched char?
346F CØ                 RET     NZ                ;Quit if not
347Ø 324534             LD      (TASK8B+1),A      ;Pause xmit (XOFF)
3473 C9                 RET
               ;
3474           TASKK    @@KBD                     ;Scan the keyboard
3474 3EØ8               LD      A,8
3476 EF                 RST     4Ø
3477 CØ                 RET     NZ                ;Error (or no key depressed)
3478 FE8Ø               CP      BREAK             ;Ck for brk 1st
347A 2815               JR      Z,ISBRK           ;Go on a Break
347C B7                 OR      A                 ;Then for high bit set
347D FA6831             JP      M,CMDKEY          ;Go if FN key
348Ø Ø6FF      KISW     LD      B,ØFFH            ;KI On/Off
3482 Ø4                 INC     B
3483 Ø5                 DEC     B
3484 C8                 RET     Z                 ;Ret if KI is off
3485 DDE5      NOTBRK   PUSH    IX
3487 DD219538           LD      IX,KIVCTR         ;  else put key into
348B CDAE38             CALL    OUTPGM            ;  the output buffer
348E DDE1               POP     IX
349Ø C9                 RET
               ;
               ISBRK
3491 F3                 DI
3492 11E437             LD      DE,CLDCB          ;Pt to *CL
3495 ØEØ1               LD      C,1               ;Send CTL 1, a
3497                    @@CTL                     ;  Break request
3497 3EØ5               LD      A,5
3499 EF                 RST     4Ø
349A FB                 EI
349B Ø1A138             LD      BC,CLSEND
349E CD5533             CALL    FILR1             ;Reset the CL buffer
34A1 CDDA33             CALL    FS_OFF            ;Turn off the *FS
34A4 Ø1ØØ2Ø             LD      BC,2ØØØH          ;Time delay
34A7                    @@PAUSE
34A7 3E1Ø               LD      A,16
34A9 EF                 RST     4Ø
34AA                    @@CKBRKC                  ;Reset the break bit
34AA 3E6A               LD      A,1Ø6
34AC EF                 RST     4Ø
```

Program Code Section

```
34AD ØEØØ     1213Ø          LD      C,Ø              ;Init the character
34AF 11E437   1214Ø          LD      DE,CLDCB         ;P/u the CL DCB
34B2 F3       1215Ø          DI
34B3          1216Ø          @@PUT                    ;Send the Ø
34B3 3EØ4     ØØ122          LD      A,4
34B5 EF       ØØ123          RST     4Ø
34B6 FB       1217Ø          EI
34B7 C9       1218Ø          RET
              1219Ø ;
              1220Ø ;        INTERRUPT TASK 9
              1221Ø ;        Only if RS232 does not interrupt
              1222Ø ;
              1223Ø          IF      .NOT.BUFFRD
              1224Ø TCB9     DW      TASK9            ;Task ept
              1225Ø          ENDIF
34B8 Ø6Ø3     1226Ø TASK9    LD      B,3              ;Max chars/pass
34BA ØEØØ     1227Ø PRLOOP   LD      C,Ø              ;Test printer status
34BC 11ØØØØ   1228Ø          LD      DE,$-$           ;PDCB$
34BD          1229Ø PRDCB    EQU     $-2
34BF          1230Ø          @@CTL                    ;Check the status
34BF 3EØ5     ØØ124          LD      A,5
34C1 EF       ØØ125          RST     4Ø
34C2 CØ       1231Ø          RET     NZ               ;Ret if unavailable
34C3 DDE5     1232Ø          PUSH    IX
34C5 DD219938 1233Ø          LD      IX,PRVCTR        ;Get char from printer
              1234Ø          IF      BUFFRD
34C9 CDB438   1235Ø          CALL    PGMGET
              1236Ø          ELSE
              1237Ø          CALL    BUFGET           ;Buffer if available
              1238Ø          ENDIF
34CC DDE1     1239Ø          POP     IX
34CE C8       124ØØ          RET     Z                ;None to get, back
34CF 4F       1241Ø          LD      C,A
34DØ          1242Ø          @@PRT                    ;Output to printer
34DØ 3EØ6     ØØ126          LD      A,6
34D2 EF       ØØ127          RST     4Ø
34D3 1ØE5     1243Ø          DJNZ    PRLOOP           ;Loop if more
34D5 C9       1244Ø          RET
              1245Ø ;
              1246Ø ;        Common routine to stuff various buffers
              1247Ø ;
34D6 DD6EØØ   1248Ø OUTPUT   LD      L,(IX)           ;P/u pointer to
34D9 DD66Ø1   1249Ø          LD      H,(IX+1)         ;  buffer PUT
34DC 77       125ØØ          LD      (HL),A           ;Write char into buffer
34DD DD34ØØ   1251Ø          INC     (IX)             ;Bump buffer pointer
34EØ CØ       1252Ø          RET     NZ               ;Go if still in same page
34E1 CD3635   1253Ø          CALL    NEXTAP           ;Find next avail page
34E4 281Ø     1254Ø          JR      Z,DUMPCHR        ;Go if no pages available
34E6 DD77Ø1   1255Ø          LD      (IX+1),A         ;Set index to new page
34E9 21AD38   1256Ø          LD      HL,FREEPG        ;Reduce the amount of
34EC 35       1257Ø          DEC     (HL)             ;  free pages
34ED 3EØ7     1258Ø          LD      A,7              ;Less than 2K available?
34EF BE       1259Ø          CP      (HL)
34FØ D8       126ØØ          RET     C                ;  & return with NZ
34F1 32243Ø   1261Ø          LD      (MAINLP+1),A     ;Set flag for warning
34F4 B7       1262Ø          OR      A                ;Ensure NZ return
34F5 C9       1263Ø          RET
              1264Ø ;
              1265Ø ;        No more pages available - keep last page
```

```
                ;
34F6 DD35ØØ     DUMPCHR DEC      (IX)            ;Dump character and
34F9 AF                 XOR      A               ;  return
34FA C9                 RET
                ;
                ;       The following code is not executed, as it is too
                ;        slow at rates >= 12ØØ baud because interuppts are on.
                ;       DE must be loaded with KIVCTR.
                ;
34FB ØØ                 DB       Ø
34FC DDE5               PUSH     IX              ;Dev requesting the output
34FE E1                 POP      HL
34FF AF                 XOR      A               ;The difference will be
35ØØ ED52               SBC      HL,DE           ;  the offset into the
35Ø2 116A3E             LD       DE,DEVICE$      ;  name table
35Ø5 19                 ADD      HL,DE
35Ø6 Ø1Ø4ØØ             LD       BC,4
35Ø9 11893E             LD       DE,OVRRUN$+3
35ØC EDBØ               LDIR
35ØE 21863E             LD       HL,OVRRUN$      ;Display the buffer
3511                    @@DSPLY                  ;  overrun error
                        IFEQ     ØØH,1
                        LD       HL,
                        ENDIF
3511 3EØA               LD       A,1Ø
3513 EF                 RST      4Ø
3514 AF                 XOR      A               ;  reuse current page
3515 C9                 RET
                ;
                ;       Check for character available in dynamic buffer
                ;
3516 DD6EØ2     BUFGET  LD       L,(IX+2)        ;P/u pointer to next
3519 DD66Ø3             LD       H,(IX+3)        ;  buffer GET
351C 7D                 LD       A,L             ;Check on in=out lo-order
351D DDBEØØ             CP       (IX)
352Ø 2ØØ5               JR       NZ,INNEOUT      ;Go if in not equal out
3522 7C                 LD       A,H             ;Check on in=out hi-order
3523 DDBEØ1             CP       (IX+1)
3526 C8                 RET      Z               ;Ret if none to i/o
                ;
                ;       Buffer is not empty - Get next character
                ;
3527 7E         INNEOUT LD       A,(HL)          ;Get a char from buffer
3528 DD34Ø2             INC      (IX+2)          ;Advance lo-order pointer
352B CØ                 RET      NZ              ;Ret if still same page
352C F5                 PUSH     AF              ;Save the character
352D CD4E35             CALL     FNPIU           ;Find next page in use
353Ø DD77Ø3             LD       (IX+3),A        ;Stuff new page index
3533 F1                 POP      AF              ;Recover the character
3534 25                 DEC      H               ;Set NZ return for rcvd
3535 C9                 RET
                ;
                ;       Routine to find next available page buffer
                ;
3536 6C         NEXTAP  LD       L,H             ;Point to page buffer
3537 2639               LD       H,LINKS<-8      ;  index
3539 3AØØ39             LD       A,(LINKS)       ;Get next empty link
353C E5                 PUSH     HL              ;Save this index pointer
353D 6F                 LD       L,A             ;Point to new link
```

Program Code Section

```
353E 7E              LD      A,(HL)          ;Get what it links to
353F B7              OR      A               ;Test if none left
3540 2002            JR      NZ,GOTNAP       ;Go if still more
3542 E1              POP     HL              ;Restore reg & return
3543 C9              RET                     ;  with Z-flag for error
              ;
              ;      Found the next available page - set the links
              ;
3544 320039   GOTNAP LD      (LINKS),A       ;Update new next avail
3547 7D              LD      A,L             ;Xfer index of new page
3548 E1              POP     HL              ;Rcvr pointer to index
3549 77              LD      (HL),A          ;  of old & link to new
354A 6F              LD      L,A             ;Repoint to new page's
354B 3600            LD      (HL),0          ;  index & show it is
354D C9              RET                     ;  the last one
              ;
              ;      Find next page in use
              ;
354E 3AAD38   FNPIU  LD      A,(FREEPG)      ;Show one additional
3551 3C              INC     A               ;  page is free
3552 32AD38          LD      (FREEPG),A
3555 3A0139          LD      A,(HIPAGE)      ;P/u highest page avail
3558 6F              LD      L,A             ;Set HL to its index
3559 7C              LD      A,H
355A 2639            LD      H,LINKS<-8      ;Show that page links to
355C 77              LD      (HL),A          ; the one we just emptied
355D 320139          LD      (HIPAGE),A      ;Now update the new end
3560 6F              LD      L,A             ;Set HL to the emptied
3561 7E              LD      A,(HL)          ;  page, p/u what it
3562 3600            LD      (HL),0          ;  linked to, & show old
3564 C9              RET                     ;  is end. Ret A=link
              ;
              ;      Execute a DOS command
              ;
3565 21FF2F   DOSCMD LD      HL,BASE-1
3568 0601            LD      B,1             ;Set LOW$
356A                 @@HIGH$
356A 3E64            LD      A,100
356C EF              RST     40
356D 219A35          LD      HL,CMDPMT       ;Issue prompt
3570                 @@DSPLY
                     IFEQ    00H,1
                     LD      HL,
                     ENDIF
3570 3E0A            LD      A,10
3572 EF              RST     40
3573 010050          LD      BC,80<8         ;Max characters
3576 214438          LD      HL,DUMMY        ;=>input buffer
3579                 @@KEYIN                 ;Get command request
3579 3E09            LD      A,9
357B EF              RST     40
357C D8              RET     C               ;Back on Break
357D 04              INC     B
357E 05              DEC     B
357F C8              RET     Z               ;  or CR only
3580 EB              EX      DE,HL
3581 210000          LD      HL,$-$          ;Pt to CFLAG$
3582          CFLAG  EQU     $-2
3584 CB46            BIT     0,(HL)          ;Get current status
```

Program Code Section

```
3586 E5         137ØØ          PUSH    HL
3587 F5         1371Ø          PUSH    AF               ;Save memory freeze status
3588 CBC6       1372Ø          SET     Ø,(HL)           ;Freeze memory
358A EB         1373Ø          EX      DE,HL
358B            1374Ø          @@CMNDR                  ;Do the command
358B 3E19       ØØ142          LD      A,25
358D EF         ØØ143          RST     4Ø
358E 21AB35     1375Ø          LD      HL,CMPLTD        ;Show cmd finished
3591            1376Ø          @@DSPLY
                ØØ144          IFEQ    ØØH,1
                ØØ145          LD      HL,
                ØØ146          ENDIF
3591 3EØA       ØØ147          LD      A,1Ø
3593 EF         ØØ148          RST     4Ø
3594 F1         1377Ø          POP     AF               ;Get the previous status
3595 E1         1378Ø          POP     HL               ;  and CFLAG$ location
3596 CØ         1379Ø          RET     NZ               ;Back if was set before
3597 CB86       138ØØ          RES     Ø,(HL)           ;  else restore it
3599 C9         1381Ø          RET
359A ØA         1382Ø CMDPMT   DB      LF,LF,'Enter command:',CR
     ØA 45 6E 74 65 72 2Ø 63
     6F 6D 6D 61 6E 64 3A ØD
35AB ØA         1383Ø CMPLTD   DB      LF,'Command completed',CR
     43 6F 6D 6D 61 6E 64 2Ø
     63 6F 6D 7Ø 6C 65 74 65
     64 ØD
                1384Ø ;
                1385Ø ;        Messages
                1386Ø ;
35BE 7B         1387Ø BRAKET   DB      '{  }',3         ;Brackets around hex byte
     2Ø 2Ø 7D Ø3
35C3 1D         1388Ø FILEPMT  DB      29,1Ø,'File name: ',3
     ØA 46 69 6C 65 2Ø 6E 61
     6D 65 3A 2Ø Ø3
35D1 1D         1389Ø OPENMSG  DB      29,1Ø,'File already open',CR
     ØA 46 69 6C 65 2Ø 61 6C
     72 65 61 64 79 2Ø 6F 7Ø
     65 6E ØD
35E5 ØA         139ØØ MNUMSG   DB      LF
35E6 2Ø         1391Ø STAT1    DB      '                                   '
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø
36ØA 2Ø         1392Ø          DB      '                                   ',LF
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø ØA
362E 44         1393Ø          DB      'DUPLX ECHO  ECOLF ACCLF REWND PEOF  '
     55 5Ø 4C 58 2Ø 45 43 48
     4F 2Ø 2Ø 45 43 4F 4C 46
     2Ø 41 43 43 4C 46 2Ø 52
     45 57 4E 44 2Ø 5Ø 45 4F
     46 2Ø 2Ø
3652 2Ø         1394Ø          DB      ' DCC   CLS   8-B   CMD  HNDSH  EXIT',LF
     44 43 43 2Ø 2Ø 2Ø 43 4C
```

Program Code Section

```
     53 2Ø 2Ø 2Ø 38 2D 42 2Ø
     2Ø 2Ø 43 4D 44 2Ø 2Ø 48
     4E 44 53 48 2Ø 2Ø 45 58
     49 54 ØA
3676 3D        1395Ø          DB      '==1== ==2== ==3== ==4== ==5== ==6== '
     3D 31 3D 3D 2Ø 3D 3D 32
     3D 3D 2Ø 3D 3D 33 3D 3D
     2Ø 3D 3D 34 3D 3D 2Ø 3D
     3D 35 3D 3D 2Ø 3D 3D 36
     3D 3D 2Ø
369A 3D        1396Ø          DB      '==7== ==8== ==9== ==Ø== '
     3D 37 3D 3D 2Ø 3D 3D 38
     3D 3D 2Ø 3D 3D 39 3D 3D
     2Ø 3D 3D 3Ø 3D 3D 2Ø
               1397Ø          IF      @MOD4
36B2 3D        1398Ø          DB      '==:== ==-=='
     3D 3A 3D 3D 2Ø 3D 3D 2D
     3D 3D
               1399Ø          ENDIF
               14ØØØ          IF      @MOD2
               14Ø1Ø          DB      '==-== ====='
               14Ø2Ø          ENDIF
36BD ØA        14Ø3Ø          DB      LF
36BE 2Ø        14Ø4Ø          DB      ' *KI   *DO   *PR   *CL   *FS   *FR  '
     2A 4B 49 2Ø 2Ø 2Ø 2A 44
     4F 2Ø 2Ø 2Ø 2A 5Ø 52 2Ø
     2Ø 2Ø 2A 43 4C 2Ø 2Ø 2Ø
     2A 46 53 2Ø 2Ø 2Ø 2A 46
     52 2Ø 2Ø
36E2 2Ø        14Ø5Ø          DB      ' DTD   ???   ID    RES   ON    OFF',LF
     44 54 44 2Ø 2Ø 2Ø 3F 3F
     3F 2Ø 2Ø 2Ø 49 44 2Ø 2Ø
     2Ø 2Ø 52 45 53 2Ø 2Ø 2Ø
     4F 4E 2Ø 2Ø 2Ø 2Ø 4F 46
     46 ØA
37Ø5 2Ø        14Ø6Ø STAT2    DB      '                                      '
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø
372A 2Ø        14Ø7Ø          DB      '  ',CR
     2Ø ØD
372D 8134      14Ø8Ø STATAB   DW      KISW+1,STAT2+2,DEVOUT+1,STAT2+8
     Ø737 1731 ØD37
3735 3B31      14Ø9Ø          DW      PUTPR+1,STAT2+14,TASK8B+1,STAT2+19
     1337 4534 1837
373D FA33      141ØØ          DW      TASK8A+2,STAT2+21,FSSW+1,STAT2+26
     1A37 413Ø 1F37
3745 2E31      1411Ø          DW      FRSW+1,STAT2+32,FRIOSW+1,STAT2+38
     2537 4831 2B37
374D 6A3Ø      1412Ø          DW      DPLXSW+1,STAT1+2,ECHOSW+1,STAT1+8
     E835 C93Ø EE35
3755 ØA31      1413Ø          DW      ECOLF,STAT1+14,ACCLFSW+1,STAT1+2Ø
     F435 DB3Ø FA35
375D 893Ø      1414Ø          DW      DSPCTRL+1,STAT1+38,EIGHT+1,STAT1+5Ø
     ØC36 1F34 1836
3765 A33Ø      1415Ø          DW      SHAKE+1,STAT1+61
     2336
```

Program Code Section

```
3769 46         1416Ø FSNAME$ DB      'FS-Spec: ',3
     53 2D 53 7Ø 65 63 3A 2Ø
     Ø3
3773 2Ø         1417Ø FRNAME$ DB      '  FR-Spec: ',3
     2Ø 46 52 2D 53 7Ø 65 63
     3A 2Ø Ø3
377F 2Ø         1418Ø PAGSPR$ DB      '  Memory:   K',CR
     2Ø 4D 65 6D 6F 72 79 3A
     2Ø 2Ø 2Ø 4B ØD
378D 2A         1419Ø CMDERR$ DB      '** Invalid command sequence **',CR
     2A 2Ø 49 6E 76 61 6C 69
     64 2Ø 63 6F 6D 6D 61 6E
     64 2Ø 73 65 71 75 65 6E
     63 65 2Ø 2A 2A ØD
37AC 57         142ØØ LILPG$  DB      'Warning! Less than 2K of buffer left '
     61 72 6E 69 6E 67 21 2Ø
     4C 65 73 73 2Ø 74 68 61
     6E 2Ø 32 4B 2Ø 6F 66 2Ø
     62 75 66 66 65 72 2Ø 6C
     65 66 74 2Ø
37D1 2Ø         1421Ø         DB      ' X-OFF transmitted',CR
     58 2D 4F 46 46 2Ø 74 72
     61 6E 73 6D 69 74 74 65
     64 ØD
                1422Ø ;
                1423Ø ;       File control blocks
                1424Ø ;
ØØ2Ø            1425Ø CLDCB   DS      32
ØØ2Ø            1426Ø FS_FCB  DS      32
ØØ2Ø            1427Ø FR_FCB  DS      32
ØØ51            1428Ø DUMMY   DS      81              ;Used for dos cmd buffer also
                1429Ø ;
                143ØØ ;       Put/Get index pointers
                1431Ø ;
3895 ØØØØ       1432Ø KIVCTR  DW      Ø,Ø
     ØØØØ
3899 ØØØØ       1433Ø PRVCTR  DW      Ø,Ø
     ØØØØ
389D ØØØØ       1434Ø CLREC   DW      Ø,Ø
     ØØØØ
38A1 ØØØØ       1435Ø CLSEND  DW      Ø,Ø
     ØØØØ
38A5 ØØØØ       1436Ø FSVCTR  DW      Ø,Ø
     ØØØØ
38A9 ØØØØ       1437Ø FRVCTR  DW      Ø,Ø
     ØØØØ
ØØØ1            1438Ø FREEPG  DS      1
                1439Ø ;
                144ØØ ;       Routines  to buffer I/O in pgm loop
                1441Ø ;
38AE F3         1442Ø OUTPGM  DI
38AF CDD634     1443Ø         CALL    OUTPUT
38B2 FB         1444Ø         EI
38B3 C9         1445Ø         RET
38B4 F3         1446Ø PGMGET  DI
38B5 CD1635     1447Ø         CALL    BUFGET
38B8 FB         1448Ø         EI
38B9 C9         1449Ø         RET
                145ØØ ;
```

Program Code Section

```
                ;       Page buffer Link table
                ;
39ØØ                    ORG     $<-8+1<+8
ØØØ1             LINKS  DS      1               ;Link to next available
ØØØ1             HIPAGE DS      1               ;Link to last available
ØØØ1                    DS      1               ;Init to 1st avail
ØØØ1                    DS      1               ;Init to last avail
ØØFC                    DS      252             ;Space for linkage tables
                ;
                ;       Transmit and Receive File buffers
                ;
Ø1ØØ             XMTBUF DS      256
Ø1ØØ             RCVBUF DS      256
                ;
3CØØ                    SUBTTL  '<COMM initialization code>'
```

COMM initialization code

```
3C00            14670 *GET    LCOMMA:3                  ;Initialization code
                14680 ;LCOMMA/ASM - COMM Initialization Code
                14690 ;
                14700 ;       Entry point to LCOMM
                14710 ;
                14720 LCOMM
3C00            14730         @@CKBRKC                  ;Check for break
3C00 3E6A       00149         LD      A,106
3C02 EF         00150         RST     40
3C03 2804       14740         JR      Z,LCOMMA          ;Continue if not
3C05 21FFFF     14750         LD      HL,-1             ;  else ABORT
3C08 C9         14760         RET
                14770 ;
3C09 F3         14780 LCOMMA  DI
3C0A ED73043    14790         LD      (STACK),SP        ;Save for exit
3C0E E5         14800         PUSH    HL                ;Save ptr to CMD buffer
3C0F 210000     14810         LD      HL,0
3C12            14820         @@BREAK                   ;Disable break vectoring
                00151         IFEQ    00H,1
                00152         LD      HL,
                00153         ENDIF
3C12 3E67       00154         LD      A,103
3C14 EF         00155         RST     40
3C15 FB         14830         EI
3C16 21533D     14840         LD      HL,HELLO$         ;Issue the copyright
3C19            14850         @@DSPLY
                00156         IFEQ    00H,1
                00157         LD      HL,
                00158         ENDIF
3C19 3E0A       00159         LD      A,10
3C1B EF         00160         RST     40
3C1C E1         14860         POP     HL
3C1D 11E437     14870         LD      DE,CLDCB          ;Point to FCB
3C20            14880         @@FSPEC                   ;Get the *CL spec
3C20 3E4E       00161         LD      A,78
3C22 EF         00162         RST     40
3C23 C24A3D     14890         JP      NZ,BADCL          ;Go error if none
3C26 1A         14900         LD      A,(DE)
3C27 FE2A       14910         CP      '*'               ;Ck for device spec
3C29 C24A3D     14920         JP      NZ,BADCL          ;Go if not a device
3C2C 11A23E     14930         LD      DE,PRMTBL$
3C2F            14940         @@PARAM                   ;Parse the parms
3C2F 3E11       00163         LD      A,17
3C31 EF         00164         RST     40
3C32 F5         14950         PUSH    AF                ;Save status
3C33 C41A30     14960         CALL    NZ,$ERROR         ;Display any error
3C36 F1         14970         POP     AF
3C37 C20A30     14980         JP      NZ,$ABORT         ;  and then quit
                14990 ;
3C3A 0600       15000         LD      B,0
3C3C 11E437     15010         LD      DE,CLDCB          ;Open the comm line
3C3F            15020         @@OPEN
3C3F 3E3B       00165         LD      A,59
3C41 EF         00166         RST     40
3C42 F5         15030         PUSH    AF
3C43 C41A30     15040         CALL    NZ,$ERROR         ;Show any open error
3C46 F1         15050         POP     AF
3C47 C20A30     15060         JP      NZ,$ABORT         ;  and then quit
3C4A 0E02       15070         LD      C,2               ;INIT function for hardware
3C4C            15080         @@CTL                     ;Just in case
```

COMM initialization code

```
3C4C 3E05               LD      A,5
3C4E EF                 RST     40
3C4F 21D63D             LD      HL,GETMNU$       ;How the user gets menu
3C52                    @@DSPLY
                        IFEQ    00H,1
                        LD      HL,
                        ENDIF
3C52 3E0A               LD      A,10
3C54 EF                 RST     40
3C55 AF                 XOR     A
3C56 320438             LD      (FS_FCB),A       ;Init FCB's to OFF
3C59 322438             LD      (FR_FCB),A
3C5C ED5BA03E           LD      DE,(PRNAME)      ;Load 'PR' backwards
3C60                    @@GTDCB
3C60 3E52               LD      A,82
3C62 EF                 RST     40
3C63 22BD34             LD      (PRDCB),HL       ;Store address for @CTL
3C66                    @@FLAGS                  ;Set up IY
3C66 3E65               LD      A,101
3C68 EF                 RST     40
3C69 FDE5               PUSH    IY
3C6B D1                 POP     DE
3C6C 211200             LD      HL,'S'-'A'       ;Offset to SFLAG$
3C6F 19                 ADD     HL,DE
3C70 221130             LD      (SFLG),HL        ;Store for later
3C73 210A00             LD      HL,'K'-'A'       ;Offset to KFLAG$
3C76 19                 ADD     HL,DE
3C77 CB86               RES     0,(HL)           ;Be sure BREAK bit is off
3C79 210200             LD      HL,'C'-'A'       ;CFLAG$
3C7C 19                 ADD     HL,DE
3C7D 228235             LD      (CFLAG),HL
3C80 CB4E               BIT     1,(HL)           ;Doing CMNDR?
3C82 210000             LD      HL,0
3C85 45                 LD      B,L
3C86 2801               JR      Z,$+3            ;Use LOW$ if CMNDR
3C88 04                 INC     B
3C89                    @@HIGH$
3C89 3E64               LD      A,100
3C8B EF                 RST     40
3C8C 23                 INC     HL               ;Available for use
3C8D 25                 DEC     H                ;  by page buffers
3C8E 44                 LD      B,H              ;Set B to highest usable
3C8F 210039             LD      HL,LINKS
3C92 3E3C               LD      A,LCOMM<-8       ;Establish 1st usable
3C94 77                 LD      (HL),A           ;Init to 1st available
3C95 2C                 INC     L                ;  page buffer
3C96 70                 LD      (HL),B           ;Init to highest page
3C97 2C                 INC     L                ;  buffer available
3C98 77                 LD      (HL),A           ;Init to begin & highest
3C99 2C                 INC     L
3C9A 70                 LD      (HL),B
               ;
               ;        Establish page buffer linkage table
               ;
3C9B 6F        DOLINKS  LD      L,A              ;Init memory begin to
3C9C 3C                 INC     A                ;  high bytes for as many
3C9D 77                 LD      (HL),A           ;  bytes as pages to top
3C9E B8                 CP      B
3C9F 20FA               JR      NZ,DOLINKS
```

COMM initialization code

```
3CA1 6F         1555Ø           LD      L,A
3CA2 36ØØ       1556Ø           LD      (HL),Ø          ;Close out with zero
                1557Ø ;
                1558Ø ;         Establish starting page buffers for devices
                1559Ø ;
3CA4 26Ø4       156ØØ           LD      H,4             ;Init 1st at links+4
3CA6 DD219538 1561Ø             LD      IX,KIVCTR
3CAA CDE63C     1562Ø           CALL    INITBUF         ;Init *KI page buffer
3CAD DD219938 1563Ø             LD      IX,PRVCTR
3CB1 CDE63C     1564Ø           CALL    INITBUF         ;Init *PR page buffer
3CB4 DD219D38 1565Ø             LD      IX,CLREC
3CB8 CDE63C     1566Ø           CALL    INITBUF         ;Init *CL-R page buffer
3CBB DD21A138 1567Ø             LD      IX,CLSEND
3CBF CDE63C     1568Ø           CALL    INITBUF         ;Init *CL-S page buffer
3CC2 DD21A538 1569Ø             LD      IX,FSVCTR
3CC6 CDE63C     157ØØ           CALL    INITBUF         ;Init *FS page buffer
3CC9 DD21A938 1571Ø             LD      IX,FRVCTR
3CCD CDE63C     1572Ø           CALL    INITBUF         ;Init *FR page buffer
                1573Ø ;
                1574Ø ;         Calculate free buffer space
                1575Ø ;
3CDØ 2639       1576Ø           LD      H,LINKS<-8      ;P/u hi-order link table
3CD2 Ø6ØØ       1577Ø           LD      B,Ø             ;Init count to zero
3CD4 3AØØ39     1578Ø           LD      A,(LINKS)       ;Find pointer to 1st spr
3CD7 6F         1579Ø           LD      L,A
3CD8 7E         158ØØ FBS1      LD      A,(HL)          ;P/u pointer to next
3CD9 B7         1581Ø           OR      A               ;  spare & test if last
3CDA 28Ø4       1582Ø           JR      Z,FBS2          ;Exit if no more
3CDC Ø4         1583Ø           INC     B               ;Bump counter
3CDD 6F         1584Ø           LD      L,A             ;Show new pointer
3CDE 18F8       1585Ø           JR      FBS1
3CEØ 78         1586Ø FBS2      LD      A,B             ;Transfer the count
3CE1 32AD38     1587Ø           LD      (FREEPG),A      ;  and save it
3CE4 1818       1588Ø           JR      SETUPT
                1589Ø ;
                159ØØ ;         Routine to establish starting page buffers
                1591Ø ;
3CE6 DD36ØØØØ 1592Ø INITBUF     LD      (IX),Ø          ;Show low-order PUT/GET
3CEA DD36Ø2ØØ 1593Ø             LD      (IX+2),Ø        ;  start at Ø reference
3CEE E5         1594Ø           PUSH    HL
3CEF CD3635     1595Ø           CALL    NEXTAP          ;Find next available page
3CF2 CA463D     1596Ø           JP      Z,NOBUFS        ;Go if insufficient pages
3CF5 E1         1597Ø           POP     HL
3CF6 DD77Ø1     1598Ø           LD      (IX+1),A        ;Set high-order PUT/GET
3CF9 DD77Ø3     1599Ø           LD      (IX+3),A        ;  page index pointers
3CFC 24         16ØØØ           INC     H               ;Bump to next entry in
3CFD C9         16Ø1Ø           RET                     ;  link table & return
                16Ø2Ø ;
                16Ø3Ø ;         Routine to set up the task processor
                16Ø4Ø ;
                16Ø5Ø SETUPT
                16Ø6Ø           IF      .NOT.BUFFRD
                16Ø7Ø           LD      DE,TCB8         ;CL task process
                16Ø8Ø           LD      C,8
3CFE            16Ø9Ø           @@ADTSK
                ØØ18Ø           LD      A,29
                ØØ181           RST     4Ø
                161ØØ           LD      DE,TCB9         ;Printer output task
                1611Ø           LD      C,9             ;Only if RS232 does
```

COMM initialization code

```
3CFE            1612Ø          @@ADTSK                    ;  not interrupt
                ØØ182          LD      A,29
                ØØ183          RST     4Ø
                1613Ø          ENDIF
                1614Ø ;
                1615Ø          IF      BUFFRD
3CFE 11E437     1616Ø          LD      DE,CLDCB           ;Turn on wakeup feature
3DØ1 FD21F833   1617Ø          LD      IY,TASK8A          ;Wakeup driver address
3DØ5 ØEØ4       1618Ø          LD      C,4                ;Set addr CTL value
3DØ7 F3         1619Ø          DI
3DØ8            162ØØ          @@CTL                      ;Send to Com driver
3DØ8 3EØ5       ØØ184          LD      A,5
3DØA EF         ØØ185          RST     4Ø
3DØB FB         1621Ø          EI
3DØC FD221432   1622Ø          LD      (OLDVEC),IY        ;Save previous state
                1623Ø          ENDIF
                1624Ø ;
3D1Ø 21EE3D     1625Ø          LD      HL,LFEEDS          ;Clear most of screen
3D13            1626Ø          @@DSPLY
                ØØ186          IFEQ    ØØH,1
                ØØ187          LD      HL,
                ØØ188          ENDIF
3D13 3EØA       ØØ189          LD      A,1Ø
3D15 EF         ØØ19Ø          RST     4Ø
                1627Ø ;
                1628Ø ;        Transfer any translation characters
                1629Ø ;
3D16 3AEA3E     163ØØ          LD      A,(XLATES+1)       ;Transfer the output
3D19 32643Ø     1631Ø          LD      (XLTS1+1),A        ;  translation character
3D1C 3AE93E     1632Ø          LD      A,(XLATES)
3D1F 32683Ø     1633Ø          LD      (XLTS2+1),A
                1634Ø ;
3D22 3AEC3E     1635Ø          LD      A,(XLATER+1)       ;Transfer the input
3D25 322B34     1636Ø          LD      (XLTR1+1),A        ;  translation character
3D28 3AEB3E     1637Ø          LD      A,(XLATER)
3D2B 322F34     1638Ø          LD      (XLTR2+1),A
                1639Ø ;
3D2E 3AE33E     164ØØ          LD      A,(NULLPRM)        ;Transfer the null parm
3D31 323434     1641Ø          LD      (ACCNUL+1),A
3D34 3AE53E     1642Ø          LD      A,(XONP)           ;Transfer the XON/XOFF
3D37 32A93Ø     1643Ø          LD      (XONP1),A          ;  parms
3D3A 3AE73E     1644Ø          LD      A,(XOFFP)
3D3D 32AD3Ø     1645Ø          LD      (XOFFP1),A
3D4Ø 322F3Ø     1646Ø          LD      (XOFFP2),A
3D43 C3233Ø     1647Ø          JP      MAINLP
                1648Ø ;
                1649Ø ;        Error handling on initialization
                165ØØ ;
3D46 21413E     1651Ø NOBUFS   LD      HL,NOBUFS$         ;"Not enuf mem for buffers
3D49 DD         1652Ø          DB      ØDDH
3D4A 21223E     1653Ø BADCL    LD      HL,BADCL$          ;"Need RS-232 device name
3D4D            1654Ø          @@LOGOT
                ØØ191          IFEQ    ØØH,1
                ØØ192          LD      HL,
                ØØ193          ENDIF
3D4D 3EØC       ØØ194          LD      A,12
3D4F EF         ØØ195          RST     4Ø
3D5Ø C3ØA3Ø     1655Ø          JP      $ABORT
                1656Ø ;
```

COMM initialization code

```
              16570 ;        Messages
              16580 ;
3D53 43       16590 HELLO$  DB      'COMM'
     4F 4D 4D
3D57          16600 *GET    CLIENT:3
              16610 ;CLIENTS/ASM - File to establish sign-on headers
              16620 ;
3D57 20       16630         DB      ' - 6.2.0 - Copyright 1982/83/84 by Logical'
     2D 20 36 2E 32 2E 30 20
     2D 20 43 6F 70 79 72 69
     67 68 74 20 31 39 38 32
     2F 38 33 2F 38 34 20 62
     79 20 4C 6F 67 69 63 61
     6C
3D81 20       16640         DB      ' Systems, Inc.      ',10
     53 79 73 74 65 6D 73 2C
     20 49 6E 63 2E 20 20 20
     20 20 20 0A
              16650 ;
3D96 41       16660         DB      'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 20 52 69 67 68 74
     73 20 52 65 73 65 72 76
     65 64 2E 20 4C 69 63 65
     6E 73 65 64 20 31 39 38
     32 2F 38 33 2F 38 34
3DBE 20       16670         DB      ' to xxxxxxxxxxxxxxxxxx',10,13
     74 6F 20 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 0A 0D
              16680         IF      @MOD4
3DD6 55       16690 GETMNU$ DB      'Use <CLEAR-8> for menu',LF,CR
     73 65 20 3C 43 4C 45 41
     52 2D 38 3E 20 66 6F 72
     20 6D 65 6E 75 0A 0D
              16700         ENDIF
              16710         IF      @MOD2
              16720 GETMNU$ DB      'Use <ESC-8> for menu',LF,CR
              16730         ENDIF
3DEE 0A       16740 LFEEDS  DB      LF,LF,LF,LF,LF,LF,LF
     0A 0A 0A 0A 0A 0A
3DF5 0A       16750         DB      LF,LF,LF,LF,LF,LF,LF,LF,LF,LF,LF,14,3
     0A 0A 0A 0A 0A 0A 0A 0A
     0A 0A 0E 03
              16760 ;
3E02 00       16770         DC      32,0            ;Patch space
     00 00 00 00 00 00 00 00
     00 00 00 00 00 00 00 00
     00 00 00 00 00 00 00 00
     00 00 00 00 00 00 00
              16780 ;
3E22 43       16790 BADCL$  DB      'Comm Line driver not specified',CR
     6F 6D 6D 20 4C 69 6E 65
     20 64 72 69 76 65 72 20
     6E 6F 74 20 73 70 65 63
     69 66 69 65 64 0D
3E41 49       16800 NOBUFS$ DB      'Insufficient memory to establish buffers',CR
     6E 73 75 66 66 69 63 69
     65 6E 74 20 6D 65 6D 6F
     72 79 20 74 6F 20 65 73
     74 61 62 6C 69 73 68 20
```

COMM initialization code

```
     62 75 66 66 65 72 73 0D
3E6A 20          DEVICE$ DB       ' KI  PR CL-RCL-S FS  FR ????'
     4B 49 20 20 50 52 20 43
     4C 2D 52 43 4C 2D 53 20
     46 53 20 20 46 52 20 3F
     3F 3F 3F
3E86 2A          OVRRUN$ DB       '** xxxx Buffer overrun **',3
     2A 20 78 78 78 78 20 42
     75 66 66 65 72 20 6F 76
     65 72 72 75 6E 20 2A 2A
     03
3EA0 50          PRNAME  DB       'PR'
     52
                 ;
3EA2 58          PRMTBL$ DB       'XLATES'
     4C 41 54 45 53
3EA8 E93E                DW       XLATES
3EAA 58                  DB       'XS    '
     53 20 20 20 20
3EB0 E93E                DW       XLATES
3EB2 58                  DB       'XLATER'
     4C 41 54 45 52
3EB8 EB3E                DW       XLATER
3EBA 58                  DB       'XR    '
     52 20 20 20 20
3EC0 EB3E                DW       XLATER
3EC2 4E                  DB       'NULL  '
     55 4C 4C 20 20
3EC8 E33E                DW       NULLPRM
3ECA 4E                  DB       'N     '
     20 20 20 20 20
3ED0 E33E                DW       NULLPRM
3ED2 58                  DB       'XON   '
     4F 4E 20 20 20
3ED8 E53E                DW       XONP
3EDA 58                  DB       'XOFF  '
     4F 46 46 20 20
3EE0 E73E                DW       XOFFP
3EE2 00                  NOP
                 ;
3EE3 FFFF        NULLPRM DW       -1               ;Default to accept nulls
3EE5 1100        XONP    DW       'Q'-40H          ;Ctl-Q
3EE7 1300        XOFFP   DW       'S'-40H          ;Ctl-S
3EE9 0000        XLATES  DW       0
3EEB 0000        XLATER  DW       0
                 ;
3EED                     SUBTTL   <>
3C00                     END      LCOMM
```

```
$ABORT          3ØØA $ERROR         3Ø1A $EXIT          3ØØØ
$OPEN           3ØØF @@1            ØØØØ @@2            ØØØØ
@@3             ØØØØ @@4            ØØØØ @MOD2          ØØØØ
@MOD4           FFFF ACCLFSW        3ØDA ACCNUL         3433
AUTXOFF         346A BADCL          3D4A BADCL$         3E22
BASE            3ØØØ BRAKET         35BE BREAK          ØØ8Ø
BUFFRD          FFFF BUFGET         3516 CFLAG          3582
CKFREPG         3Ø45 CLDCB          37E4 CLOUT          3ØFA
CLREC           389D CLS            328F CLSEND         38A1
CMDERR          327D CMDERR$        378D CMDKEY         3168
CMDPMT          359A CMPLTD         35AB CR             ØØØD
CRSW            3ØEØ CTLQ           3ØB2 CTLR           3ØC2
CVD1            333Ø CVD2           3335 DEVICE$        3E6A
DEVOUT          3116 DOLINKS        3C9B DOSCMD         3565
DPLXSW          3Ø69 DSPCTRL        3Ø88 DUMMY          3844
DUMPCHR         34F6 ECHOSW         3ØC8 ECLF1          31Ø9
ECOLF           31ØA EIGHT          341E ENUFPG         3Ø37
EOFFS           3Ø5C EXIT           32ØF FBS1           3CD8
FBS2            3CEØ FILEOF         338D FILEPMT        35C3
FILFR           33CC FILID          3396 FILR1          3355
FILR2           336Ø FILR3          3369 FILR4          336B
FILRES          334C FILREW         3384 FNDDVR         34ØØ
FNPIU           354E FRCIT          3467 FRCPUT         3451
FREEPG          38AD FRIOSW         3147 FRIO_OFF       33E4
FRNAME$         3773 FRSW           312D FRVCTR         38A9
FR_FCB          3824 FR_OFF         33DF FSNAME$        3769
FSOFF           3Ø77 FSSW           3Ø4Ø FSSWGO         3Ø5Ø
FSVCTR          38A5 FS_FCB         38Ø4 FS_OFF         33DA
GETMNU$         3DD6 GOTNAP         3544 HELLO$         3D53
HIPAGE          39Ø1 INITBUF        3CE6 INNEOUT        3527
ISBRK           3491 KEEPCH         3438 KISW           348Ø
KIVCTR          3895 LCMON          3Ø7Ø LCOMM          3CØØ
LCOMMA          3CØ9 LF             ØØØA LFEEDS         3DEE
LILPG$          37AC LINKS          39ØØ LNKD           341A
MAINLP          3Ø23 MENU           329A MNUMSG         35E5
NEXTAP          3536 NOBUFS         3D46 NOBUFS$        3E41
NOSQ            3ØB8 NOTBRK         3485 NOTCLS         3129
NOTCR           3ØDF NOTNOW         33D3 NULLPRM        3EE3
OFFS            337C OLDVEC         3214 OPENMSG        35D1
OUTPGM          38AE OUTPUT         34D6 OVRRUN$        3E86
PAGSPR$         377F PGMGET         38B4 POPERR         3267
PRDCB           34BD PRLOOP         34BA PRMTBL$        3EA2
PRNAME          3EAØ PRVCTR         3899 PUTPR          313A
QCL             3238 QFUNC          3233 QONOFF         325A
QONOFF1         325F QSHAKE         3242 QSHAKE1        3251
QUIT$           3ØØ3 RCVBUF         3BØØ RETADD         341D
SAVCHR          3ØA1 SENDIT         3Ø62 SETUPT         3CFE
SFLG            3Ø11 SHAKE          3ØA2 SKIPREC        3ØF4
SNDOUT          31Ø2 STACK          3ØØ4 STAT1          35E6
STAT2           37Ø5 STATAB         372D STATLP1        32B4
STATLP2         32D8 STATLP3        33Ø1 STATLP4        3324
TAKEREC         3ØF1 TASK8A         33F8 TASK8B         3444
TASK9           34B8 TASKK          3474 TASKS          33E9
TSTNUL          343Ø TURNOF         3284 TURNON         3286
XLATER          3EEB XLATES         3EE9 XLTR1          342A
XLTR2           342E XLTS1          3Ø63 XLTS2          3Ø67
XMTBUF          3AØØ XOFF           ØØ13 XOFFP          3EE7
XOFFP1          3ØAD XOFFP2         3Ø2F XONP           3EE5
```

```
XONP1          3ØA9 @@ABORT       6C16 @@ADTSK        6CA9
@@BANK         71C1 @@BKSP        6EA1 @@BREAK        71D7
@@CHNIO        6CØ1 @@CKBRKC      7225 @@CKDRV        6CFD
@@CKEOF        6EB6 @@CKTSK       6C94 @@CLOSE        6E8C
@@CLS          72ØF @@CMNDI       6C4Ø @@CMNDR        6C55
@@CTL          6A65 @@DATE        6BD7 @@DCSTAT       6D3C
@@DEBUG        6C7F @@DECHEX      7141 @@DIRRD        7ØAE
@@DIRWR        7ØC3 @@DIV16       712C @@DIV8         7117
@@DODIR        6D12 @@DSP         6A29 @@DSPLY        6AC9
@@ERROR        6C6A @@EXIT        6C2B @@FEXT         7Ø1B
@@FLAGS        71AB @@FNAME       7Ø3Ø @@FSPEC        7ØØ6
@@GATRD        7Ø99 @@GATWR       7ØD8 @@GET          6A3D
@@GTDCB        7Ø5A @@GTDCT       7Ø45 @@GTMOD        7Ø6F
@@HDFMT        6DE4 @@HEX16       718Ø @@HEX8         716B
@@HEXDEC       7156 @@HIGH$       7195 @@INIT         6E62
@@KBD          6AA1 @@KEY         6A15 @@KEYIN        6AB5
@@KLTSK        6CE8 @@LOAD        6FDC @@LOC          6ECB
@@LOF          6EEØ @@LOGER       6BØØ @@LOGOT        6B15
@@MSG          6B4C @@MUL16       71Ø2 @@MUL8         7ØED
@@OPEN         6E77 @@PARAM       6BC2 @@PAUSE        6BAD
@@PEOF         6EF5 @@POSN        6FØA @@PRINT        6B61
@@PRT          6A79 @@PUT         6A51 @@RAMDIR       6D27
@@RDSEC        6DBA @@RDSSC       7Ø84 @@READ         6F1F
@@REMOV        6E4D @@RENAM       6E38 @@REW          6F34
@@RMTSK        6CBE @@RPTSK       6CD3 @@RREAD        6F49
@@RSLCT        6DA5 @@RSTOR       6D66 @@RUN          6FF1
@@RWRIT        6F5E @@SEEK        6D9Ø @@SEEKSC       6F73
@@SKIP         6F88 @@SLCT        6D51 @@STEPI        6D7B
@@TIME         6BEC @@VDCTL       6B98 @@VER          6F9D
@@VRSEC        6DCF @@WEOF        6FB2 @@WHERE        6A8D
@@WRITE        6FC7 @@WRSEC       6DF9 @@WRSSC        6EØE
@@WRTRK        6E23
ØØØØØ Total errors
```

NOTES:

NOTES:

CONV/CMD - Convert Model III TRSDOS files

The Conv utility will move files from TRSDOS 1.2 and 1.3, Model III, copying them to an LS-DOS or TRSDOS 6 disk.

```
               ;CONV/ASM - Convert TRSDOS 1.2, 1.3 Disks
ØØØØ                     TITLE    <CONV - LS-DOS 6.2>
               ;
ØØ1C           HOME      EQU      1CH
ØØ1F           CLR       EQU      1FH
ØØØ3           ETX       EQU      Ø3H
ØØØD           CR        EQU      ØDH
ØØØA           LF        EQU      1Ø
               ;
ØØ4Ø           FLAG      EQU      Ø1ØØØØØØB
ØØ1Ø           ABB       EQU      ØØØ1ØØØØB
               ;
ØØØØ           *GET      SVCMAC:3                   ;SVC Macro equivalents
               ;SVCMAC/ASM - LS-DOS Version VI
               *LIST     OFF
               *LIST     ON
ØØØØ           *GET      COPYCOM:3                  ;Copyright message
               ; COPYCOM - File for Copyright COMment block
               ;
ØØØØ                     COM      '<*(C) 1982,83,84 by LSI*>'
               ;
26ØØ                     ORG      26ØØH
               ;
               BEGIN
26ØØ                     @@CKBRKC
26ØØ 3E6A                LD       A,1Ø6
26Ø2 EF                  RST      4Ø
26Ø3 28Ø4                JR       Z,BEGINA          ;Continue if no break
26Ø5 21FFFF              LD       HL,-1
26Ø8 C9                  RET                        ;  else abort
               ;
               BEGINA
26Ø9 ED734626            LD       (STACK),SP        ;Save entry stack
26ØD E5                  PUSH     HL                ;Save ptr to CMD buffer
26ØE                     @@DSPLY  HELLO$            ;Display the signon
                         IFEQ     Ø1H,1
26ØE 21C32A              LD       HL,HELLO$
                         ENDIF
2611 3EØA                LD       A,1Ø
2613 EF                  RST      4Ø
2614 21ØØØØ              LD       HL,Ø              ;Set up to get HIGH$
2617 45                  LD       B,L
2618                     @@FLAGS                    ;IY => flag table base
2618 3E65                LD       A,1Ø1
261A EF                  RST      4Ø
261B FDCBØ24E            BIT      1,(IY+'C'-'A')    ;OK if not CMDR
261F 28Ø1                JR       Z,NOTCMDR         ;Use LOW$ otherwise
2621 Ø4                  INC      B
2622           NOTCMDR   @@HIGH$                    ;P/u HIGH$/LOW$
2622 3E64                LD       A,1ØØ
2624 EF                  RST      4Ø
2625 22D528              LD       (MYHIGH),HL       ;Store away
2628 FDE5                PUSH     IY                ;Trans to HL
262A D1                  POP      DE
262B 21ØAØØ              LD       HL,'K'-'A'        ;Offset to KFLAG$
262E 19                  ADD      HL,DE             ;HL=>KFLAG$
262F 222427              LD       (KFLG),HL         ;Store pointer
2632 CB86                RES      Ø,(HL)            ;Kick break bit off
2634 2112ØØ              LD       HL,'S'-'A'        ;SFLAG$ offset
2637 19                  ADD      HL,DE
2638 22E427              LD       (SFLG),HL         ;Store away
```

```
263B E1                      POP     HL              ;Restore cmd pointer
263C CD5526                  CALL    PGRM            ;  and continue
                     ;
                     ;       Exit routines
                     ;
263F 21ØØØØ          $EXIT   LD      HL,Ø            ;Init to no error
2642                 $QUIT   @@CKBRKC                ;Clear out break bit
2642 3E6A                    LD      A,1Ø6
2644 EF                      RST     4Ø
2645 31ØØØØ                  LD      SP,$-$          ;P/u original stack
2646                 STACK   EQU     $-2
2648 C9                      RET
                     ;
2649 21FFFF          $ABORT  LD      HL,-1           ;Set abort code
264C 18F4                    JR      $QUIT           ;  and quit
                     ;
264E C5              $DSP    PUSH    BC              ;Display a character,
264F 4F                      LD      C,A             ;  saving BC
265Ø                         @@DSP
265Ø 3EØ2                    LD      A,2
2652 EF                      RST     4Ø
2653 C1                      POP     BC
2654 C9                      RET
                     ;
                     ;       Pick up drive numbers and partial filespec
                     ;
                     PGRM:
2655 7E                      LD      A,(HL)          ;Check for NOT filespec
2656 FE2D                    CP      '-'             ;  char used
2658 2ØØ6                    JR      NZ,MVNAM1       ;Go if not NOT
265A 3EFF                    LD      A,ØFFH          ;TRUE value
265C 32B72A                  LD      (NOTPRM),A      ;Set if specified
265F 23                      INC     HL
266Ø 11B82A          MVNAM1  LD      DE,PATTRN       ;Point to possible partspec
2663 Ø6Ø8                    LD      B,8             ;Max 8 chars in name
2665 CDCF29                  CALL    SKIPSP          ;Skip spaces
2668 CDDE29                  CALL    MOVELT          ;Move letters/digits/$
266B CDD629                  CALL    SKIPLT          ;Skip letters/digits/$
266E 7E                      LD      A,(HL)          ;Check for extension
266F FE2F                    CP      '/'
2671 2ØØC                    JR      NZ,NOEXT        ;Go if none
2673 23                      INC     HL
2674 11CØ2A                  LD      DE,PATEXT       ;Point to ext field
2677 Ø6Ø3                    LD      B,3             ;Max 3 chars in ext
2679 CDDE29                  CALL    MOVELT          ;Move letters/digits/$
267C CDD629                  CALL    SKIPLT          ;Skip letters/digits/$
267F CDBC29          NOEXT   CALL    GETDRV          ;Get source drive #
2682 32492C                  LD      (SDRIVE),A      ;Store drive #
2685 A7                      AND     A               ;Be sure not drive Ø
2686 11712B                  LD      DE,NOTØ         ;Error msg
2689 EB                      EX      DE,HL
268A CA5529                  JP      Z,PERR1         ;Param error source is Ø
268D EB                      EX      DE,HL           ;Restore cmd line ptr
268E CDCF29                  CALL    SKIPSP          ;Skip spaces
2691 CDB629                  CALL    GETDRV2         ;Get destination drive
2694 324A2C                  LD      (DDRIVE),A      ;ØFFH if no dest drv
2697 CDCF29                  CALL    SKIPSP          ;Move to '('
                     ;
                     ;       Scan parameters
                     ;
269A 11822A                  LD      DE,PRMTBL$      ;Check parameters entered
```

```
269D           Ø111Ø          @@PARAM
269D 3E11      ØØØ16          LD      A,17
269F EF        ØØØ17          RST     4Ø
26AØ C25129    Ø112Ø          JP      NZ,PRMERR       ;Quit on parm error
26A3 21ØØØØ    Ø113Ø DPARM    LD      HL,$-$          ;DIR only?
26A6 7C        Ø114Ø          LD      A,H
26A7 B5        Ø115Ø          OR      L
26A8 28Ø5      Ø116Ø          JR      Z,SPARM         ;Go if not
26AA 3EFF      Ø117Ø          LD      A,ØFFH          ;Set flag at DDRIVE
26AC 324A2C    Ø118Ø          LD      (DDRIVE),A      ;If dest is ff, read DIR
26AF 21ØØØØ    Ø119Ø SPARM    LD      HL,$-$          ;Check if no parms S,I,V
26B2 11ØØØØ    Ø12ØØ VPARM    LD      DE,$-$
26B5 Ø1ØØØØ    Ø121Ø IPARM    LD      BC,$-$
26B8 7D        Ø122Ø          LD      A,L
26B9 B3        Ø123Ø          OR      E
26BA B1        Ø124Ø          OR      C
26BB 323B27    Ø125Ø          LD      (SIV+1),A       ;Save S!I!V
26BE 21FFFF    Ø126Ø QPARM    LD      HL,ØFFFFH       ;P/u Q,N,O parms
26C1 11ØØØØ    Ø127Ø NPARM    LD      DE,Ø
26C4 Ø1ØØØØ    Ø128Ø OPARM    LD      BC,Ø
26C7 7B        Ø129Ø          LD      A,E             ;Form N!O
26C8 B1        Ø13ØØ          OR      C
26C9 32F527    Ø131Ø          LD      (NORO+1),A      ;Save that
               Ø132Ø ;
               Ø133Ø ;        Save old DCT
               Ø134Ø ;
26CC 3A492C    Ø135Ø          LD      A,(SDRIVE)      ;Pick up source drive #
26CF 4F        Ø136Ø          LD      C,A             ;Move to C reg
26DØ 3A4A2C    Ø137Ø          LD      A,(DDRIVE)      ;Be sure not single drive
26D3 B9        Ø138Ø          CP      C
26D4 21462B    Ø139Ø          LD      HL,NOTONE       ;=>error msg
26D7 CA5529    Ø14ØØ          JP      Z,PERR1         ;Go if same
26DA           Ø141Ø          @@GTDCT                 ;Point to DCT
26DA 3E51      ØØØ18          LD      A,81
26DC EF        ØØØ19          RST     4Ø
26DD C5        Ø142Ø          PUSH    BC              ;Save drive #
26DE FDE5      Ø143Ø          PUSH    IY              ;Move DCT to HL reg
26EØ E1        Ø144Ø          POP     HL
26E1 11522C    Ø145Ø          LD      DE,SAVDCT       ;Point to save area
26E4 Ø1ØAØØ    Ø146Ø          LD      BC,1Ø
26E7 EDBØ      Ø147Ø          LDIR                    ;Move it
26E9 C1        Ø148Ø          POP     BC
               Ø149Ø ;
               Ø15ØØ ;        Find directory track
               Ø151Ø ;
26EA 11Ø1ØØ    Ø152Ø          LD      DE,ØØØ1         ;Track Ø, sector 1
26ED 21ØØ2D    Ø153Ø          LD      HL,DBUFF        ;Buffer for sector
26FØ           Ø154Ø          @@RDSEC
26FØ 3E31      ØØØ2Ø          LD      A,49
26F2 EF        ØØØ21          RST     4Ø
26F3 28Ø8      Ø155Ø          JR      Z,OKØ           ;Go if no error
26F5 FEØ6      Ø156Ø          CP      6               ;Was it DAM error?
26F7 C23629    Ø157Ø          JP      NZ,IOERR        ;Go if some other
26FA CD7Ø2A    Ø158Ø          CALL    CKEARLY         ;Can we do this type?
26FD 23        Ø159Ø OKØ      INC     HL              ;Point to dir cyl #
26FE 56        Ø16ØØ          LD      D,(HL)          ;Get it
26FF 24        Ø161Ø          INC     H               ;Point to TRSDOS
27ØØ 2B        Ø162Ø          DEC     HL              ;  version number
27Ø1 2B        Ø163Ø          DEC     HL
27Ø2 2B        Ø164Ø          DEC     HL
27Ø3 7E        Ø165Ø          LD      A,(HL)          ;Pick it up
```

```
27Ø4 329C28   Ø166Ø          LD      (TRSDOS+1),A     ;Save for later
              Ø167Ø ;
              Ø168Ø ;        Read directory records into memory
              Ø169Ø ;
27Ø7 1EØ3     Ø17ØØ          LD      E,3              ;Skip GAT and HIT
27Ø9 Ø61Ø     Ø171Ø          LD      B,16             ;Read 16 sectors
27ØB 21ØØ2D   Ø172Ø          LD      HL,DBUFF
27ØE FD36Ø712 Ø173Ø DREAD    LD      (IY+7),18        ;Chg # sectors/trk for
2712          Ø174Ø          @@RDSEC                  ;  TRSDOS & Read a sector
2712 3E31     ØØØ22          LD      A,49
2714 EF       ØØØ23          RST     4Ø
2715 28Ø5     Ø175Ø          JR      Z,OK1            ;Go if no error
2717 FEØ6     Ø176Ø          CP      6                ;Ignore record type
2719 C23629   Ø177Ø          JP      NZ,IOERR         ;Go if error
271C 24       Ø178Ø OK1      INC     H                ;Bump buffer pointer
271D 1C       Ø179Ø          INC     E                ;Bump sector number
271E 1ØEE     Ø18ØØ          DJNZ    DREAD            ;Loop till done
              Ø181Ø ;
              Ø182Ø ;        Loop through all entries
              Ø183Ø ;
272Ø 21ØØ2D   Ø184Ø          LD      HL,DBUFF         ;Point to first entry
2723          Ø185Ø ELOOP    EQU     $
2723 3AØØØØ   Ø186Ø          LD      A,($-$)          ;Check system break bit
2724          Ø187Ø KFLG     EQU     $-2              ;Address of KFLAG
2726 CB47     Ø188Ø          BIT     Ø,A
2728 C24926   Ø189Ø          JP      NZ,$ABORT        ;Abort if set
272B 46       Ø19ØØ          LD      B,(HL)           ;P/U attributes
272C E5       Ø191Ø          PUSH    HL
272D DDE1     Ø192Ø          POP     IX
272F E5       Ø193Ø          PUSH    HL
273Ø CB6Ø     Ø194Ø          BIT     4,B              ;Alive?
2732 CAØF29   Ø195Ø          JP      Z,SKIPIT         ;Skip it if dead
2735 CB78     Ø196Ø          BIT     7,B              ;FXDE?
2737 C2ØF29   Ø197Ø          JP      NZ,SKIPIT        ;Skip it if so
              Ø198Ø ;
              Ø199Ø ;        Check file's attributes
              Ø2ØØØ ;
273A 3EØØ     Ø2Ø1Ø SIV      LD      A,$-$            ;S, I, or V given?
273C A7       Ø2Ø2Ø          AND     A
273D 2821     Ø2Ø3Ø          JR      Z,NOSIV          ;Go if none given
273F CB7Ø     Ø2Ø4Ø          BIT     6,B              ;SYS file?
2741 28Ø9     Ø2Ø5Ø          JR      Z,NOTSYS         ;Go if not
2743 3ABØ26   Ø2Ø6Ø          LD      A,(SPARM+1)      ;S parm given?
2746 A7       Ø2Ø7Ø          AND     A
2747 CAØF29   Ø2Ø8Ø          JP      Z,SKIPIT         ;Skip file if not
274A 1814     Ø2Ø9Ø          JR      NOSIV            ;  else possible match
274C CB58     Ø21ØØ NOTSYS   BIT     3,B              ;Visible or invisible?
274E 2ØØ9     Ø211Ø          JR      NZ,INV           ;Go if inv
275Ø 3AB326   Ø212Ø          LD      A,(VPARM+1)      ;V parm given?
2753 A7       Ø213Ø          AND     A
2754 CAØF29   Ø214Ø          JP      Z,SKIPIT         ;Skip file if not
2757 18Ø7     Ø215Ø          JR      NOSIV            ;  else possible match
2759 3AB626   Ø216Ø INV      LD      A,(IPARM+1)      ;I parm given?
275C A7       Ø217Ø          AND     A
275D CAØF29   Ø218Ø          JP      Z,SKIPIT         ;Skip file if not
              Ø219Ø ;
              Ø22ØØ ;        Check if name matches wildcard
              Ø221Ø ;
276Ø 11Ø5ØØ   Ø222Ø NOSIV    LD      DE,5             ;Offset to name field
2763 19       Ø223Ø          ADD     HL,DE
2764 E5       Ø224Ø          PUSH    HL               ;Compare with pattern
```

```
2765 11B82A    Ø225Ø          LD     DE,PATTRN       ;  of user partspec
2768 Ø6ØB      Ø226Ø          LD     B,11
276A 1A        Ø227Ø CPLOOP   LD     A,(DE)          ;P/U pattern byte
276B 13        Ø228Ø          INC    DE
276C FE24      Ø229Ø          CP     '$'             ;Matchall?
276E 28Ø3      Ø23ØØ          JR     Z,MATCH
277Ø BE        Ø231Ø          CP     (HL)            ;Match?
2771 2ØØ3      Ø232Ø          JR     NZ,NMATCH       ;Go if not
2773 23        Ø233Ø MATCH    INC    HL
2774 1ØF4      Ø234Ø          DJNZ   CPLOOP
2776 E1        Ø235Ø NMATCH   POP    HL              ;Z if match, NZ if not
2777 CDØB2A    Ø236Ø          CALL   NOTCHK          ;Reverse flag if NOT entered
277A C2ØF29    Ø237Ø          JP     NZ,SKIPIT       ;Skip file if no match
               Ø238Ø ;
277D 11Ø92C    Ø239Ø          LD     DE,FCB          ;Point to FCB
278Ø Ø6Ø8      Ø24ØØ          LD     B,8
2782 7E        Ø241Ø MVNAME   LD     A,(HL)          ;Move name
2783 FE2Ø      Ø242Ø          CP     ' '             ;Space?
2785 28Ø5      Ø243Ø          JR     Z,GOTNAM        ;Go if hit one
2787 23        Ø244Ø          INC    HL
2788 12        Ø245Ø          LD     (DE),A          ;Put to FCB
2789 13        Ø246Ø          INC    DE
278A 1ØF6      Ø247Ø          DJNZ   MVNAME
278C 48        Ø248Ø GOTNAM   LD     C,B             ;Offset to ext field
278D Ø6ØØ      Ø249Ø          LD     B,Ø
278F Ø9        Ø25ØØ          ADD    HL,BC
279Ø 7E        Ø251Ø          LD     A,(HL)          ;No extension?
2791 FE2Ø      Ø252Ø          CP     ' '
2793 281Ø      Ø253Ø          JR     Z,GOTEXT        ;Go if so
2795 3E2F      Ø254Ø          LD     A,'/'           ;Put in slash
2797 12        Ø255Ø          LD     (DE),A
2798 13        Ø256Ø          INC    DE
2799 Ø6Ø3      Ø257Ø          LD     B,3
279B 7E        Ø258Ø EXLOOP   LD     A,(HL)          ;Move extension
279C 23        Ø259Ø          INC    HL
279D FE2Ø      Ø26ØØ          CP     ' '             ;Finished?
279F 28Ø4      Ø261Ø          JR     Z,GOTEXT
27A1 12        Ø262Ø          LD     (DE),A
27A2 13        Ø263Ø          INC    DE
27A3 1ØF6      Ø264Ø          DJNZ   EXLOOP          ;Loop till done
               Ø265Ø ;
27A5 3EØ3      Ø266Ø GOTEXT   LD     A,ETX           ;Put ETX at end for dsply
27A7 12        Ø267Ø          LD     (DE),A
27A8 D5        Ø268Ø          PUSH   DE              ;Save current spot in FCB
27A9 21Ø92C    Ø269Ø          LD     HL,FCB          ;Move name to buffer
27AC 11E92B    Ø27ØØ          LD     DE,FNAME        ;  for printing
27AF Ø12ØØØ    Ø271Ø          LD     BC,32
27B2 EDBØ      Ø272Ø          LDIR
27B4 D1        Ø273Ø          POP    DE              ;Get back where we were
               Ø274Ø ;
               Ø275Ø ;Print filenames if no destination drive (DDRIVE=ØFFH)
               Ø276Ø ;
27B5 3A4A2C    Ø277Ø          LD     A,(DDRIVE)      ;Check for just printing DIR
27B8 3C        Ø278Ø          INC    A               ;Set Z if FF
27B9 2ØØ6      Ø279Ø          JR     NZ,MOVING       ;Go if not FF
27BB CD1C2A    Ø28ØØ          CALL   SHOW            ;Print entry
27BE C3ØF29    Ø281Ø          JP     SKIPIT          ;  and go on to next
               Ø282Ø ;
               Ø283Ø ;        Check if file exists on destination disk
               Ø284Ø ;
27C1 3E3A      Ø285Ø MOVING   LD     A,':'           ;Now put the drive separator
```

```
27C3 12                      LD      (DE),A          ;  in the FCB
27C4 13                      INC     DE
27C5 3A4A2C                  LD      A,(DDRIVE)      ;Put in drive spec
27C8 F63Ø                    OR      'Ø'             ;Change number to ASCII
27CA 12                      LD      (DE),A
27CB 13                      INC     DE
27CC 3EØ3                    LD      A,ETX           ;Put in ETX to end
27CE 12                      LD      (DE),A
27CF 21Ø92C                  LD      HL,FCB          ;Copy into 2nd FCB
27D2 11292C                  LD      DE,FCB2
27D5 Ø12ØØØ                  LD      BC,32
27D8 EDBØ                    LDIR
27DA 11292C                  LD      DE,FCB2         ;Point to start of FCB
27DD 21ØØ3D                  LD      HL,TBUFF        ;Point to transfer buffer
27EØ Ø6ØØ                    LD      B,Ø             ;LRL=256
27E2 E5                      PUSH    HL
27E3 21ØØØØ                  LD      HL,$-$          ;HL => SFLAG
27E4                 SFLG    EQU     $-2
27E6 CBC6                    SET     Ø,(HL)          ;Set the open inhibit bit
27E8 E1                      POP     HL
27E9                         @@OPEN                  ;Do the open
27E9 3E3B                    LD      A,59
27EB EF                      RST     4Ø
27EC 47                      LD      B,A             ;Save return code
27ED 28Ø5                    JR      Z,NORO          ;Go if opened okay
27EF FE18                    CP      18H             ;File not found?
27F1 C23629                  JP      NZ,IOERR        ;  else an error
                     ;
                     ;       Check New and Old parms
                     ;
27F4 3EØØ            NORO    LD      A,Ø             ;N or O specified?
27F6 A7                      AND     A
27F7 2816                    JR      Z,CHECKQ        ;Go if neither
27F9 3AC526                  LD      A,(OPARM+1)     ;O parm given?
27FC A7                      AND     A
27FD 28Ø4                    JR      Z,CKNEW         ;Go if not
27FF AF                      XOR     A
28ØØ BØ                      OR      B               ;Did file exist?
28Ø1 28ØC                    JR      Z,CHECKQ        ;Go if so (ok)
28Ø3 3AC226          CKNEW   LD      A,(NPARM+1)     ;N parm given?
28Ø6 A7                      AND     A
28Ø7 CAØF29                  JP      Z,SKIPIT        ;Skip file if not
28ØA AF                      XOR     A
28ØB BØ                      OR      B               ;Be sure it was new
28ØC CAØF29                  JP      Z,SKIPIT        ;Go if it wasn't
                     ;
                     ;       Ask question if Q parm was given
                     ;
28ØF 3ABF26          CHECKQ  LD      A,(QPARM+1)     ;Check Q parm
2812 A7                      AND     A
2813 2Ø13                    JR      NZ,QUERY        ;Query if so
2815 21CA2B                  LD      HL,CONVS        ;"Converting..."
2818                         @@DSPLY
                             IFEQ    ØØH,1
                             LD      HL,
                             ENDIF
2818 3EØA                    LD      A,1Ø
281A EF                      RST     4Ø
281B 21E92B                  LD      HL,FNAME        ;Filename
281E                         @@DSPLY
                             IFEQ    ØØH,1
```

```
               ØØØ32          LD      HL,
               ØØØ33          ENDIF
281E 3EØA      ØØØ34          LD      A,1Ø
282Ø EF        ØØØ35          RST     4Ø
2821 3EØD      Ø339Ø          LD      A,CR            ;Carriage return
2823 CD4E26    Ø34ØØ          CALL    $DSP
2826 1841      Ø341Ø          JR      TAKEIT1         ;Go & move it
               Ø342Ø ;
2828 21DC2B    Ø343Ø QUERY    LD      HL,CONVQ        ;"Convert file
282B           Ø344Ø          @@DSPLY                 ;Display it
               ØØØ36          IFEQ    ØØH,1
               ØØØ37          LD      HL,
               ØØØ38          ENDIF
282B 3EØA      ØØØ39          LD      A,1Ø
282D EF        ØØØ4Ø          RST     4Ø
282E 21A92B    Ø345Ø          LD      HL,QMARK        ;"?"
2831           Ø346Ø          @@DSPLY
               ØØØ41          IFEQ    ØØH,1
               ØØØ42          LD      HL,
               ØØØ43          ENDIF
2831 3EØA      ØØØ44          LD      A,1Ø
2833 EF        ØØØ45          RST     4Ø
2834 214D2C    Ø347Ø          LD      HL,ABUFF        ;Get answer
2837 Ø1ØØØ3    Ø348Ø          LD      BC,3<8          ;3 char max
283A           Ø349Ø          @@KEYIN
283A 3EØ9      ØØØ46          LD      A,9
283C EF        ØØØ47          RST     4Ø
283D DA4926    Ø35ØØ          JP      C,$ABORT        ;Abort if BREAK hit
284Ø 7E        Ø351Ø          LD      A,(HL)          ;Check for 'Y'
2841 CBAF      Ø352Ø          RES     5,A             ;Force upper case
2843 FE59      Ø353Ø          CP      'Y'
2845 C2ØF29    Ø354Ø          JP      NZ,SKIPIT       ;Skip it if not 'Y'
               Ø355Ø ;
               Ø356Ø ;        If file exists, query user
               Ø357Ø ;
2848 3A292C    Ø358Ø          LD      A,(FCB2)        ;Was file opened ok?
284B CB7F      Ø359Ø          BIT     7,A             ;Z = not found
284D 281A      Ø36ØØ          JR      Z,TAKEIT1       ;Go if it does not exist
284F 21AC2B    Ø361Ø          LD      HL,EXISTQ       ;"File exists, replace?
2852           Ø362Ø          @@DSPLY                 ;Print question
               ØØØ48          IFEQ    ØØH,1
               ØØØ49          LD      HL,
               ØØØ5Ø          ENDIF
2852 3EØA      ØØØ51          LD      A,1Ø
2854 EF        ØØØ52          RST     4Ø
2855 214D2C    Ø363Ø          LD      HL,ABUFF
2858 Ø1ØØØ3    Ø364Ø          LD      BC,3<8
285B           Ø365Ø          @@KEYIN                 ;Get answer
285B 3EØ9      ØØØ53          LD      A,9
285D EF        ØØØ54          RST     4Ø
285E DA4926    Ø366Ø          JP      C,$ABORT        ;Abort if break
2861 7E        Ø367Ø          LD      A,(HL)          ;Check answer
2862 CBAF      Ø368Ø          RES     5,A             ;Force uppercase
2864 FE59      Ø369Ø          CP      'Y'
2866 C2ØF29    Ø37ØØ          JP      NZ,SKIPIT       ;Skip if 'no'
               Ø371Ø ;
               Ø372Ø ;        Init file if it didn't exist
               Ø373Ø ;
2869 11292C    Ø374Ø TAKEIT1  LD      DE,FCB2
286C 1A        Ø375Ø          LD      A,(DE)          ;Was file opened?
286D CB7F      Ø376Ø          BIT     7,A             ;Z = not opened
```

```
286F 28Ø3       Ø377Ø          JR      Z,$+5           ;Remove existing file
2871            Ø378Ø          @@REMOV                 ;  for new LRL
2871 3E39       ØØØ55          LD      A,57
2873 EF         ØØØ56          RST     4Ø
2874 11Ø92C     Ø379Ø          LD      DE,FCB          ;Use other FCB now
2877 21ØØ3D     Ø38ØØ          LD      HL,TBUFF        ;Create file
287A DD46Ø4     Ø381Ø          LD      B,(IX+4)        ;P/U Mod III LRL
287D            Ø382Ø          @@INIT                  ;Create the file
287D 3E3A       ØØØ57          LD      A,58
287F EF         ØØØ58          RST     4Ø
288Ø C23629     Ø383Ø          JP      NZ,IOERR        ;Go if error
2883 D5         Ø384Ø          PUSH    DE              ;Change LRL to Ø for copy
2884 DDE3       Ø385Ø          EX      (SP),IX         ;IX to FCB start
2886 DDCBØ1BE   Ø386Ø          RES     7,(IX+1)        ;Show full sector ops
288A DD36Ø9ØØ   Ø387Ø          LD      (IX+9),Ø        ;Show LRL=Ø
288E DDE3       Ø388Ø          EX      (SP),IX         ;Switch back
289Ø D1         Ø389Ø          POP     DE
                Ø39ØØ ;
                Ø391Ø ;        Initialize to read from source file
                Ø392Ø ;
2891 E1         Ø393Ø TAKEIT2  POP     HL              ;Point to dir entry
2892 E5         Ø394Ø          PUSH    HL
2893 1114ØØ     Ø395Ø          LD      DE,2Ø           ;Point to ERN
2896 19         Ø396Ø          ADD     HL,DE
2897 5E         Ø397Ø          LD      E,(HL)          ;P/U ERN
2898 23         Ø398Ø          INC     HL
2899 56         Ø399Ø          LD      D,(HL)
289A 23         Ø4ØØØ          INC     HL              ;Leave ptg to extents
289B 3EØØ       Ø4Ø1Ø TRSDOS   LD      A,Ø             ;1.3 or later?
289D FE13       Ø4Ø2Ø          CP      13H
289F 38Ø7       Ø4Ø3Ø          JR      C,EARLY         ;Go if earlier than 1.3
28A1 DD7EØ3     Ø4Ø4Ø          LD      A,(IX+3)        ;Pick up EOF offset
28A4 A7         Ø4Ø5Ø          AND     A               ;Zero?
28A5 28Ø1       Ø4Ø6Ø          JR      Z,EARLY         ;No adjustment if so
28A7 13         Ø4Ø7Ø          INC     DE              ;If nonzero, adjust ERN
28A8 Ø6ØØ       Ø4Ø8Ø EARLY    LD      B,Ø             ;# sectors left in extent
28AA D5         Ø4Ø9Ø          PUSH    DE              ;Save ERN
28AB D9         Ø41ØØ          EXX                     ;Switch to alternate regs
                Ø411Ø ;
                Ø412Ø ;        Preallocate file
                Ø413Ø ;
28AC C1         Ø414Ø          POP     BC
28AD 78         Ø415Ø          LD      A,B             ;Empty file?
28AE B1         Ø416Ø          OR      C
28AF 281E       Ø417Ø          JR      Z,READ          ;Go if so
28B1 ØB         Ø418Ø          DEC     BC
28B2 11Ø92C     Ø419Ø          LD      DE,FCB          ;Point to FCB
28B5            Ø42ØØ          @@POSN                  ;Position to last sector
28B5 3E42       ØØØ59          LD      A,66
28B7 EF         ØØØ6Ø          RST     4Ø
28B8 28Ø9       Ø421Ø          JR      Z,OK3
28BA FE1C       Ø422Ø          CP      1CH             ;Ignore EOF errors
28BC 28Ø5       Ø423Ø          JR      Z,OK3
28BE FE1D       Ø424Ø          CP      1DH             ;  or past end errors
28CØ C23629     Ø425Ø          JP      NZ,IOERR        ;Quit on any others
28C3            Ø426Ø OK3      @@WRITE                 ;Write it
28C3 3E4B       ØØØ61          LD      A,75
28C5 EF         ØØØ62          RST     4Ø
28C6 C23629     Ø427Ø          JP      NZ,IOERR        ;Quit on write error
28C9            Ø428Ø          @@REW                   ;Position to start
28C9 3E44       ØØØ63          LD      A,68
```

```
28CB EF         ØØØ64          RST     4Ø
28CC C23629     Ø429Ø          JP      NZ,IOERR
                Ø43ØØ ;
                Ø431Ø ;        Read sectors
                Ø432Ø ;
28CF Ø6ØØ       Ø433Ø READ     LD      B,Ø               ;Count sectors read
28D1 21ØØ3D     Ø434Ø          LD      HL,TBUFF          ;Point to transfer buffer
28D4 11ØØØØ     Ø435Ø          LD      DE,$-$
28D5            Ø436Ø MYHIGH   EQU     $-2               ;Stuff HIGH$ value
28D7 15         Ø437Ø          DEC     D                 ;256 bytes back
28D8 CD5B29     Ø438Ø GETONE   CALL    GETSEC            ;Get next sector
28DB 2ØØB       Ø439Ø          JR      NZ,WRITE          ;Go if EOF
28DD Ø4         Ø44ØØ          INC     B                 ;Count sector
28DE 24         Ø441Ø          INC     H                 ;Point to next spot
28DF CDØ52A     Ø442Ø          CALL    CPHLDE            ;Compare HL and DE
28E2 3EØØ       Ø443Ø          LD      A,Ø               ;No error code
28E4 3ØØ2       Ø444Ø          JR      NC,WRITE          ;Go if mem full
28E6 18FØ       Ø445Ø          JR      GETONE            ;  else loop for more
                Ø446Ø ;
                Ø447Ø ;        Write sectors to destination file
                Ø448Ø ;
28E8 F5         Ø449Ø WRITE    PUSH    AF                ;Save completion type
28E9 11Ø92C     Ø45ØØ          LD      DE,FCB            ;Point to file fcb
28EC 21ØØ3D     Ø451Ø          LD      HL,TBUFF          ;Point to transfer buffer
28EF 22ØC2C     Ø452Ø WRLOOP   LD      (FCB+3),HL        ;Point FCB to buffer
28F2 78         Ø453Ø          LD      A,B               ;Zero to write?
28F3 A7         Ø454Ø          AND     A
28F4 28Ø9       Ø455Ø          JR      Z,WRDUN           ;Go if so
28F6            Ø456Ø          @@WRITE                   ;Write to file
28F6 3E4B       ØØØ65          LD      A,75
28F8 EF         ØØØ66          RST     4Ø
28F9 C23629     Ø457Ø          JP      NZ,IOERR          ;Quit on write error
28FC 24         Ø458Ø          INC     H
28FD 1ØFØ       Ø459Ø          DJNZ    WRLOOP            ;Loop till done
                Ø46ØØ ;
                Ø461Ø ;        Were we at EOF?
                Ø462Ø ;
28FF F1         Ø463Ø WRDUN    POP     AF                ;Restore completion type
29ØØ A7         Ø464Ø          AND     A                 ;At end of file?
29Ø1 28CC       Ø465Ø          JR      Z,READ            ;Go if not
                Ø466Ø ;
                Ø467Ø ;        Copy over EOF offset
                Ø468Ø ;
29Ø3 DD7EØ3     Ø469Ø          LD      A,(IX+3)          ;P/U offset from dir
29Ø6 32112C     Ø47ØØ          LD      (FCB+8),A         ;Put into FCB
29Ø9            Ø471Ø          @@CLOSE                   ;  and close the file
29Ø9 3E3C       ØØØ67          LD      A,6Ø
29ØB EF         ØØØ68          RST     4Ø
29ØC C23629     Ø472Ø          JP      NZ,IOERR          ;Quit on close error
                Ø473Ø ;
                Ø474Ø ;        Increment to next entry and loop if not done
                Ø475Ø ;
29ØF E1         Ø476Ø SKIPIT   POP     HL
291Ø 113ØØØ     Ø477Ø          LD      DE,48             ;48 bytes per entry
2913 19         Ø478Ø          ADD     HL,DE
2914 7D         Ø479Ø          LD      A,L               ;End of sector?
2915 FEFØ       Ø48ØØ          CP      ØFØH
2917 2ØØ3       Ø481Ø          JR      NZ,NOTEOS         ;Go if not
2919 24         Ø482Ø          INC     H
291A 2EØØ       Ø483Ø          LD      L,Ø
291C 11ØØ3D     Ø484Ø NOTEOS   LD      DE,TBUFF          ;Done?
```

```
291F CDØ52A                CALL    CPHLDE          ;CP HL,DE
2922 DA2327                JP      C,ELOOP         ;Loop back if not done
                   ;
                   ;       Finished
                   ;
2925 3EØD                  LD      A,CR            ;Blank line
2927 CD4E26                CALL    $DSP
292A CD4529                CALL    BYEBYE          ;Restore DCT
292D C33F26                JP      $EXIT
                   ;
293Ø CD4529        QUIT    CALL    BYEBYE          ;Restore DCT
2933 C34926                JP      $ABORT
                   ;
                   ;       Error routines
                   ;
2936 CD4529        IOERR   CALL    BYEBYE          ;Restore DCT
2939 6F            IOERR1  LD      L,A             ;Entry from PRMERR
293A 26ØØ                  LD      H,Ø
293C F6CØ                  OR      ØCØH            ;Abbrev, return
293E 4F                    LD      C,A             ;Error code to C
293F                       @@ERROR                 ;  for error display
293F 3E1A                  LD      A,26
2941 EF                    RST     4Ø
2942 C34226                JP      $QUIT
                   ;
2945 FDE5          BYEBYE  PUSH    IY              ;Move back DCT
2947 D1                    POP     DE
2948 21522C                LD      HL,SAVDCT       ;Point to save area
294B Ø1ØAØØ                LD      BC,1Ø
294E EDBØ                  LDIR
295Ø C9                    RET
                   ;
2951 3E2C          PRMERR  LD      A,44            ;Init "parameter error
2953 18E4                  JR      IOERR1
2955               PERR1   @@LOGOT                 ;Display and log
                           IFEQ    ØØH,1
                           LD      HL,
                           ENDIF
2955 3EØC                  LD      A,12
2957 EF                    RST     4Ø
2958 C34926                JP      $ABORT
                   ;
                   ;       Sector read routine
                   ;
295B D9            GETSEC  EXX                     ;P/U alt registers
295C 7A                    LD      A,D             ;Any records left?
295D B3                    OR      E
295E 2ØØ5                  JR      NZ,NOTEND       ;Go if so
296Ø D9            BDEXT   EXX
2961 3E1C                  LD      A,1CH           ;EOF code
2963 A7                    AND     A               ;Set NZ condition
2964 C9                    RET
                   ;
2965 AF            NOTEND  XOR     A               ;Check if used up ext
2966 BØ                    OR      B
2967 2Ø21                  JR      NZ,MORE         ;Go if not used up
2969 7E                    LD      A,(HL)          ;Check next trk#
296A FEFF                  CP      ØFFH            ;Non-allocated?
296C 28F2                  JR      Z,BDEXT         ;Then consider EOF
296E D5                    PUSH    DE              ;Save DE'
296F 56                    LD      D,(HL)          ;P/U track number
```

```
297Ø 23        Ø539Ø          INC     HL
2971 46        Ø540Ø          LD      B,(HL)          ;P/U other stuff
2972 23        Ø541Ø          INC     HL
2973 78        Ø542Ø          LD      A,B             ;Get starting gran
2974 Ø7        Ø543Ø          RLCA
2975 Ø7        Ø544Ø          RLCA                    ;Move to bits Ø-2
2976 Ø7        Ø545Ø          RLCA
2977 E6Ø7      Ø546Ø          AND     7               ;Mask off other garbage
2979 5F        Ø547Ø          LD      E,A             ;Multiply by 3
297A Ø7        Ø548Ø          RLCA
297B 83        Ø549Ø          ADD     A,E
297C 3C        Ø550Ø          INC     A               ;Offset from Ø
297D 5F        Ø551Ø          LD      E,A             ;  and move to E reg
297E ED534B2C  Ø552Ø          LD      (TRKSEC),DE     ;Save for later
2982 D1        Ø553Ø          POP     DE              ;Restore DE'
2983 78        Ø554Ø          LD      A,B             ;Get number of grans
2984 E61F      Ø555Ø          AND     1FH
2986 47        Ø556Ø          LD      B,A             ;Multiply by 3
2987 Ø7        Ø557Ø          RLCA
2988 8Ø        Ø558Ø          ADD     A,B
2989 47        Ø559Ø          LD      B,A             ;And put in B reg
               Ø560Ø ;
               Ø561Ø ;        Read sector
               Ø562Ø ;
298A Ø5        Ø563Ø MORE     DEC     B               ;Count down # sec in ext
298B 1B        Ø564Ø          DEC     DE              ;Count down # records
298C D9        Ø565Ø          EXX                     ;Restore primary set
298D D5        Ø566Ø          PUSH    DE              ;Save DE
298E C5        Ø567Ø          PUSH    BC              ;Save BC
298F ED5B4B2C  Ø568Ø          LD      DE,(TRKSEC)     ;P/U track and sector #
2993 3A492C    Ø569Ø          LD      A,(SDRIVE)      ;P/U source drive
2996 4F        Ø570Ø          LD      C,A
2997 FD36Ø712  Ø571Ø          LD      (IY+7),18       ;Reset sec/trk each time
299B           Ø572Ø          @@RDSEC                 ;Read sector to (HL)
299B 3E31      ØØØ76          LD      A,49
299D EF        ØØØ77          RST     4Ø
299E 28Ø5      Ø573Ø          JR      Z,OK2           ;Go if no errors
29AØ FEØ6      Ø574Ø          CP      6               ;  or address mark differs
29A2 C23629    Ø575Ø          JP      NZ,IOERR        ;Quit on any other
29A5 1C        Ø576Ø OK2      INC     E               ;Step to next sector
29A6 7B        Ø577Ø          LD      A,E
29A7 FE13      Ø578Ø          CP      19D             ;End of track?
29A9 2ØØ3      Ø579Ø          JR      NZ,NOTEOT       ;Go if not
29AB 1EØ1      Ø580Ø          LD      E,1             ;Reset to sector 1
29AD 14        Ø581Ø          INC     D               ;Next track
29AE ED534B2C  Ø582Ø NOTEOT   LD      (TRKSEC),DE
29B2 C1        Ø583Ø          POP     BC
29B3 D1        Ø584Ø          POP     DE
29B4 AF        Ø585Ø          XOR     A
29B5 C9        Ø586Ø          RET
               Ø587Ø ;
               Ø588Ø ;        Parsing subroutines
               Ø589Ø ;
29B6 7E        Ø590Ø GETDRV2  LD      A,(HL)
29B7 FE3A      Ø591Ø          CP      ':'
29B9 3EFF      Ø592Ø          LD      A,ØFFH          ;'Not entered' value
29BB CØ        Ø593Ø          RET     NZ              ;If no second drive, give DIR
               Ø594Ø ;
29BC 7E        Ø595Ø GETDRV   LD      A,(HL)          ;Parse drivespec
29BD FE3A      Ø596Ø          CP      ':'
29BF 2Ø9Ø      Ø597Ø          JR      NZ,PRMERR       ;Go if missing
```

```
29C1 23         Ø598Ø          INC     HL
29C2 7E         Ø599Ø          LD      A,(HL)          ;P/U drivespec
29C3 FE3Ø       Ø6ØØØ          CP      'Ø'             ;Be sure digit
29C5 388A       Ø6Ø1Ø          JR      C,PRMERR
29C7 FE38       Ø6Ø2Ø          CP      '7'+1
29C9 3Ø86       Ø6Ø3Ø          JR      NC,PRMERR
29CB 23         Ø6Ø4Ø          INC     HL              ;Bump cmdline ptr
29CC E6Ø7       Ø6Ø5Ø          AND     7               ;Make drive # binary
29CE C9         Ø6Ø6Ø          RET
                Ø6Ø7Ø ;
29CF 7E         Ø6Ø8Ø SKIPSP   LD      A,(HL)          ;Skip spaces
29DØ FE2Ø       Ø6Ø9Ø          CP      ' '
29D2 CØ         Ø61ØØ          RET     NZ
29D3 23         Ø611Ø          INC     HL
29D4 18F9       Ø612Ø          JR      SKIPSP
                Ø613Ø ;
29D6 7E         Ø614Ø SKIPLT   LD      A,(HL)          ;Skip letters/digits/$
29D7 CDE829     Ø615Ø          CALL    CHKLET          ;Check letter/digit/$
29DA CØ         Ø616Ø          RET     NZ
29DB 23         Ø617Ø          INC     HL
29DC 18F8       Ø618Ø          JR      SKIPLT
                Ø619Ø ;
29DE 7E         Ø62ØØ MOVELT   LD      A,(HL)          ;Move letters/digits/$
29DF CDE829     Ø621Ø          CALL    CHKLET
29E2 CØ         Ø622Ø          RET     NZ
29E3 23         Ø623Ø          INC     HL              ;Inc from buffer
29E4 12         Ø624Ø          LD      (DE),A          ;Store
29E5 13         Ø625Ø          INC     DE              ;Inc to buffer
29E6 18F6       Ø626Ø          JR      MOVELT
                Ø627Ø ;
29E8 CB7F       Ø628Ø CHKLET   BIT     7,A             ;Graphic?
29EA CØ         Ø629Ø          RET     NZ
29EB FE61       Ø63ØØ          CP      'a'             ;Lowercase?
29ED 38Ø2       Ø631Ø          JR      C,NOTLC         ;Go if not
29EF CBAF       Ø632Ø          RES     5,A             ;  else make upper case
29F1 FE24       Ø633Ø NOTLC    CP      '$'             ;Dollar sign?
29F3 C8         Ø634Ø          RET     Z
29F4 FE3Ø       Ø635Ø          CP      'Ø'             ;Digit?
29F6 D8         Ø636Ø          RET     C               ;Return (NZ) if less
29F7 FE3A       Ø637Ø          CP      '9'+1
29F9 3ØØ2       Ø638Ø          JR      NC,NOTDIG       ;Go if not digit
29FB BF         Ø639Ø          CP      A               ;Mark as letter/digit/$
29FC C9         Ø64ØØ          RET
29FD FE41       Ø641Ø NOTDIG   CP      'A'             ;Letter?
29FF D8         Ø642Ø          RET     C               ;Return (NZ) if less
2AØØ FE5A       Ø643Ø          CP      'Z'
2AØ2 DØ         Ø644Ø          RET     NC              ;Z if =Z, NZ if >Z
2AØ3 BF         Ø645Ø          CP      A               ;Z if <Z
2AØ4 C9         Ø646Ø          RET
                Ø647Ø ;
2AØ5 E5         Ø648Ø CPHLDE   PUSH    HL              ;Compare HL and DE
2AØ6 A7         Ø649Ø          AND     A
2AØ7 ED52       Ø65ØØ          SBC     HL,DE
2AØ9 E1         Ø651Ø          POP     HL
2AØA C9         Ø652Ø          RET
                Ø653Ø ;
                Ø654Ø ;If NOT (-) spec given, reverse Z flag setting
                Ø655Ø ;
2AØB F5         Ø656Ø NOTCHK   PUSH    AF              ;Save current setting
2AØC 3AB72A     Ø657Ø          LD      A,(NOTPRM)      ;Was NOT entered?
2AØF B7         Ø658Ø          OR      A
```

```
2A10 2808      06590          JR      Z,NOTNOT        ;No, restore previous
2A12 F1        06600          POP     AF              ;Get previous
2A13 2802      06610          JR      Z,SETIT         ;Was Z, make NZ
2A15 AF        06620          XOR     A               ;  else was NZ, make Z
2A16 C9        06630          RET
2A17 F6FF      06640 SETIT    OR      0FFH            ;make NZ
2A19 C9        06650          RET
2A1A F1        06660 NOTNOT   POP     AF              ;Get previous flags
2A1B C9        06670          RET
               06680 ;
               06690 ;Display mod 3 TRSDOS disk directory
               06700 ;
2A1C E5        06710 SHOW     PUSH    HL
2A1D D5        06720          PUSH    DE
2A1E C5        06730          PUSH    BC              ;Save registers
2A1F 0E00      06740          LD      C,0             ;Init char count
2A21 21E92B    06750          LD      HL,FNAME        ;=>name
2A24 7E        06760 NMDSP    LD      A,(HL)          ;Get a character
2A25 FE03      06770          CP      ETX             ;Are we done?
2A27 2807      06780          JR      Z,NMEND         ;Finish if so
2A29 CD4E26    06790          CALL    $DSP            ;Print this char
2A2C 0C        06800          INC     C               ;Count it
2A2D 23        06810          INC     HL              ;=>next char
2A2E 18F4      06820          JR      NMDSP           ;Until ETX
               06830 ;
2A30 210000    06840 NMEND    LD      HL,$-$          ;P/u line/char count
2A31           06850 CCOUNT   EQU     $-2
2A33 79        06860          LD      A,C             ;Count for this entry
2A34 85        06870          ADD     A,L             ;Add to previous
2A35 6F        06880          LD      L,A             ;Save posn
2A36 3E10      06890          LD      A,16            ;Spaces for entry
2A38 91        06900          SUB     C               ;Less used
2A39 47        06910          LD      B,A             ;Remaining to B
2A3A 3E20      06920 SPLP     LD      A,' '           ;Pad remaining w/spaces
2A3C CD4E26    06930          CALL    $DSP
2A3F 2C        06940          INC     L               ;Count it
2A40 7D        06950          LD      A,L             ;Check char posn
2A41 FE4E      06960          CP      78              ;End of line?
2A43 2809      06970          JR      Z,ELINE         ;Then print CR
2A45 10F3      06980          DJNZ    SPLP            ;  else keep going
               06990 ;
2A47 22312A    07000 ESHOW    LD      (CCOUNT),HL     ;Save line/char posn
2A4A C1        07010          POP     BC              ;Restore regs
2A4B D1        07020          POP     DE
2A4C E1        07030          POP     HL
2A4D C9        07040          RET                     ;Done w/entry
               07050 ;
2A4E 3E0D      07060 ELINE    LD      A,CR            ;Hit end of line
2A50 CD4E26    07070          CALL    $DSP
2A53 24        07080          INC     H               ;Bump line posn
2A54 2E00      07090          LD      L,0             ;Start on next
2A56 3E17      07100          LD      A,23            ;Max lines
2A58 BC        07110          CP      H               ;There yet?
2A59 20EC      07120          JR      NZ,ESHOW        ;Nope
2A5B           07130          @@KEY                   ;Wait for a key
2A5B 3E01      00078          LD      A,1
2A5D EF        00079          RST     40
2A5E CD662A    07140          CALL    $CLS            ;Clear the display
2A61 210000    07150          LD      HL,0            ;Restart count
2A64 18E1      07160          JR      ESHOW
               07170 ;
```

```
2A66 3E1C       Ø718Ø $CLS     LD      A,HOME           ;Cursor home
2A68 CD4E26     Ø719Ø          CALL    $DSP
2A6B 3E1F       Ø72ØØ          LD      A,CLR            ;Clear to end-of-frame
2A6D C34E26     Ø721Ø          JP      $DSP
                Ø722Ø ;
2A7Ø ØØ         Ø723Ø CKEARLY  DB      Ø
2A71 3A222D     Ø724Ø          LD      A,(DBUFF+22H)    ;Get type byte
2A74 FEFF       Ø725Ø          CP      ØFFH             ;Do we know this one?
2A76 C8         Ø726Ø          RET     Z                ;OK to continue
2A77 3A4A2C     Ø727Ø          LD      A,(DDRIVE)       ;Doesn't matter if
2A7A 3C         Ø728Ø          INC     A                ;  only doing DIR
2A7B C8         Ø729Ø          RET     Z
2A7C 218A2B     Ø73ØØ          LD      HL,EARLYD        ;Err msg
2A7F C35529     Ø731Ø          JP      PERR1            ;Quit
                Ø732Ø ;
2A82 8Ø         Ø733Ø PRMTBL$  DB      8ØH
2A83 55         Ø734Ø          DB      ABB!FLAG!5
2A84 51         Ø735Ø          DB      'QUERY',Ø
     55 45 52 59 ØØ
2A8A BF26       Ø736Ø          DW      QPARM+1
2A8C 53         Ø737Ø          DB      ABB!FLAG!3
2A8D 53         Ø738Ø          DB      'SYS',Ø
     59 53 ØØ
2A91 BØ26       Ø739Ø          DW      SPARM+1
2A93 53         Ø74ØØ          DB      ABB!FLAG!3
2A94 49         Ø741Ø          DB      'INV',Ø
     4E 56 ØØ
2A98 B626       Ø742Ø          DW      IPARM+1
2A9A 53         Ø743Ø          DB      ABB!FLAG!3
2A9B 56         Ø744Ø          DB      'VIS',Ø
     49 53 ØØ
2A9F B326       Ø745Ø          DW      VPARM+1
2AA1 53         Ø746Ø          DB      ABB!FLAG!3
2AA2 4F         Ø747Ø          DB      'OLD',Ø
     4C 44 ØØ
2AA6 C526       Ø748Ø          DW      OPARM+1
2AA8 53         Ø749Ø          DB      ABB!FLAG!3
2AA9 4E         Ø75ØØ          DB      'NEW',Ø
     45 57 ØØ
2AAD C226       Ø751Ø          DW      NPARM+1
2AAF 53         Ø752Ø          DB      ABB!FLAG!3
2ABØ 44         Ø753Ø          DB      'DIR',Ø
     49 52 ØØ
2AB4 A426       Ø754Ø          DW      DPARM+1
2AB6 ØØ         Ø755Ø          NOP
                Ø756Ø ;
                Ø757Ø ;        Messages and buffers
                Ø758Ø ;
2AB7 ØØ         Ø759Ø NOTPRM   DB      Ø
2AB8 24         Ø76ØØ PATTRN   DB      '$$$$$$$$'
     24 24 24 24 24 24 24
2ACØ 24         Ø761Ø PATEXT   DB      '$$$'
     24 24
2AC3 43         Ø762Ø HELLO$   DB      'CONV'
     4F 4E 56
2AC7            Ø763Ø *GET     CLIENT:3
                Ø395Ø ;CLIENTS/ASM - File to establish sign-on headers
                Ø396Ø ;
2AC7 2Ø         Ø397Ø          DB      ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 20 62
     79 20 4C 6F 67 69 63 61
     6C
2AF1 20          03980        DB     ' Systems, Inc.      ',10
     53 79 73 74 65 6D 73 2C
     20 49 6E 63 2E 20 20 20
     20 20 20 0A
                 03990 ;
2B06 41          04000        DB     'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 20 52 69 67 68 74
     73 20 52 65 73 65 72 76
     65 64 2E 20 4C 69 63 65
     6E 73 65 64 20 31 39 38
     32 2F 38 33 2F 38 34
2B2E 20          04010        DB     ' to xxxxxxxxxxxxxxxxxx',10,13
     74 6F 20 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 0A 0D
2B46 53          07640 NOTONE DB     'Source and Destination drives are the same',CR
     6F 75 72 63 65 20 61 6E
     64 20 44 65 73 74 69 6E
     61 74 69 6F 6E 20 64 72
     69 76 65 73 20 61 72 65
     20 74 68 65 20 73 61 6D
     65 0D
2B71 53          07650 NOT0   DB     'Source cannot be drive 0',CR
     6F 75 72 63 65 20 63 61
     6E 6E 6F 74 20 62 65 20
     64 72 69 76 65 20 30 0D
2B8A 43          07660 EARLYD DB     'Cannot CONV Protected Diskette',CR
     61 6E 6E 6F 74 20 43 4F
     4E 56 20 50 72 6F 74 65
     63 74 65 64 20 44 69 73
     6B 65 74 74 65 0D
2BA9 3F          07670 QMARK  DB     '? ',ETX
     20 03
2BAC 20          07680 EXISTQ DB     '  File exists -- replace it? ',ETX
     20 46 69 6C 65 20 65 78
     69 73 74 73 20 2D 2D 20
     72 65 70 6C 61 63 65 20
     69 74 3F 20 03
2BCA 43          07690 CONVS  DB     'Converting file: ',ETX
     6F 6E 76 65 72 74 69 6E
     67 20 66 69 6C 65 3A 20
     03
2BDC 43          07700 CONVQ  DB     'Convert file '
     6F 6E 76 65 72 74 20 66
     69 6C 65 20
0020             07710 FNAME  DS     32             ;Must follow CONVQ
0020             07720 FCB    DS     32             ;For INIT/WRITE
0020             07730 FCB2   DS     32             ;For OPEN (test for already existing)
0001             07740 SDRIVE DS     1
0001             07750 DDRIVE DS     1
0002             07760 TRKSEC DS     2
0005             07770 ABUFF  DS     5
000A             07780 SAVDCT DS     10
2D00             07790        ORG    $<-8+1<8
1000             07800 DBUFF  DS     1000H          ;16 sectors of directory
3D00             07810 TBUFF  EQU    $              ;To end of memory
2600             07820        END    BEGIN
```

```
$ABORT          2649 $CLS          2A66 $DSP          264E
$EXIT           263F $QUIT         2642 @@1           ØØØØ
@@2             ØØØØ @@3           ØØØØ @@4           ØØØØ
@MOD2           ØØØØ @MOD4         FFFF ABB           ØØ1Ø
ABUFF           2C4D BDEXT         296Ø BEGIN         26ØØ
BEGINA          26Ø9 BYEBYE        2945 CCOUNT        2A31
CHECKQ          28ØF CHKLET        29E8 CKEARLY       2A7Ø
CKNEW           28Ø3 CLR           ØØ1F CONVQ         2BDC
CONVS           2BCA CPHLDE        2AØ5 CPLOOP        276A
CR              ØØØD DBUFF         2DØØ DDRIVE        2C4A
DPARM           26A3 DREAD         27ØE EARLY         28A8
EARLYD          2B8A ELINE         2A4E ELOOP         2723
ESHOW           2A47 ETX           ØØØ3 EXISTQ        2BAC
EXLOOP          279B FCB           2CØ9 FCB2          2C29
FLAG            ØØ4Ø FNAME         2BE9 GETDRV        29BC
GETDRV2         29B6 GETONE        28D8 GETSEC        295B
GOTEXT          27A5 GOTNAM        278C HELLO$        2AC3
HOME            ØØ1C INV           2759 IOERR         2936
IOERR1          2939 IPARM         26B5 KFLG          2724
LF              ØØØA MATCH         2773 MORE          298A
MOVELT          29DE MOVING        27C1 MVNAM1        266Ø
MVNAME          2782 MYHIGH        28D5 NMATCH        2776
NMDSP           2A24 NMEND         2A3Ø NOEXT         267F
NORO            27F4 NOSIV         276Ø NOTØ          2B71
NOTCHK          2AØB NOTCMDR       2622 NOTDIG        29FD
NOTEND          2965 NOTEOS        291C NOTEOT        29AE
NOTLC           29F1 NOTNOT        2A1A NOTONE        2B46
NOTPRM          2AB7 NOTSYS        274C NPARM         26C1
OKØ             26FD OK1           271C OK2           29A5
OK3             28C3 OPARM         26C4 PATEXT        2ACØ
PATTRN          2AB8 PERR1         2955 PGRM          2655
PRMERR          2951 PRMTBL$       2A82 QMARK         2BA9
QPARM           26BE QUERY         2828 QUIT          293Ø
READ            28CF SAVDCT        2C52 SDRIVE        2C49
SETIT           2A17 SFLG          27E4 SHOW          2A1C
SIV             273A SKIPIT        29ØF SKIPLT        29D6
SKIPSP          29CF SPARM         26AF SPLP          2A3A
STACK           2646 TAKEIT1       2869 TAKEIT2       2891
TBUFF           3DØØ TRKSEC        2C4B TRSDOS        289B
VPARM           26B2 WRDUN         28FF WRITE         28E8
WRLOOP          28EF @@ABORT       BØØE @@ADTSK       BØA1
@@BANK          B5B9 @@BKSP        B299 @@BREAK       B5CF
@@CHNIO         AFF9 @@CKBRKC      B61D @@CKDRV       BØF5
@@CKEOF         B2AE @@CKTSK       BØ8C @@CLOSE       B284
@@CLS           B6Ø7 @@CMNDI       BØ38 @@CMNDR       BØ4D
@@CTL           AE5D @@DATE        AFCF @@DCSTAT      B134
@@DEBUG         BØ77 @@DECHEX      B539 @@DIRRD       B4A6
@@DIRWR         B4BB @@DIV16       B524 @@DIV8        B5ØF
@@DODIR         B1ØA @@DSP         AE21 @@DSPLY       AEC1
@@ERROR         BØ62 @@EXIT        BØ23 @@FEXT        B413
@@FLAGS         B5A3 @@FNAME       B428 @@FSPEC       B3FE
@@GATRD         B491 @@GATWR       B4DØ @@GET         AE35
@@GTDCB         B452 @@GTDCT       B43D @@GTMOD       B467
@@HDFMT         B1DC @@HEX16       B578 @@HEX8        B563
@@HEXDEC        B54E @@HIGH$       B58D @@INIT        B25A
@@KBD           AE99 @@KEY         AEØD @@KEYIN       AEAD
@@KLTSK         BØEØ @@LOAD        B3D4 @@LOC         B2C3
@@LOF           B2D8 @@LOGER       AEF8 @@LOGOT       AFØD
@@MSG           AF44 @@MUL16       B4FA @@MUL8        B4E5
@@OPEN          B26F @@PARAM       AFBA @@PAUSE       AFA5
```

```
@@PEOF          B2ED @@POSN          B3Ø2 @@PRINT          AF59
@@PRT           AE71 @@PUT           AE49 @@RAMDIR         B11F
@@RDSEC         B1B2 @@RDSSC         B47C @@READ           B317
@@REMOV         B245 @@RENAM         B23Ø @@REW            B32C
@@RMTSK         BØB6 @@RPTSK         BØCB @@RREAD          B341
@@RSLCT         B19D @@RSTOR         B15E @@RUN            B3E9
@@RWRIT         B356 @@SEEK          B188 @@SEEKSC         B36B
@@SKIP          B38Ø @@SLCT          B149 @@STEPI          B173
@@TIME          AFE4 @@VDCTL         AF9Ø @@VER            B395
@@VRSEC         B1C7 @@WEOF          B3AA @@WHERE          AE85
@@WRITE         B3BF @@WRSEC         B1F1 @@WRSSC          B2Ø6
@@WRTRK         B21B
ØØØØØ Total errors
```

NOTES:

NOTES:

FLOPPY/DCT - 5 1/4" drive setup

The Floppy DCT program allows up to four physical 5 1/4" floppy drives to be assigned to the seven different logical drive positions. It is activated with the SYSTEM (DRIVER) Library command.

```
               ØØ1ØØ ;LDOSDCT/ASM - Floppy Disk DCT
ØØØØ           ØØ11Ø         TITLE   <FLOPPY/DCT - LS-DOS 6.2>
               ØØ12Ø ;
               ØØ13Ø ;       Program installs a standard DCT into a logical
               ØØ14Ø ;       drive slot as specified by:
               ØØ15Ø ;        SYSTEM (DRIVE=d,DRIVER="LDOS")
               ØØ16Ø ;       The default DCT is taken from slot Ø of the
               ØØ17Ø ;       System Information Sector (7ØH-79H).
               ØØ18Ø ;
ØØØD           ØØ19Ø CR      EQU     13
ØØØA           ØØ2ØØ LF      EQU     1Ø
               ØØ21Ø ;
ØØØØ           ØØ22Ø *GET    SVCMAC:3                ;SVC Macro equivalents
               ØØØ1Ø ;SVCMAC/ASM - LS-DOS Version VI
               ØØØ2Ø *LIST   OFF
               Ø39ØØ *LIST   ON
ØØØØ           ØØ23Ø *GET    COPYCOM:3               ;Copyright message
               Ø392Ø ; COPYCOM - File for Copyright COMment block
               Ø393Ø ;
ØØØØ           Ø394Ø         COM     '<*(C) 1982,83,84 by LSI*>'
               ØØ24Ø ;
2CØØ           ØØ25Ø         ORG     2CØØH
               ØØ26Ø ;
               ØØ27Ø BEGIN
2CØØ           ØØ28Ø         @@CKBRKC
2CØØ 3E6A      ØØØØ1         LD      A,1Ø6
2CØ2 EF        ØØØØ2         RST     4Ø
2CØ3 28Ø4      ØØ29Ø         JR      Z,BEGINA        ;Continue if no break
2CØ5 21FFFF    ØØ3ØØ         LD      HL,-1           ; else abort
2CØ8 C9        ØØ31Ø         RET
               ØØ32Ø ;
2CØ9 D5        ØØ33Ø BEGINA  PUSH    DE              ;Save the DCT location
2CØA           ØØ34Ø         @@DSPLY HELLO$          ;Display the signon
               ØØØØ3         IFEQ    Ø1H,1
2CØA 21E22C    ØØØØ4         LD      HL,HELLO$
               ØØØØ5         ENDIF
2CØD 3EØA      ØØØØ6         LD      A,1Ø
2CØF EF        ØØØØ7         RST     4Ø
2C1Ø D1        ØØ35Ø         POP     DE
2C11 7A        ØØ36Ø LDOS    LD      A,D             ;Make sure that a
2C12 B3        ØØ37Ø         OR      E               ;  drive # was entered
2C13 CAD52C    ØØ38Ø         JP      Z,NODRV         ;Go if no drive
               ØØ39Ø ;
               ØØ4ØØ ;       Check if entry from SET command
               ØØ41Ø ;
2C16           ØØ42Ø         @@FLAGS
2C16 3E65      ØØØØ8         LD      A,1Ø1
2C18 EF        ØØØØ9         RST     4Ø
2C19 FDCBØ25E  ØØ43Ø         BIT     3,(IY+'C'-'A')  ;System request?
2C1D CAC92C    ØØ44Ø         JP      Z,VIASET        ;Exit if not
2C2Ø 1A        ØØ45Ø         LD      A,(DE)
2C21 FEC9      ØØ46Ø         CP      ØC9H            ;Is drive disabled?
2C23 C2CD[illegible] ØØ47Ø   JP      NZ,ACTIVE       ;Must be disabled
2C26 D5        ØØ48Ø         PUSH    DE              ;Save DCT address
2C27 CDB22C    ØØ49Ø         CALL    GETCFG          ;Load sysinfo sector
2C2A C2BD2C    ØØ5ØØ         JP      NZ,IOERR        ;Quit on read error
2C2D FDCBØB66  ØØ51Ø         BIT     4,(IY+'L'-'A')  ;Suppress 8" queries?
2C31 2Ø1C      ØØ52Ø         JR      NZ,LDOS3        ;NZ=suppress
               ØØ53Ø ;
               ØØ54Ø ;       Query as to 5" or 8" floppy
               ØØ55Ø ;
```

```
2C33 21DB2D  DRVTYP  LD      HL,DRVTYP$      ;"Enter drive code...
2C36                 @@DSPLY
                     IFEQ    00H,1
                     LD      HL,
                     ENDIF
2C36 3E0A            LD      A,10
2C38 EF              RST     40
2C39 21312E          LD      HL,BUF          ;Pt to buffer
2C3C 010001          LD      BC,1<8          ;Allow 1 char only
2C3F                 @@KEYIN                 ;Get response
2C3F 3E09            LD      A,9
2C41 EF              RST     40
2C42 DAD12C          JP      C,BREAK         ;Quit on Break
2C45 7E              LD      A,(HL)          ;P/u char response
2C46 D630            SUB     '0'             ;Adjust to binary
2C48 FE02            CP      2               ;Make sure requested
2C4A 30E7            JR      NC,DRVTYP       ;  type is supported
2C4C 32722C          LD      (LX805+1),A
             ;
             ;       Prompt user for physical drive address
             ;
2C4F         LDOS3   @@DSPLY DRVADR$         ;"Enter physical...
                     IFEQ    01H,1
2C4F 21FF2D          LD      HL,DRVADR$
                     ENDIF
2C52 3E0A            LD      A,10
2C54 EF              RST     40
2C55 21312E          LD      HL,BUF          ;Input buffer
2C58 010001          LD      BC,1<8          ;Allow 1 char only
2C5B                 @@KEYIN                 ;Get response
2C5B 3E09            LD      A,9
2C5D EF              RST     40
2C5E DAD12C          JP      C,BREAK         ;Quit on Break
2C61 7E              LD      A,(HL)          ;P/u the response
2C62 D631            SUB     '1'             ;Adjust to binary
2C64 FE04            CP      3+1             ;Be sure in range
2C66 30E7            JR      NC,LDOS3        ;Redo if not
             ;
             ;       Convert drive address to select code
             ;
2C68 FE03            CP      3               ;Convert 3 to 4
2C6A 3F              CCF
2C6B CE00            ADC     A,0
2C6D FE01            CP      1               ;Convert <0,1,2,4>
2C6F 17              RLA                     ;  to <1, 2, 4, 8>
2C70 47              LD      B,A             ;Hang on to request
             ;
             ;       Index the default drive code table
             ;
2C71         LX805   EQU     $
                     IF      @MOD2
                     LD      A,1             ;8"
                     ENDIF
                     IF      @MOD4
2C71 3E00            LD      A,0             ;5"
                     ENDIF
2C73 4F              LD      C,A
2C74 87              ADD     A,A             ;Times 2
2C75 81              ADD     A,C             ;Times 3
2C76 87              ADD     A,A             ;Times 6
2C77 81              ADD     A,C             ;Times 7
```

```
2C78 21232E                 LD      HL,DRVTAB$      ;Index into 5" or 8"
2C7B 85                     ADD     A,L             ;  default table
2C7C 6F                     LD      L,A
2C7D 8C                     ADC     A,H
2C7E 95                     SUB     L
2C7F 67                     LD      H,A
2C8Ø 23                     INC     HL
2C81 7E                     LD      A,(HL)          ;P/u default DCT+4
2C82 E6FØ                   AND     ØFØH            ;Remove drive select
2C84 BØ                     OR      B               ;Merge in new one
2C85 77                     LD      (HL),A          ;Update the DCT
2C86 2B                     DEC     HL
2C87 Ø1Ø7ØØ                 LD      BC,7            ;Init for 7-byte move
2C8A D1                     POP     DE              ;DE => DCT$
2C8B D5                     PUSH    DE              ;Save DCT$ pointer
2C8C 13                     INC     DE
2C8D 13                     INC     DE
2C8E 13                     INC     DE              ;Index to DCT+3
2C8F EDBØ                   LDIR
2C91 D1                     POP     DE
2C92 D5                     PUSH    DE              ;Save start again
2C93 217Ø2F                 LD      HL,BUFFER+7ØH   ;Index the default vector
2C96 ØEØ3                   LD      C,3             ;Move in driver vector
2C98 EDBØ                   LDIR
2C9A D1                     POP     DE
                      ;
                      ;     Compute the actual drive number used
                      ;
2C9B                        @@GTDCT                 ;Get drive Ø(ldir set C=Ø
2C9B 3E51                   LD      A,81
2C9D EF                     RST     4Ø
2C9E FDE5                   PUSH    IY              ;Pass to HL for sub
2CAØ E1                     POP     HL              ;HL => start DCT's
2CA1 EB                     EX      DE,HL           ;DE=start, HL=current
2CA2 B7                     OR      A               ;Clear carry
2CA3 ED52                   SBC     HL,DE           ;HL = offset from start
2CA5 ØEØA                   LD      C,1Ø            ;DCT length
2CA7                        @@DIV16                 ;HL+A = HL/C
2CA7 3E5E                   LD      A,94
2CA9 EF                     RST     4Ø
2CAA 4D                     LD      C,L             ;Result = drive #
2CAB                        @@RSTOR                 ;Restore drive
2CAB 3E2C                   LD      A,44
2CAD EF                     RST     4Ø
2CAE 21ØØØØ                 LD      HL,Ø            ;Set no error return
2CB1 C9                     RET                     ;Init complete
                      ;
                      ;     Routines to read/write the config sector
                      ;
2CB2 21ØØ2F           GETCFG LD     HL,BUFFER       ;Use buffer for I/O
                      ;
                            IF      @MOD2
                            LD      C,L             ;Pass drive #
                            PUSH    IY              ;Save IY
2CB5                        @@GTDCT                 ;Fetch DCT
                            LD      A,81
                            RST     4Ø
                            LD      A,(IY+3)        ;Get data
                            AND     28H             ;Bit 5/3
                            CP      2ØH             ;8" floppy?
                            JR      NZ,SETSYS1      ;Go if not
```

```
                             LD      A,(IY+4)          ;Fetch data
                             AND     5ØH               ;Bit 6/4
                             CP      4ØH               ;DD not alien?
                             JR      NZ,SETSYS1        ;Go if not
                             LD      D,(IY+9)          ;Get dir cyl
                             LD      E,L               ;Sector Ø
2CB5                         @@RDSEC                   ;Read sector
                             LD      A,49
                             RST     4Ø
                             CP      6                 ;Directory?
                             JR      NZ,SETSYS2        ;Nope, error
                             LD      A,(BUFFER+ØCDH)   ;Get GAT data
                             BIT     7,A               ;System disk?
                     SETSYS1 LD      DE,Ø<8+2          ;Normal sysinfo sector
                             JR      NZ,$+3            ;Go if data disk
                             INC     D                 ;  else sysinfo on 1
                             XOR     A                 ;Set Z for no error
                     SETSYS2 POP     IY                ;Restore DCT
                             RET     NZ                ;Go if error
                             ENDIF
                     ;
                             IF      @MOD4
2CB5 11Ø2ØØ                  LD      DE,Ø<8+2          ;Get Config sector
                             ENDIF
2CB8 4D                      LD      C,L               ;  of system drive
2CB9                         @@RDSEC                   ;Read it into core
2CB9 3E31                    LD      A,49
2CBB EF                      RST     4Ø
2CBC C9                      RET
                     ;
2CBD 6F              IOERR   LD      L,A               ;Error # to HL
2CBE 26ØØ                    LD      H,Ø
2CCØ F6CØ                    OR      ØCØH              ;Abbrev, return
2CC2                         @@ERROR                   ;Display the error
2CC2 3E1A                    LD      A,26
2CC4 EF                      RST     4Ø
2CC5                         @@CKBRKC                  ;Clear any Break
2CC5 3E6A                    LD      A,1Ø6
2CC7 EF                      RST     4Ø
2CC8 C9                      RET
                     ;
                     ;       Internal error display routine
                     ;
2CC9 216E2D          VIASET  LD      HL,VIASET$        ;"Install with SYSTEM
2CCC DD                      DB      ØDDH
2CCD 218F2D          ACTIVE  LD      HL,ACTIVE$        ;"Drive in use
2CDØ DD                      DB      ØDDH
2CD1 21CB2D          BREAK   LD      HL,BREAK$         ;"Command aborted
2CD4 DD                      DB      ØDDH
2CD5 21AD2D          NODRV   LD      HL,NODRV$         ;"Need a drive #
2CD8                         @@LOGOT
                             IFEQ    ØØH,1
                             LD      HL,
                             ENDIF
2CD8 3EØC                    LD      A,12
2CDA EF                      RST     4Ø
2CDB 21FFFF                  LD      HL,-1             ;Set abort code
2CDE                         @@CKBRKC                  ;Clear any break
2CDE 3E6A                    LD      A,1Ø6
2CEØ EF                      RST     4Ø
2CE1 C9                      RET
```

```
               Ø2Ø2Ø ;
2CE2 ØA        Ø2Ø3Ø HELLO$  DB      LF,'FLOPPY Setup'
     46 4C 4F 5Ø 5Ø 59 2Ø 53
     65 74 75 7Ø
2CEF           Ø2Ø4Ø *GET    CLIENT:3
               Ø395Ø ;CLIENTS/ASM - File to establish sign-on headers
               Ø396Ø ;
2CEF 2Ø        Ø397Ø         DB      ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
2D19 2Ø        Ø398Ø         DB      ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
               Ø399Ø ;
2D2E 41        Ø4ØØØ         DB      'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
2D56 2Ø        Ø4Ø1Ø         DB      ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
               Ø2Ø5Ø ;
2D6E 4D        Ø2Ø6Ø VIASET$ DB      'Must install via SYSTEM (DRIVER=',CR
     75 73 74 2Ø 69 6E 73 74
     61 6C 6C 2Ø 76 69 61 2Ø
     53 59 53 54 45 4D 2Ø 28
     44 52 49 56 45 52 3D ØD
2D8F 44        Ø2Ø7Ø ACTIVE$ DB      'Drive slot is already enabled',CR
     72 69 76 65 2Ø 73 6C 6F
     74 2Ø 69 73 2Ø 61 6C 72
     65 61 64 79 2Ø 65 6E 61
     62 6C 65 64 ØD
2DAD 4C        Ø2Ø8Ø NODRV$  DB      'Logical drive number required',CR
     6F 67 69 63 61 6C 2Ø 64
     72 69 76 65 2Ø 6E 75 6D
     62 65 72 2Ø 72 65 71 75
     69 72 65 64 ØD
2DCB 43        Ø2Ø9Ø BREAK$  DB      'Command aborted',CR
     6F 6D 6D 61 6E 64 2Ø 61
     62 6F 72 74 65 64 ØD
2DDB 2Ø        Ø21ØØ DRVTYP$ DB      '   Enter drive code (Ø=5", 1=8") > ',3
     2Ø 2Ø 45 6E 74 65 72 2Ø
     64 72 69 76 65 2Ø 63 6F
     64 65 2Ø 28 3Ø 3D 35 22
     2C 2Ø 31 3D 38 22 29 2Ø
     3E 2Ø Ø3
2DFF 2Ø        Ø211Ø DRVADR$ DB      '   Enter drive I/O address <1-4> > ',3
     2Ø 2Ø 45 6E 74 65 72 2Ø
     64 72 69 76 65 2Ø 49 2F
     4F 2Ø 61 64 64 72 65 73
     73 2Ø 3C 31 2D 34 3E 2Ø
     3E 2Ø Ø3
               Ø212Ø DRVTAB$
```

```
                 ;
                 ;       5" drive table
                 ;
2E23 44                  DB      01000100B       ;5", 6ms, delay=n
2E24 40                  DB      01000000B       ;DDEN
2E25 FF                  DB      0FFH            ;Start cylinder
2E26 27                  DB      40-1            ;40 track drive
2E27 11                  DB      18-1            ;18 sec per cyl
2E28 45                  DB      3-1<5+6-1       ;6 sec/gran, 3 gran/cyl
2E29 14                  DB      40/2            ;Directory track
                 ;
                 ;       8" table
                 ;
                         IF      @MOD4
2E2A 21                  DB      00100001B       ;8", 6ms step
2E2B 40                  DB      01000000B       ;DDEN
2E2C FF                  DB      0FFH            ;Start cylinder
2E2D 4C                  DB      77-1            ;77 track drive
2E2E 0F                  DB      16-1            ;16 sec per cyl
2E2F 27                  DB      2-1<5+8-1       ;8 sec/gran, 2 gran/cyl
2E30 26                  DB      77/2            ;Directory track
                         ENDIF
                 ;
                         IF      @MOD2
                         DB      01100010B       ;+3 - 8", DD, 10ms, delay
                         DB      01000000B       ;+4 - DDen capable
                         DB      4CH             ;+5 - current cyl
                         DB      77-1            ;+6 - high cylinder
                         DB      0<5+29          ;+7 - sides + high sec
                         DB      2<5+9           ;+8 - grans/cyl + sec/grn
                         DB      77/2            ;+9 - dir cylinder
                         ENDIF
                 ;
0002             BUF     DS      2
2F00                     ORG     $<-8+1<+8
0100             BUFFER  DS      256
                 ;
2C00                     END     BEGIN
```

```
@@1              ØØØØ @@2              ØØØØ @@3              ØØØØ
@@4              ØØØØ @MOD2            ØØØØ @MOD4            FFFF
ACTIVE           2CCD ACTIVE$          2D8F BEGIN            2CØØ
BEGINA           2CØ9 BREAK            2CD1 BREAK$           2DCB
BUF              2E31 BUFFER           2FØØ CR               ØØØD
DRVADR$          2DFF DRVTAB$          2E23 DRVTYP           2C33
DRVTYP$          2DDB GETCFG           2CB2 HELLO$           2CE2
IOERR            2CBD LDOS             2C11 LDOS3            2C4F
LF               ØØØA LX8Ø5            2C71 NODRV            2CD5
NODRV$           2DAD VIASET           2CC9 VIASET$          2D6E
@@ABORT          81D9 @@ADTSK          826C @@BANK           8784
@@BKSP           8464 @@BREAK          879A @@CHNIO          81C4
@@CKBRKC         87E8 @@CKDRV          82CØ @@CKEOF          8479
@@CKTSK          8257 @@CLOSE          844F @@CLS            87D2
@@CMNDI          82Ø3 @@CMNDR          8218 @@CTL            8Ø28
@@DATE           819A @@DCSTAT         82FF @@DEBUG          8242
@@DECHEX         87Ø4 @@DIRRD          8671 @@DIRWR          8686
@@DIV16          86EF @@DIV8           86DA @@DODIR          82D5
@@DSP            7FEC @@DSPLY          8Ø8C @@ERROR          822D
@@EXIT           81EE @@FEXT           85DE @@FLAGS          876E
@@FNAME          85F3 @@FSPEC          85C9 @@GATRD          865C
@@GATWR          869B @@GET            8ØØØ @@GTDCB          861D
@@GTDCT          86Ø8 @@GTMOD          8632 @@HDFMT          83A7
@@HEX16          8743 @@HEX8           872E @@HEXDEC         8719
@@HIGH$          8758 @@INIT           8425 @@KBD            8Ø64
@@KEY            7FD8 @@KEYIN          8Ø78 @@KLTSK          82AB
@@LOAD           859F @@LOC            848E @@LOF            84A3
@@LOGER          8ØC3 @@LOGOT          8ØD8 @@MSG            81ØF
@@MUL16          86C5 @@MUL8           86BØ @@OPEN           843A
@@PARAM          8185 @@PAUSE          817Ø @@PEOF           84B8
@@POSN           84CD @@PRINT          8124 @@PRT            8Ø3C
@@PUT            8Ø14 @@RAMDIR         82EA @@RDSEC          837D
@@RDSSC          8647 @@READ           84E2 @@REMOV          841Ø
@@RENAM          83FB @@REW            84F7 @@RMTSK          8281
@@RPTSK          8296 @@RREAD          85ØC @@RSLCT          8368
@@RSTOR          8329 @@RUN            85B4 @@RWRIT          8521
@@SEEK           8353 @@SEEKSC         8536 @@SKIP           854B
@@SLCT           8314 @@STEPI          833E @@TIME           81AF
@@VDCTL          815B @@VER            856Ø @@VRSEC          8392
@@WEOF           8575 @@WHERE          8Ø5Ø @@WRITE          858A
@@WRSEC          83BC @@WRSSC          83D1 @@WRTRK          83E6

2CØØ is the transfer address
ØØØØØ Total errors
```

NOTES:

NOTES:

FORMAT/CMD - Disk initialization program

The Format utility allows a floppy or hard disk to be initialized. Parameters are available to set the number of sides and cylinders, select the density, and set a boot step rate for system disks.

```
                 ØØ1ØØ ;FORMAT1/ASM - Format Program
ØØØØ             ØØ11Ø          TITLE   <FORMAT - LS-DOS 6.2>
ØØØØ             ØØ12Ø          SUBTTL  '<Format Execution Code>'
                 ØØ13Ø ;
42EØ             ØØ14Ø PASSWORD         EQU     42EØH
ØØ62             ØØ15Ø RLS      EQU     62H
ØØØA             ØØ16Ø LF       EQU     1Ø
ØØØD             ØØ17Ø CR       EQU     13
3CØØ             ØØ18Ø CRT3     EQU     3CØØH
F8ØØ             ØØ19Ø CRT4     EQU     ØF8ØØH
                 ØØ2ØØ ;
ØØØØ             ØØ21Ø *GET     SVCMAC:3                ;SVC Macro equivalents
                 ØØØ1Ø ;SVCMAC/ASM - LS-DOS Version VI
                 ØØØ2Ø *LIST    OFF
                 Ø39ØØ *LIST    ON
ØØØØ             ØØ22Ø *GET     COPYCOM:3               ;Copyright message
                 Ø392Ø ; COPYCOM - File for Copyright COMment block
                 Ø393Ø ;
ØØØØ             Ø394Ø          COM     '<*(C) 1982,83,84 by LSI*>'
                 ØØ23Ø *LIST    ON
                 ØØ24Ø ;
26ØØ             ØØ25Ø          ORG     26ØØH
                 ØØ26Ø ;
                 ØØ27Ø          IF      @MOD4
26ØØ 9D          ØØ28Ø BOOTST$ DB       9DH             ;Boot step rate offset
                 ØØ29Ø          ENDIF
                 ØØ3ØØ          IF      @MOD2
                 ØØ31Ø BOOTST$ DB       Ø3H
                 ØØ32Ø          ENDIF
                 ØØ33Ø ;
26Ø1 FDCBØ466    ØØ34Ø GOFMT    BIT     4,(IY+4)        ;Jump if alien controller
26Ø5 C2C127      ØØ35Ø          JP      NZ,HRDRV
26Ø8 11ØØØØ      ØØ36Ø FMTTBL   LD      DE,Ø            ;P/u table pointer
26ØB 1A          ØØ37Ø          LD      A,(DE)          ;P/u # of sectors to fmt
26ØC 13          ØØ38Ø          INC     DE              ;Adj for zero offset
26ØD 32E92A      ØØ39Ø          LD      (SECTRK),A
261Ø 47          ØØ4ØØ          LD      B,A
2611 FDCBØ46E    ØØ41Ø          BIT     5,(IY+4)        ;Need twice as many
2615 28Ø1        ØØ42Ø          JR      Z,$+3           ;  if 2-sided drive
2617 Ø7          ØØ43Ø          RLCA
2618 32E82A      ØØ44Ø          LD      (SECCYL),A
261B 21ØØØØ      ØØ45Ø SYSPRM   LD      HL,Ø            ;P/u system info parm
261E 7C          ØØ46Ø          LD      A,H             ;Don't format if system
261F B5          ØØ47Ø          OR      L               ;  info only is req
262Ø C29427      ØØ48Ø          JP      NZ,MOVFREE
2623 1A          ØØ49Ø          LD      A,(DE)          ;P/u track skew
2624 13          ØØ5ØØ          INC     DE
2625 32Ø327      ØØ51Ø          LD      (TRKSKEW+1),A
2628 ED53A226    ØØ52Ø          LD      (SECSKEW+1),DE  ;Format sector skew
                 ØØ53Ø ;
                 ØØ54Ø ;        Index past sector info
                 ØØ55Ø ;
262C 3C          ØØ56Ø          INC     A               ;Add DE -> begin of sec #
262D 8Ø          ØØ57Ø          ADD     A,B             ;B -> # of sectors/side
262E 83          ØØ58Ø          ADD     A,E             ; A+1 -> a code byte
262F 5F          ØØ59Ø          LD      E,A
263Ø 8A          ØØ6ØØ          ADC     A,D
2631 93          ØØ61Ø          SUB     E
2632 57          ØØ62Ø          LD      D,A
2633 21ØØ31      ØØ63Ø          LD      HL,FORMAT       ;Buffer for format data
2636 Ø1ØØ3Ø      ØØ64Ø          LD      BC,HITBUF       ;Tempy ptrs to trk,sect info
```

Format Execution Code

```
               ;
               ;        Create the formatting data without trk,sect info
               ;
2639 1A          FMTDAT LD      A,(DE)          ;P/u table format byte
263A 13                 INC     DE              ;Bump table ptr
263B FEF1               CP      ØF1H            ;Start of cylinder?
263D 282A               JR      Z,CODF1
263F FEF2               CP      ØF2H            ;Start of track trailer?
2641 282D               JR      Z,CODF2
2643 FEF3               CP      ØF3H            ;Start of track ID info?
2645 2833               JR      Z,CODF3
2647 FEF4               CP      ØF4H            ;End of table parms?
2649 2837               JR      Z,CODF4
264B FEF5               CP      ØF5H            ;Start of data?
264D C5                 PUSH    BC
264E 2ØØF               JR      NZ,CODE1        ;Go if not
               ;
               ;        Write 2 byte data pattern to format buffer
               ;
265Ø 1A                 LD      A,(DE)          ;P/u length to write
2651 13                 INC     DE              ;Bump to 1st data byte
2652 47                 LD      B,A             ;Xfer length to B
2653 1A                 LD      A,(DE)          ;P/u a data byte
2654 13                 INC     DE              ;Bump again for 2nd byte
2655 4F                 LD      C,A             ;Xfer 1st byte
2656 1A                 LD      A,(DE)          ;P/u 2nd byte
2657 71          CODF5  LD      (HL),C          ;Stuff into buf
2658 23                 INC     HL
2659 77                 LD      (HL),A
265A 23                 INC     HL
265B 1ØFA               DJNZ    CODF5           ;Loop til xfered
265D 18Ø6               JR      CODRET
               ;
               ;        Xfer bytes to the format buffer area
               ;        A => count to move
               ;        DE=> data byte to duplicate
               ;
265F 47          CODE1  LD      B,A             ;Count to B
266Ø 1A                 LD      A,(DE)          ;P/u data byte to move
2661 77          CODE1A LD      (HL),A          ;Fill buf with byte
2662 23                 INC     HL
2663 1ØFC               DJNZ    CODE1A          ;Loop til done
2665 C1          CODRET POP     BC
2666 13                 INC     DE              ;Bump table ptr
2667 18DØ               JR      FMTDAT          ;Back for more
               ;
               ;        Save the current table posn and the number of
               ;        sectors per cylinder on the stack.
               ;
2669 3AE92A      CODF1  LD      A,(SECTRK)      ;P/u # of sectors/side
266C D5          CODF1A PUSH    DE              ;Save table pointer
266D F5                 PUSH    AF              ;Save value
266E 18C9               JR      FMTDAT
               ;
               ;        Done with a sector. Are there more on this cyl?
               ;
267Ø F1          CODF2  POP     AF              ;Count down the # of
2671 3D                 DEC     A               ;  sectors to format
2672 28Ø3               JR      Z,CODF2A        ;Go if last one done
```

Format Execution Code

```
2674 D1                      POP     DE              ;Recover table ptr
2675 18F5                    JR      CODF1A          ;Loop for more
                     ;
2677 F1              CODF2A  POP     AF              ;Clean the stack
2678 18BF                    JR      FMTDAT          ;  and finish off the cyl
                     ;
                     ;       Build a table of the location in the format buffer of
                     ;       the track and sector ID bytes, to be filled in during
                     ;       the actual formatting.
                     ;
267A 7D              CODF3   LD      A,L             ;Stuff pointer to where
267B Ø2                      LD      (BC),A          ;  track & sector info
267C Ø3                      INC     BC              ;  is to be placed
267D 7C                      LD      A,H
267E Ø2                      LD      (BC),A
267F Ø3                      INC     BC
268Ø 18B7                    JR      FMTDAT
                     ;
                     ;       Finished building format cyl info. Terminate the ID table
                     ;       with an extra 256 bytes in case of overrun.
                     ;
2682 ED536527        CODF4   LD      (VERSKEW+1),DE  ;Table posn of verify order
2686 AF                      XOR     A               ;Stuff two X'ØØ's to
2687 Ø2                      LD      (BC),A          ;  indicate the end
2688 Ø3                      INC     BC              ;  of the ID posn table
2689 Ø2                      LD      (BC),A
268A Ø6ØØ                    LD      B,Ø             ;Stuff 256 FF's into the
268C 3EFF                    LD      A,ØFFH          ;  format buffer
268E 77                      LD      (HL),A
268F 23                      INC     HL
269Ø 1ØFC                    DJNZ    $-2
                     ;
                     ;       Begin the formatting
                     ;
2692                         @@DSPLY FMTCYL$         ;"formatting clinder...
                             IFEQ    Ø1H,1
2692 21392C                  LD      HL,FMTCYL$
                             ENDIF
2695 3EØA                    LD      A,1Ø
2697 EF                      RST     4Ø
2698 FD7EØ5          BGNFMT  LD      A,(IY+5)        ;P/u cylinder position
269B CD5Ø2A                  CALL    CVDEC           ;Cvrt to decimal
269E CD892A                  CALL    DSPCYL
26A1 Ø1ØØØØ          SECSKEW LD      BC,Ø            ;Begin of sector table
26A4 21ØØ3Ø          BFMT1   LD      HL,HITBUF       ;P/u ptr to ID posn table
                     ;
                     BFMT2
26A7                         @@CKBRKC                ;Check for break
26A7 3E6A                    LD      A,1Ø6
26A9 EF                      RST     4Ø
26AA C2B929                  JP      NZ,BREAK        ;Go if so
                     ;
26AD 5E                      LD      E,(HL)          ;P/u positions having
26AE 23                      INC     HL              ;  sector & cylinder
26AF 56                      LD      D,(HL)          ;  info to be stuffed
26BØ 23                      INC     HL              ;  into format data
26B1 7A                      LD      A,D             ;Finished?
26B2 B3                      OR      E
26B3 282Ø                    JR      Z,BFMT4
```

Format Execution Code

```
26B5 FD7EØ5    Ø176Ø          LD      A,(IY+5)          ;P/u cylinder # & stuff
26B8 12        Ø177Ø          LD      (DE),A            ;  into format data
26B9 13        Ø178Ø          INC     DE
26BA FD7EØ3    Ø179Ø          LD      A,(IY+3)          ;Stuff the side-select
26BD E61Ø      Ø18ØØ          AND     1ØH               ;  bit
26BF ØF        Ø181Ø          RRCA
26CØ ØF        Ø182Ø          RRCA
26C1 ØF        Ø183Ø          RRCA
26C2 ØF        Ø184Ø          RRCA
26C3 12        Ø185Ø          LD      (DE),A            ;  into the format data
26C4 13        Ø186Ø          INC     DE
26C5 ØA        Ø187Ø          LD      A,(BC)            ;P/u the sector number
26C6 B7        Ø188Ø          OR      A
26C7 F2CF26    Ø189Ø          JP      P,BFMT3           ;Go if a good number
26CA 81        Ø19ØØ          ADD     A,C               ;  else off the end,
26CB 4F        Ø191Ø          LD      C,A               ;  calculate the beginning
26CC 38Ø1      Ø192Ø          JR      C,BFMT3           ;  of the sector table
26CE Ø5        Ø193Ø          DEC     B
26CF ØA        Ø194Ø BFMT3    LD      A,(BC)            ;P/u the next sector #
26DØ 12        Ø195Ø          LD      (DE),A            ;  and stuff in format data
26D1 13        Ø196Ø          INC     DE
26D2 Ø3        Ø197Ø          INC     BC
26D3 18D2      Ø198Ø          JR      BFMT2             ;Loop until cylinder done
               Ø199Ø ;
26D5 ED43A226  Ø2ØØØ BFMT4    LD      (SECSKEW+1),BC    ;Save end of sector table
26D9 FD56Ø5    Ø2Ø1Ø          LD      D,(IY+5)          ;P/u current cylinder
26DC 21ØØ31    Ø2Ø2Ø          LD      HL,FORMAT         ;Pt to format data
26DF CDFA29    Ø2Ø3Ø          CALL    SELECT            ;Drive select
26E2 C2A529    Ø2Ø4Ø          JP      NZ,IOERR          ;Go on error
26E5 CDØE2A    Ø2Ø5Ø          CALL    WRCYL             ;Cylinder write
26E8 C2A529    Ø2Ø6Ø          JP      NZ,IOERR
26EB FDCBØ46E  Ø2Ø7Ø          BIT     5,(IY+4)          ;Double sided?
26EF 28ØD      Ø2Ø8Ø          JR      Z,BFMT5
26F1 FDCBØ366  Ø2Ø9Ø          BIT     4,(IY+3)          ;Flip bit for 2nd side
26F5 2ØØ7      Ø21ØØ          JR      NZ,BFMT5          ;  if not already on it,
26F7 FDCBØ3E6  Ø211Ø          SET     4,(IY+3)          ;  else go to next
26FB Ø3        Ø212Ø          INC     BC                ;Bump to start side 2
26FC 18A6      Ø213Ø          JR      BFMT1             ;  at different sector #
26FE FDCBØ3A6  Ø214Ø BFMT5    RES     4,(IY+3)          ;Turn off side 2
27Ø2 3EØØ      Ø215Ø TRKSKEW  LD      A,Ø               ;P/u the track skew byte
27Ø4 81        Ø216Ø          ADD     A,C               ;Repoint to beginning
27Ø5 4F        Ø217Ø          LD      C,A               ;  of sector table
27Ø6 88        Ø218Ø          ADC     A,B               ;Skew start of next track
27Ø7 91        Ø219Ø          SUB     C
27Ø8 47        Ø22ØØ          LD      B,A
27Ø9 ED43A226  Ø221Ø          LD      (SECSKEW+1),BC
27ØD FD7EØ5    Ø222Ø          LD      A,(IY+5)          ;Finished?
271Ø FDBEØ6    Ø223Ø          CP      (IY+6)
2713 282Ø      Ø224Ø          JR      Z,BGNVER          ;Begin verify if so
2715 Ø142ØØ    Ø225Ø          LD      BC,1ØØØ/15        ;Approx 1 ms pause
2718           Ø226Ø          @@PAUSE                   ;  before STEPIN
2718 3E1Ø      ØØØØ8          LD      A,16
271A EF        ØØØØ9          RST     4Ø
271B CDØ42A    Ø227Ø          CALL    STEPIN            ;Step in
271E C2A529    Ø228Ø          JP      NZ,IOERR          ;Go on error
2721 Ø19826    Ø229Ø          LD      BC,BGNFMT         ;Place RET addr on stack
2724 CDØ92A    Ø23ØØ CKWAIT   CALL    RSELCT            ;Wait for idle FDC
2727 C2A529    Ø231Ø          JP      NZ,IOERR          ;Go on error
272A C5        Ø232Ø          PUSH    BC                ;Save RET addr
```

Format Execution Code

```
               Ø233Ø ;
               Ø234Ø ;          WAIT parameter for time delay after STEPIN
               Ø235Ø ;
272B Ø1C8ØØ    Ø236Ø WAITPRM LD       BC,3ØØØ/15        ;Approx 3 ms delay
272E 78        Ø237Ø         LD       A,B               ;  after STEPIN
272F B1        Ø238Ø         OR       C
273Ø C8        Ø239Ø         RET      Z                 ;Do next track if no wait
2731           Ø24ØØ         @@PAUSE                    ;  else wait for count
2731 3E1Ø      ØØØ1Ø         LD       A,16
2733 EF        ØØØ11         RST      4Ø
2734 C9        Ø241Ø         RET
               Ø242Ø ;
               Ø243Ø ;          Begin the verification process
               Ø244Ø ;
2735 ØEØD      Ø245Ø BGNVER  LD       C,CR              ;Posn to next dsply line
2737           Ø246Ø         @@DSP
2737 3EØ2      ØØØ12         LD       A,2
2739 EF        ØØØ13         RST      4Ø
273A CDFF29    Ø247Ø         CALL     RESTOR            ;Restore to cyl Ø
273D 2Ø6A      Ø248Ø         JR       NZ,BVER9          ;Go on error
273F           Ø249Ø         @@DSPLY VERCYL$            ;"verifying cylinder...
               ØØØ14         IFEQ     Ø1H,1
273F 21512C    ØØØ15         LD       HL,VERCYL$
               ØØØ16         ENDIF
2742 3EØA      ØØØ17         LD       A,1Ø
2744 EF        ØØØ18         RST      4Ø
2745 16ØØ      Ø25ØØ         LD       D,Ø               ;Init track count
               Ø251Ø BVER1
2747           Ø252Ø         @@CKBRKC                   ;Check for break
2747 3E6A      ØØØ19         LD       A,1Ø6
2749 EF        ØØØ2Ø         RST      4Ø
274A C2B929    Ø253Ø         JP       NZ,BREAK          ; and abort if so
               Ø254Ø ;
274D 6A        Ø255Ø         LD       L,D               ;Pt to GAT byte for this
274E 262E      Ø256Ø         LD       H,GATBUF<-8       ;  track & bypass verify
275Ø 7E        Ø257Ø         LD       A,(HL)            ;  if track not formatted
2751 3C        Ø258Ø         INC      A
2752 2836      Ø259Ø         JR       Z,BVER8
               Ø26ØØ ;
2754 7A        Ø261Ø         LD       A,D
2755 CD5Ø2A    Ø262Ø         CALL     CVDEC             ;Convert cyl # to ASCII
2758 D5        Ø263Ø         PUSH     DE
2759 CD892A    Ø264Ø         CALL     DSPCYL            ;Display the current cyl
275C D1        Ø265Ø         POP      DE
275D AF        Ø266Ø         XOR      A                 ;Initialize starting sector
275E 327227    Ø267Ø         LD       (BVER5+1),A
2761 326927    Ø268Ø         LD       (BVER4+1),A
2764 Ø1ØØØØ    Ø269Ø VERSKEW LD       BC,Ø              ;P/u start of sector tbl
2767 ØA        Ø27ØØ BVER3   LD       A,(BC)            ;P/u sector #
2768 C6ØØ      Ø271Ø BVER4   ADD      A,Ø               ;Add in a side's sectors
276A 5F        Ø272Ø         LD       E,A               ;  if on side 2
276B CD272A    Ø273Ø         CALL     VERSEC            ;Sector verify
276E 2Ø39      Ø274Ø         JR       NZ,BVER9          ;Go on error
277Ø Ø3        Ø275Ø         INC      BC                ;Bump sector table ptr
2771 3EØØ      Ø276Ø BVER5   LD       A,Ø               ;P/u sector #
2773 3C        Ø277Ø         INC      A                 ;Bump it up
2774 327227    Ø278Ø         LD       (BVER5+1),A       ;  and save new #
2777 5F        Ø279Ø         LD       E,A               ;Xfer to sector register
2778 3AE82A    Ø28ØØ         LD       A,(SECCYL)        ;Is this = a cyl?
```

Format Execution Code

```
277B BB                        CP      E
277C 28ØC                      JR      Z,BVER8         ;Go if cyl done
277E 3AE92A                    LD      A,(SECTRK)      ;Is this a track's worth?
2781 BB                        CP      E
2782 2ØE3                      JR      NZ,BVER3        ;Loop if not
2784 326927                    LD      (BVER4+1),A     ;Update the add for side2
2787 Ø3                        INC     BC
2788 18DA                      JR      VERSKEW
                      ;
                      ;        Readjust for end of cylinder
                      ;
278A 7A               BVER8    LD      A,D             ;P/u current cyl position
278B 14                        INC     D               ;Bump to next cyl
278C FDBEØ6                    CP      (IY+6)          ;Cp to highest # cyl
278F Ø14727                    LD      BC,BVER1        ;Go if more to verify
2792 2Ø9Ø                      JR      NZ,CKWAIT       ;  after checking WAIT
                      ;
                      ;        Shift the FREE table to LOCKOUT table
                      ;
2794 21ØØ2E           MOVFREE  LD      HL,GATBUF       ;Ptr to allocation info
2797 116Ø2E                    LD      DE,GATBUF+6ØH   ;Lockout table
279A Ø6ØØ                      LD      B,Ø
279C FD4EØ6                    LD      C,(IY+6)        ;P/u hi cyl
279F ØC                        INC     C               ;Offset from Ø
27AØ EDBØ                      LDIR                    ;Shift info to the lockout tbl
27A2 ØEØD                      LD      C,CR            ;Print a newline
27A4                           @@DSP
27A4 3EØ2                      LD      A,2
27A6 EF                        RST     4Ø
27A7 185D                      JR      CALCDIR         ;Go finish DIR init
                      ;
                      ;        Got verify error
                      ;
27A9 FEØ5             BVER9    CP      5               ;Data rec not found?
27AB 28Ø5                      JR      Z,BVER1Ø
27AD FEØ4                      CP      4               ;Parity error?
27AF C2A529                    JP      NZ,IOERR        ;Quit on any other
27B2 D5               BVER1Ø   PUSH    DE
27B3                           @@DSPLY STAR$           ;Show the * lockout
                               IFEQ    Ø1H,1
27B3 21692C                    LD      HL,STAR$
                               ENDIF
27B6 3EØA                      LD      A,1Ø
27B8 EF                        RST     4Ø
27B9 D1                        POP     DE
27BA 6A                        LD      L,D             ;Pt to this cyl
27BB 262E                      LD      H,GATBUF<-8     ;  in the GAT
27BD 36FF                      LD      (HL),ØFFH       ;Lockout this cylinder
27BF 18C9                      JR      BVER8           ;Continue verifying
                      ;
                      ;        Hard drive format - most work done by controller
                      ;
27C1 218C39           HRDRV    LD      HL,LASTMSG      ;Give one last chance to
27C4 FDCBØ35E                  BIT     3,(IY+3)        ;  abort before wiping
27C8 28Ø9                      JR      Z,AFLOP         ;  disk unless floppy
27CA CD5D2A                    CALL    GET3            ;Is hard, get response
27CD 7E                        LD      A,(HL)          ;P/u 1st char of resp
27CE FE59                      CP      'Y'             ;Must be yes to continue
27DØ C2B929                    JP      NZ,FMTABT
```

Format Execution Code

```
27D3 3A1C26    Ø333Ø AFLOP   LD      A,(SYSPRM+1)    ;Bypass the formatting
27D6 B7        Ø334Ø         OR      A               ;  if system info only
27D7 2ØØC      Ø335Ø         JR      NZ,HRDRV1
27D9           Ø336Ø         @@DSPLY FMTG$           ;"formatting - be patient
               ØØØ28         IFEQ    Ø1H,1
27D9 216E2C    ØØØ29         LD      HL,FMTG$
               ØØØ3Ø         ENDIF
27DC 3EØA      ØØØ31         LD      A,1Ø
27DE EF        ØØØ32         RST     4Ø
27DF CD132A    Ø337Ø         CALL    FMTHD           ;Format hard drive
27E2 C2A529    Ø338Ø         JP      NZ,IOERR
27E5 FD7EØ7    Ø339Ø HRDRV1  LD      A,(IY+7)        ;# of sectors/gran
27E8 57        Ø34ØØ         LD      D,A             ;-> reg E
27E9 E61F      Ø341Ø         AND     1FH
27EB 5F        Ø342Ø         LD      E,A
27EC 1C        Ø343Ø         INC     E               ;Bump for Ø offset
27ED AA        Ø344Ø         XOR     D
27EE Ø7        Ø345Ø         RLCA                    ;Get # of heads
27EF Ø7        Ø346Ø         RLCA                    ;Into reg D
27FØ Ø7        Ø347Ø         RLCA
27F1 3C        Ø348Ø         INC     A               ;Adjust for zero offset
27F2 4F        Ø349Ø         LD      C,A
27F3           Ø35ØØ         @@MUL8                  ;Multiply E x C
27F3 3E5A      ØØØ33         LD      A,9Ø
27F5 EF        ØØØ34         RST     4Ø
27F6 FDCBØ46E  Ø351Ø         BIT     5,(IY+4)        ;2-sided?
27FA 28Ø1      Ø352Ø         JR      Z,$+3
27FC 87        Ø353Ø         ADD     A,A             ;Twice the number
27FD 32E82A    Ø354Ø         LD      (SECCYL),A
28ØØ FDCBØ35E  Ø355Ø         BIT     3,(IY+3)        ;Floppy?
28Ø4 288E      Ø356Ø         JR      Z,MOVFREE       ;Form lock table instead
               Ø357Ø ;
               Ø358Ø ;       Routine to calculate the directory cylinder
               Ø359Ø ;
28Ø6 CDFF29    Ø36ØØ CALCDIR CALL    RESTOR          ;Step in
28Ø9 C2A529    Ø361Ø         JP      NZ,IOERR        ;Go on error
28ØC 262E      Ø362Ø         LD      H,GATBUF<-8
28ØE FD6EØ6    Ø363Ø         LD      L,(IY+6)        ;P/u highest # cylinder
2811 Ø1ØØØØ    Ø364Ø DIRPARM LD      BC,ØØØØ         ;P/U 'DIR=' parm
2814 79        Ø365Ø         LD      A,C             ;Check if entered
2815 BØ        Ø366Ø         OR      B
2816 28Ø6      Ø367Ø         JR      Z,NODIR         ;Calc one if not entered
2818 BD        Ø368Ø         CP      L               ;Entered so check if
2819 3ØØ3      Ø369Ø         JR      NC,NODIR        ;  within cylinders
281B 6F        Ø37ØØ         LD      L,A             ;Is ok, use it
281C 18Ø3      Ø371Ø         JR      DIRSET
281E 2C        Ø372Ø NODIR   INC     L               ;Adj for zero offset
281F CB3D      Ø373Ø         SRL     L               ;Divide by 2 to find
2821 ØEØØ      Ø374Ø DIRSET  LD      C,Ø             ;  disk midpoint
               Ø375Ø ;
               Ø376Ø ;       Perform expanding binary search to find
               Ø377Ø ;       A cylinder available for the directory
               Ø378Ø ;
2823 7E        Ø379Ø CALC1   LD      A,(HL)          ;Is this cylinder
2824 3C        Ø38ØØ         INC     A               ;Available or locked out?
2825 2Ø19      Ø381Ø         JR      NZ,GENSYS       ;Bypass if available
2827 ØC        Ø382Ø         INC     C               ;Bump C
2828 79        Ø383Ø         LD      A,C
2829 ØF        Ø384Ø         RRCA                    ;Test if odd or even
```

Format Execution Code

```
282A 7D         03850          LD      A,L              ;Get current test pos
282B 3009       03860          JR      NC,CALC2         ;Jump if C was even
282D 81         03870          ADD     A,C              ;Add to previous pos
282E 6F         03880          LD      L,A
282F FDBE06     03890          CP      (IY+6)           ;Go over the top?
2832 20EF       03900          JR      NZ,CALC1         ;Loop if not
2834 1804       03910          JR      CALC3            ;Else abort
2836 91         03920 CALC2    SUB     C                ;Try a lower cylinder #
2837 6F         03930          LD      L,A
2838 20E9       03940          JR      NZ,CALC1         ;At cylinder 0?
283A 217C2C     03950 CALC3    LD      HL,NOCYL$        ;"no dir space avail...
283D C3B929     03960          JP      FMTABT
                03970 ;
                03980 ;        Generate the system initialization
                03990 ;
2840 FD7509     04000 GENSYS   LD      (IY+9),L         ;Stuff the dir cyl
2843 7D         04010          LD      A,L
2844 CD502A     04020          CALL    CVDEC            ;Cvrt reg A to 2 dec digs
2847 ED43C62C   04030          LD      (DIRASC$),BC     ;Stuff into the message
284B            04040          @@DSPLY DIRCYL$          ;"dir will be placed...
                00035          IFEQ    01H,1
284B 21A12C     00036          LD      HL,DIRCYL$
                00037          ENDIF
284E 3E0A       00038          LD      A,10
2850 EF         00039          RST     40
2851            04050          @@DSPLY IPLSYS$          ;"initializing...
                00040          IFEQ    01H,1
2851 21C92C     00041          LD      HL,IPLSYS$
                00042          ENDIF
2854 3E0A       00043          LD      A,10
2856 EF         00044          RST     40
2857 21002E     04060          LD      HL,GATBUF
285A 7E         04070          LD      A,(HL)           ;P/u GAT byte for 1st
285B F601       04080          OR      1                ;  cylinder & show 1st
285D 77         04090          LD      (HL),A           ;  gran in use for BOOTs
285E FD7E09     04100          LD      A,(IY+9)         ;Dir cyl # into DIR/SYS
2861 32D32A     04110          LD      (DIRDIR+16H),A
2864 6F         04120          LD      L,A              ;Show entire directory
2865 36FF       04130          LD      (HL),0FFH        ;  cylinder used
                04140 ;
                04150 ;        Update BOOT for DIR & step rate
                04160 ;
2867 FD7E09     04170          LD      A,(IY+9)         ;Dir cyl into BOOT
286A 32022F     04180          LD      (BOOT+2),A
286D 3A0026     04190          LD      A,(BOOTST$)      ;P/u offset
2870 6F         04200          LD      L,A
2871 262F       04210          LD      H,BOOT<-8
2873 3AE72A     04220          LD      A,(STEPDFT)      ;P/u boot step rate
                04230          IF      @MOD2
                04240          OR      80H              ;Create single byte opcod
                04250          ENDIF
2876 77         04260          LD      (HL),A           ;  & set into BOOT
2877 110000     04270          LD      DE,0             ;Init for cyl 0, sect 0
287A CD272A     04280          CALL    VERSEC           ;Test if formatted
287D 21352D     04290          LD      HL,NOTFMT$       ;"Can't, not formatted
2880 C2BC29     04300          JP      NZ,EXTERR        ;Error if not
2883 21002F     04310          LD      HL,BOOT          ;Pt to Data disk BOOT
2886 CD182A     04320          CALL    WRSEC            ;  & write it
2889 CC442A     04330          CALL    Z,WRDIR1         ;Verify after write
```

Format Execution Code

```
288C C2A529    Ø434Ø          JP      NZ,IOERR          ;  & display '.'
288F 11Ø1ØØ    Ø435Ø          LD      DE,1              ;Pt to cyl Ø, sector 1
2892 21ØØ2F    Ø436Ø          LD      HL,BOOT           ;Pt to the sector 1 boot
2895 CD182A    Ø437Ø          CALL    WRSEC             ;Write Ø/1
2898 CC442A    Ø438Ø          CALL    Z,WRDIR+3         ;Verify after write
289B C2A529    Ø439Ø          JP      NZ,IOERR
               Ø44ØØ ;
               Ø441Ø ;        Complete GAT construction
               Ø442Ø ;
289E FD7EØ6    Ø443Ø          LD      A,(IY+6)          ;P/u highest # cylinder
28A1 D622      Ø444Ø          SUB     22H               ;  & adj offset from 34
28A3 32CC2E    Ø445Ø          LD      (GATBUF+ØCCH),A   ;Stuff GAT cyl excess
28A6 FD7EØ4    Ø446Ø          LD      A,(IY+4)          ;P/u # of sides
28A9 E6AØ      Ø447Ø          AND     8ØH+2ØH
28AB 47        Ø448Ø          LD      B,A               ;Save tempy in B
28AC FD7EØ3    Ø449Ø          LD      A,(IY+3)          ;P/u density
28AF E64Ø      Ø45ØØ          AND     4ØH               ;Mask it,
28B1 BØ        Ø451Ø          OR      B                 ;  merge in sides
28B2 47        Ø452Ø          LD      B,A               ;  and save it
28B3 FD7EØ8    Ø453Ø          LD      A,(IY+8)          ;P/u # of grans/cyl
28B6 Ø7        Ø454Ø          RLCA
28B7 Ø7        Ø455Ø          RLCA                      ;  to bits Ø-2
28B8 Ø7        Ø456Ø          RLCA
28B9 E6Ø7      Ø457Ø          AND     7                 ;Mask it
28BB 325229    Ø458Ø          LD      (CYLGRN+1),A
28BE BØ        Ø459Ø          OR      B                 ;Merge the two
28BF F68Ø      Ø46ØØ          OR      8ØH               ;Show it's a data disk
28C1 32CD2E    Ø461Ø          LD      (GATBUF+ØCDH),A   ;Stuff into GAT
               Ø462Ø ;
28C4 11F52E    Ø463Ø          LD      DE,GATBUF+255-1Ø         ;6.2 Media Data Block
28C7 21DB28    Ø464Ø          LD      HL,LSIID          ;Point to header
28CA Ø1Ø4ØØ    Ø465Ø          LD      BC,Ø4             ;Set length &
28CD EDBØ      Ø466Ø          LDIR                      ;  move it
28CF FDE5      Ø467Ø          PUSH    IY                ;Get DCT address
28D1 E1        Ø468Ø          POP     HL                ;  into HL
28D2 23        Ø469Ø          INC     HL                ;Bypass the driver vector
28D3 23        Ø47ØØ          INC     HL
28D4 23        Ø471Ø          INC     HL
28D5 ØEØ7      Ø472Ø          LD      C,7               ;Bytes to move
28D7 EDBØ      Ø473Ø          LDIR
28D9 18Ø4      Ø474Ø          JR      WRGAT1            ;Skip around string
28DB Ø3        Ø475Ø LSIID    DB      Ø3,'LSI'
     4C 53 49
               Ø476Ø ;
               Ø477Ø ;        Write copy of GAT into Ø/3
               Ø478Ø ;
               Ø479Ø WRGAT1
28DF 21ØØ2E    Ø48ØØ          LD      HL,GATBUF         ;Pt to GAT buffer
28E2 16ØØ      Ø481Ø          LD      D,Ø               ;Write it out to
28E4 1EØ3      Ø482Ø          LD      E,3               ;Cyl Ø, sector 3
28E6 CD182A    Ø483Ø          CALL    WRSEC             ;Write Ø/3
28E9 CC442A    Ø484Ø          CALL    Z,WRDIR1          ;Verify after write
28EC C2A529    Ø485Ø          JP      NZ,IOERR          ;Quit on error
               Ø486Ø ;
               Ø487Ø ;        Write the system information sector
               Ø488Ø ;
28EF 21ØØ3Ø    Ø489Ø          LD      HL,HITBUF         ;Zero out buffer
28F2 36ØØ      Ø49ØØ GSYS1    LD      (HL),Ø
28F4 2C        Ø491Ø          INC     L
```

Format Execution Code

```
28F5 20FB      04920          JR      NZ,GSYS1
28F7 210030    04930          LD      HL,HITBUF        ;Set first byte to OSVER
28FA 3662      04940          LD      (HL),RLS         ;  for release number
28FC 2E20      04950          LD      L,20H            ;Point hl to AUTO buffer
28FE 360D      04960          LD      (HL),0DH         ;Put in terminator
2900 110200    04970          LD      DE,2             ;Pt to cyl 0, sector 2
2903 6A        04980          LD      L,D              ;Hl now points to HITBUF
2904 CD182A    04990          CALL    WRSEC            ;Write 0/2
2907 CC442A    05000          CALL    Z,WRDIR1         ;Verify after write
290A C2A529    05010          JP      NZ,IOERR         ;Quit on error
290D 2E20      05020          LD      L,20H            ;Zero this out for use
290F 3600      05030          LD      (HL),0           ;  when writing HIT
               05040 ;
               05050 ;        Write out the directory GAT
               05060 ;
2911 21002E    05070          LD      HL,GATBUF        ;Pt to GAT sector buffer
2914 FD5609    05080          LD      D,(IY+9)         ;P/u the dir cyl
2917 5D        05090          LD      E,L              ;Denote sector 0
2918 CD412A    05100          CALL    WRDIR            ;Write the GAT
291B C2A529    05110          JP      NZ,IOERR
               05120 ;
               05130 ;        Construct the HIT
               05140 ;
291E 210030    05150          LD      HL,HITBUF        ;Point to the HIT buffer
2921 36A2      05160          LD      (HL),0A2H        ;Stuff BOOT/SYS hash code
2923 23        05170          INC     HL
2924 36C4      05180          LD      (HL),0C4H        ;Stuff DIR/SYS hash code
2926 2B        05190          DEC     HL
2927 FD5609    05200          LD      D,(IY+9)         ;P/u dir cyl #
292A 1E01      05210          LD      E,1              ;Pt to sector 1
292C CD412A    05220          CALL    WRDIR            ;Write the HIT
292F C2A529    05230          JP      NZ,IOERR
2932 110030    05240          LD      DE,HITBUF        ;Establish buffer for
2935 219D2A    05250          LD      HL,BOOTDIR       ;  dir records
2938 012000    05260          LD      BC,32            ;Move BOOT/SYS dir record
293B EDB0      05270          LDIR                     ;  into 1st slot
293D FD5609    05280          LD      D,(IY+9)         ;P/u dir cyl
2940 1E02      05290          LD      E,2              ;This will be sector 2
2942 210030    05300          LD      HL,HITBUF        ;Pt to buffer start
2945 CD412A    05310          CALL    WRDIR            ;Write the sector
2948 C2A529    05320          JP      NZ,IOERR
294B 3AE82A    05330          LD      A,(SECCYL)       ;P/u # of records
294E 32D12A    05340          LD      (DIRDIR+14H),A   ;  & stuff into DIR/SYS
2951 3E00      05350 CYLGRN   LD      A,0              ;P/u # grans/cyl
2953 FDCB046E  05360          BIT     5,(IY+4)         ;Test 2-sided
2957 2802      05370          JR      Z,$+4
2959 87        05380          ADD     A,A              ;Double count on 2-sided
295A 3C        05390          INC     A                ;Plus 1 for 0 offset adj
295B 32D42A    05400          LD      (DIRDIR+17H),A   ;Stuf in DIR/SYS
295E FD7E09    05410          LD      A,(IY+9)         ;P/u the dir cyl # &
2961 32D32A    05420          LD      (DIRDIR+16H),A   ;  stuff into the DIR rec
2964 21BD2A    05430          LD      HL,DIRDIR        ;Pt to start of DIR data
2967 110030    05440          LD      DE,HITBUF        ;Pt to start of dir buf
296A 012000    05450          LD      BC,32            ;Move DIR/SYS into buf
296D EDB0      05460          LDIR
296F FD5609    05470          LD      D,(IY+9)         ;P/u dir cyl #
2972 1E03      05480          LD      E,3              ;Write as sector 3
2974 210030    05490          LD      HL,HITBUF        ;Pt to start of buffer
2977 CD412A    05500          CALL    WRDIR            ;Write the sector
```

Format Execution Code

```
297A 2Ø29        Ø551Ø          JR      NZ,IOERR
297C 21ØØ3Ø      Ø552Ø          LD      HL,HITBUF        ;Zero the 1st 32 bytes
297F Ø62Ø        Ø553Ø          LD      B,32             ;  of the buffer to clear
2981 36ØØ        Ø554Ø GSYS2    LD      (HL),Ø           ;Where we stuffed the
2983 23          Ø555Ø          INC     HL               ;  BOOT & DIR dir records
2984 1ØFB        Ø556Ø          DJNZ    GSYS2
2986 FD56Ø9      Ø557Ø          LD      D,(IY+9)         ;P/u dir cyl #
2989 1EØ4        Ø558Ø          LD      E,4              ;Cont writing at sect 4
298B 21ØØ3Ø      Ø559Ø GSYS3    LD      HL,HITBUF        ;Pt to start of buffer
298E CD412A      Ø56ØØ          CALL    WRDIR            ;Write the sector
2991 2Ø12        Ø561Ø          JR      NZ,IOERR
                 Ø562Ø ;
                 Ø563Ø ;        Write the remaining directory
                 Ø564Ø ;
2993 1C          Ø565Ø          INC     E                ;Bump the sector pointer
2994 3AE82A      Ø566Ø          LD      A,(SECCYL)       ;P/u highest # sector
2997 BB          Ø567Ø          CP      E                ;Are we finished yet?
2998 2ØF1        Ø568Ø          JR      NZ,GSYS3         ;Loop if not
299A CDDF29      Ø569Ø          CALL    EXIT2            ;Get system disk
299D             Ø57ØØ          @@DSPLY FMTCAO$          ;"formatting complete...
                 ØØØ45          IFEQ    Ø1H,1
299D 21ØE2D      ØØØ46          LD      HL,FMTCAO$
                 ØØØ47          ENDIF
29AØ 3EØA        ØØØ48          LD      A,1Ø
29A2 EF          ØØØ49          RST     4Ø
29A3 1823        Ø571Ø          JR      EXIT
                 Ø572Ø ;
                 Ø573Ø ;        Exit procedures
                 Ø574Ø ;
29A5 F5          Ø575Ø IOERR    PUSH    AF               ;Save errcod
29A6 CDDF29      Ø576Ø          CALL    EXIT2            ;Interrupts on if needed
29A9 F1          Ø577Ø          POP     AF               ;Rcvr errcod
29AA FE3F        Ø578Ø          CP      63               ;Extended errror?
29AC 28ØE        Ø579Ø          JR      Z,EXTERR         ;Go if so
29AE 6F          Ø58ØØ          LD      L,A              ;Error code to HL
29AF 26ØØ        Ø581Ø          LD      H,Ø
29B1 F6CØ        Ø582Ø          OR      ØCØH             ;Mask to ABORT with brief
29B3 4F          Ø583Ø          LD      C,A              ;Error code to C
29B4             Ø584Ø          @@ERROR                  ;  for error display
29B4 3E1A        ØØØ5Ø          LD      A,26
29B6 EF          ØØØ51          RST     4Ø
29B7 18ØC        Ø585Ø          JR      ERREXIT
                 Ø586Ø ;
29B9             Ø587Ø BREAK    EQU     $
29B9 21242D      Ø588Ø FMTABT   LD      HL,FMTABT$       ;"Command aborted
29BC             Ø589Ø EXTERR   @@LOGOT                  ;Some error to abort job
                 ØØØ52          IFEQ    ØØH,1
                 ØØØ53          LD      HL,
                 ØØØ54          ENDIF
29BC 3EØC        ØØØ55          LD      A,12
29BE EF          ØØØ56          RST     4Ø
29BF CDDF29      Ø59ØØ          CALL    EXIT2            ;Get system disk
29C2 21FFFF      Ø591Ø          LD      HL,-1            ;Set abort code
29C5 22C929      Ø592Ø ERREXIT  LD      (RETCOD),HL
29C8 21ØØØØ      Ø593Ø EXIT     LD      HL,Ø             ;Init to no error
29C9             Ø594Ø RETCOD   EQU     $-2
29CB E5          Ø595Ø          PUSH    HL
29CC FDE5        Ø596Ø          PUSH    IY               ;Transfer the saved
29CE D1          Ø597Ø          POP     DE               ;  system DCT back
```

Format Execution Code

```
29CF 21DD2A   Ø598Ø          LD      HL,SYSDCT         ;  into the system
29D2 Ø1ØAØØ   Ø599Ø          LD      BC,1Ø             ;  DCT slot
29D5 EDBØ     Ø6ØØØ          LDIR
29D7 E1       Ø6Ø1Ø          POP     HL
29D8 31ØØØØ   Ø6Ø2Ø SPSAV    LD      SP,$-$            ;P/u the stack pointer
29DB          Ø6Ø3Ø          @@CKBRKC                  ;Clear break bit
29DB 3E6A     ØØØ57          LD      A,1Ø6
29DD EF       ØØØ58          RST     4Ø
29DE C9       Ø6Ø4Ø          RET                       ; & exit to caller
              Ø6Ø5Ø ;
29DF 3A2B2A   Ø6Ø6Ø EXIT2    LD      A,(FMTDRV+1)      ;P/u drive # just fmtd
29E2 3C       Ø6Ø7Ø          INC     A                 ;If drive never entered,
29E3 C8       Ø6Ø8Ø          RET     Z                 ;  just return
29E4 3D       Ø6Ø9Ø          DEC     A                 ;If Ø, we need a system
29E5 2ØØD     Ø61ØØ          JR      NZ,EXIT4
29E7 21EF2C   Ø611Ø          LD      HL,PMTSYS$        ;"load system disk...
29EA          Ø612Ø          @@DSPLY
              ØØØ59          IFEQ    ØØH,1
              ØØØ6Ø          LD      HL,
              ØØØ61          ENDIF
29EA 3EØA     ØØØ62          LD      A,1Ø
29EC EF       ØØØ63          RST     4Ø
29ED          Ø613Ø EXIT3    @@KEY                     ;Request a key
29ED 3EØ1     ØØØ64          LD      A,1
29EF EF       ØØØ65          RST     4Ø
29FØ FEØD     Ø614Ø          CP      CR                ;Must be <ENTER>
29F2 2ØF9     Ø615Ø          JR      NZ,EXIT3
29F4 18Ø9     Ø616Ø EXIT4    JR      RESTOR            ;Restore disk to cyl Ø
              Ø617Ø ;
              Ø618Ø ;        Disk I/O requests
              Ø619Ø ;
29F6 C5       Ø62ØØ DRVNOP   PUSH    BC
29F7 AF       Ø621Ø          XOR     A
29F8 183Ø     Ø622Ø          JR      FMTDRV
29FA C5       Ø623Ø SELECT   PUSH    BC
29FB 3EØ1     Ø624Ø          LD      A,1
29FD 182B     Ø625Ø          JR      FMTDRV
29FF C5       Ø626Ø RESTOR   PUSH    BC
2AØØ 3EØ4     Ø627Ø          LD      A,4
2AØ2 1826     Ø628Ø          JR      FMTDRV
2AØ4 C5       Ø629Ø STEPIN   PUSH    BC
2AØ5 3EØ5     Ø63ØØ          LD      A,5
2AØ7 1821     Ø631Ø          JR      FMTDRV
2AØ9 C5       Ø632Ø RSELCT   PUSH    BC
2AØA 3EØ7     Ø633Ø          LD      A,7
2AØC 181C     Ø634Ø          JR      FMTDRV
2AØE C5       Ø635Ø WRCYL    PUSH    BC
2AØF 3EØF     Ø636Ø          LD      A,15
2A11 1817     Ø637Ø          JR      FMTDRV
2A13 C5       Ø638Ø FMTHD    PUSH    BC
2A14 3EØC     Ø639Ø          LD      A,12
2A16 1812     Ø64ØØ          JR      FMTDRV
2A18 C5       Ø641Ø WRSEC    PUSH    BC
2A19 3EØD     Ø642Ø          LD      A,13
2A1B 18ØD     Ø643Ø          JR      FMTDRV
2A1D C5       Ø644Ø WRSYS    PUSH    BC
2A1E 3EØE     Ø645Ø          LD      A,14
2A2Ø 18Ø8     Ø646Ø          JR      FMTDRV
2A22 C5       Ø647Ø RDSEC    PUSH    BC
```

Format Execution Code

```
2A23 3EØ9      Ø648Ø          LD      A,9
2A25 18Ø3      Ø649Ø          JR      FMTDRV
2A27 C5        Ø65ØØ VERSEC   PUSH    BC
2A28 3EØA      Ø651Ø          LD      A,1Ø
2A2A ØEFF      Ø652Ø FMTDRV   LD      C,-1            ;P/u drive #
2A2C C628      Ø653Ø          ADD     A,4Ø            ;Adjust SVC #
2A2E EF        Ø654Ø          RST     4Ø
2A2F C1        Ø655Ø          POP     BC
2A3Ø C9        Ø656Ø          RET
               Ø657Ø ;
               Ø658Ø ;        Perform a verification to ensure system sector
               Ø659Ø ;
2A31 CD272A    Ø66ØØ VERSYS   CALL    VERSEC          ;Sector verify
2A34 28Ø6      Ø661Ø          JR      Z,VERS1         ;Bypass if not system
2A36 D6Ø6      Ø662Ø          SUB     6               ;Test read system retcod
2A38 C8        Ø663Ø          RET     Z               ;Go if that's what it was
2A39 C6Ø6      Ø664Ø          ADD     A,6             ;Restore orig retcod
2A3B C9        Ø665Ø          RET
2A3C F6Ø1      Ø666Ø VERS1    OR      1               ;S/b system, found data
2A3E 3EØØ      Ø667Ø          LD      A,Ø
2A4Ø C9        Ø668Ø          RET
               Ø669Ø ;
2A41 CD1D2A    Ø67ØØ WRDIR    CALL    WRSYS           ;Write the DIR sector
2A44 C4312A    Ø671Ø WRDIR1   CALL    NZ,VERSYS       ;Verify after write
2A47 CØ        Ø672Ø          RET     NZ
2A48 D5        Ø673Ø          PUSH    DE
2A49 ØE2E      Ø674Ø          LD      C,'.'           ;Display a period
2A4B           Ø675Ø          @@DSP                   ;  for every sector written
2A4B 3EØ2      ØØØ66          LD      A,2
2A4D EF        ØØØ67          RST     4Ø
2A4E D1        Ø676Ø          POP     DE
2A4F C9        Ø677Ø          RET
               Ø678Ø ;
               Ø679Ø ;        Routine to convert reg A to 2 decimal digits
               Ø68ØØ ;
2A5Ø ØE3Ø      Ø681Ø CVDEC    LD      C,3ØH           ;Init msd to Ø
2A52 D6ØA      Ø682Ø CVD1     SUB     1Ø              ;Sub 1Ø until underflow
2A54 38Ø3      Ø683Ø          JR      C,CVD2
2A56 ØC        Ø684Ø          INC     C               ;Inc the count
2A57 18F9      Ø685Ø          JR      CVD1
2A59 C63A      Ø686Ø CVD2     ADD     A,3AH           ;Add back 1Ø + 'Ø'
2A5B 47        Ø687Ø          LD      B,A             ;Lsd to B
2A5C C9        Ø688Ø          RET
               Ø689Ø ;
               Ø69ØØ ;        Routines to convert input strings to UC
               Ø691Ø ;        HL => Prompt string
               Ø692Ø ;
2A5D           Ø693Ø GET3     @@DSPLY                 ;Display the prompt
               ØØØ68          IFEQ    ØØH,1
               ØØØ69          LD      HL,
               ØØØ7Ø          ENDIF
2A5D 3EØA      ØØØ71          LD      A,1Ø
2A5F EF        ØØØ72          RST     4Ø
2A6Ø Ø1ØØØ3    Ø694Ø          LD      BC,3<8          ;Init 3 keys max
2A63 18Ø3      Ø695Ø          JR      $+5
2A65 Ø1ØØØ8    Ø696Ø GET8     LD      BC,8<8          ;8-chars max
2A68 21ØØ3Ø    Ø697Ø          LD      HL,HITBUF       ;Buffer area
2A6B           Ø698Ø GET8A    @@KEYIN                 ;Enter them
2A6B 3EØ9      ØØØ73          LD      A,9
```

Format Execution Code

```
2A6D EF         ØØØ74           RST     4Ø
2A6E DAB929     Ø699Ø           JP      C,FMTABT        ;Quit on Break
2A71 78         Ø7ØØØ           LD      A,B             ;Get length of response
2A72 B7         Ø7Ø1Ø           OR      A
2A73 C8         Ø7Ø2Ø           RET     Z               ;Back if Enter only
                Ø7Ø3Ø ;
                Ø7Ø4Ø ;         Routine to convert n-character string to UC
                Ø7Ø5Ø ;
2A74 F5         Ø7Ø6Ø           PUSH    AF              ;Save the registers
2A75 C5         Ø7Ø7Ø           PUSH    BC
2A76 E5         Ø7Ø8Ø           PUSH    HL
2A77 7E         Ø7Ø9Ø GETUC     LD      A,(HL)          ;P/u a char
2A78 FE61       Ø71ØØ           CP      'a'             ;Skip if below 'a'
2A7A 38Ø6       Ø711Ø           JR      C,GETUC1
2A7C FE7B       Ø712Ø           CP      'z'+1           ;  or above 'z'
2A7E 3ØØ2       Ø713Ø           JR      NC,GETUC1
2A8Ø CBAE       Ø714Ø           RES     5,(HL)          ;  else convert to UC
2A82 23         Ø715Ø GETUC1    INC     HL              ;Bump the buffer ptr
2A83 1ØF2       Ø716Ø           DJNZ    GETUC           ;Loop thru all chars
2A85 E1         Ø717Ø           POP     HL
2A86 C1         Ø718Ø           POP     BC
2A87 F1         Ø719Ø           POP     AF
2A88 C9         Ø72ØØ           RET
                Ø721Ø ;
                Ø722Ø ;         Routine to display the cylinder number
                Ø723Ø ;
2A89 C5         Ø724Ø DSPCYL    PUSH    BC              ;Save ASCII cylinder #
2A8A ØEØ8       Ø725Ø           LD      C,8             ;Back up twice &
2A8C            Ø726Ø           @@DSP                   ;  output new position
2A8C 3EØ2       ØØØ75           LD      A,2
2A8E EF         ØØØ76           RST     4Ø
2A8F ØEØ8       Ø727Ø           LD      C,8
2A91            Ø728Ø           @@DSP
2A91 3EØ2       ØØØ77           LD      A,2
2A93 EF         ØØØ78           RST     4Ø
2A94 C1         Ø729Ø           POP     BC              ;Recover cyl #
2A95            Ø73ØØ           @@DSP                   ;Send MSD
2A95 3EØ2       ØØØ79           LD      A,2
2A97 EF         ØØØ8Ø           RST     4Ø
2A98 48         Ø731Ø           LD      C,B
2A99            Ø732Ø           @@DSP                   ;Send LSD
2A99 3EØ2       ØØØ81           LD      A,2
2A9B EF         ØØØ82           RST     4Ø
2A9C C9         Ø733Ø           RET
                Ø734Ø ;
                Ø735Ø ;         Formatting data and tables
                Ø736Ø ;
2A9D 5E         Ø737Ø BOOTDIR   DB      5EH,Ø,Ø,Ø,Ø,'BOOT    SYS',ØF6H,37H
     ØØ ØØ ØØ ØØ 42 4F 4F 54
     2Ø 2Ø 2Ø 2Ø 53 59 53 F6
     37
2AAF F5         Ø738Ø           DB      ØF5H,9CH,5,Ø,Ø,Ø,ØFFH,ØFFH,-1,-1,-1,-1,-1,-1
     9C Ø5 ØØ ØØ ØØ FF FF FF
     FF FF FF FF FF
2ABD 5D         Ø739Ø DIRDIR    DB      5DH,Ø,Ø,Ø,Ø,'DIR     SYS',ØF6H,37H
     ØØ ØØ ØØ ØØ 44 49 52 2Ø
     2Ø 2Ø 2Ø 2Ø 53 59 53 F6
     37
2ACF 96         Ø74ØØ           DB      96H,42H,1Ø,Ø,11H,1,ØFFH,ØFFH,Ø,Ø,Ø,Ø,Ø,Ø
```

Format Execution Code

```
     42 0A 00 11 01 FF FF 00
     00 00 00 00 00
000A           07410 SYSDCT  DS      10
2AE7 00        07420 STEPDFT DB      0              ;Boot step rate default
0001           07430 SECCYL  DS      1              ;# of sectors per cyl
0001           07440 SECTRK  DS      1              ;# of sectors per trk
               07450 ;
               07460 ;       Single density 5" format table
               07470 ;
2AEA 0A        07480 S5TBL   DB      10,7
     07
2AEC 00        07490         DB      0,5,1,6,2,7,3,8,4,9
     05 01 06 02 07 03 08 04
     09
2AF6 F6        07500         DB      -10,-10,-10,-10,-10,-10,-10,-10,14,0FFH
     F6 F6 F6 F6 F6 F6 F6 0E
     FF
2B00 F1        07510         DB      0F1H,6,0,1,0FEH
     06 00 01 FE
2B05 F3        07520         DB      0F3H,3,0,1,1,1,0F7H,1,0FFH,11,0FFH
     03 00 01 01 01 F7 01 FF
     0B FF
2B10 06        07530         DB      6,0,1,0FBH,0,0E5H,1,0F7H,1,0FFH,13,0FFH
     00 01 FB 00 E5 01 F7 01
     FF 0D FF
2B1C F2        07540         DB      0F2H,47H,0FFH,0F4H
     47 FF F4
2B20 00        07550         DB      0,1,2,3,4,5,6,7,8,9
     01 02 03 04 05 06 07 08
     09
               07560 ;
               07570 ;       Double density 5" format table
               07580 ;
2B2A 12        07590 D5TBL   DB      18,10
     0A
2B2C 00        07600         DB      0,9,1,10,2,11,3,12,4
     09 01 0A 02 0B 03 0C 04
2B35 0D        07610         DB      13,5,14,6,15,7,16,8,17
     05 0E 06 0F 07 10 08 11
2B3E EE        07620         DC      11,-18
     EE EE EE EE EE EE EE EE
     EE EE
2B49 14        07630         DB      20,4EH
     4E
2B4B F1        07640         DB      0F1H,12,0,3,0F5H,1,0FEH
     0C 00 03 F5 01 FE
2B52 F3        07650         DB      0F3H,3,0,1,1,1,0F7H,22,4EH,12,0,3,0F5H
     03 00 01 01 01 F7 16 4E
     0C 00 03 F5
2B5F 01        07660         DB      1,0FBH,0F5H,128,6DH,0B6H
     FB F5 80 6D B6
2B65 01        07670         DB      1,0F7H,1,0FFH,17,04EH
     F7 01 FF 11 4E
2B6B F2        07680         DB      0F2H,182,4EH,0F4H
     B6 4E F4
2B6F 00        07690         DB      0,1,2,3,4,5,6,7,8,9
     01 02 03 04 05 06 07 08
     09
2B79 0A        07700         DB      10,11,12,13,14,15,16,17
```

Format Execution Code

```
     ØB ØC ØD ØE ØF 1Ø 11
               Ø771Ø ;
               Ø772Ø ;          Single density 8" format table
               Ø773Ø ;
2B81 1Ø        Ø774Ø S8TBL   DB      16,2
     Ø2
2B83 ØA        Ø775Ø         DB      1Ø,5,Ø,11,6,1,12,7,2,13,8,3,14,9,4,15
     Ø5 ØØ ØB Ø6 Ø1 ØC Ø7 Ø2
     ØD Ø8 Ø3 ØE Ø9 Ø4 ØF
2B93 FØ        Ø776Ø         DB      -16,-16,-16,28H,ØFFH
     FØ FØ 28 FF
2B98 F1        Ø777Ø         DB      ØF1H,6,Ø,1,ØFEH
     Ø6 ØØ Ø1 FE
2B9D F3        Ø778Ø         DB      ØF3H,3,Ø,1,1,1,ØF7H,11,ØFFH,6,Ø,1,ØFBH
     Ø3 ØØ Ø1 Ø1 Ø1 F7 ØB FF
     Ø6 ØØ Ø1 FB
2BAA ØØ        Ø779Ø         DB      Ø,ØE5H,1,ØF7H,1,ØFFH,2Ø,ØFFH
     E5 Ø1 F7 Ø1 FF 14 FF
2BB2 F2        Ø78ØØ         DB      ØF2H,2Ø8,ØFFH,ØF4H
     DØ FF F4
2BB6 ØA        Ø781Ø         DB      1Ø,Ø,6,12,2,8,14,4,5,11,1,7,13,3,9,15
     ØØ Ø6 ØC Ø2 Ø8 ØE Ø4 Ø5
     ØB Ø1 Ø7 ØD Ø3 Ø9 ØF
               Ø782Ø ;
               Ø783Ø ;          Double density 8" format table
               Ø784Ø ;
2BC6 1E        Ø785Ø D8TBL   DB      3Ø,12
     ØC
2BC8 ØØ        Ø786Ø         DB      Ø,1Ø,2Ø,1,11,21,2,12,22,3,13,23,4,14,24
     ØA 14 Ø1 ØB 15 Ø2 ØC 16
     Ø3 ØD 17 Ø4 ØE 18
2BD7 Ø5        Ø787Ø         DB      5,15,25,6,16,26,7,17,27,8,18,28,9,19,29
     ØF 19 Ø6 1Ø 1A Ø7 11 1B
     Ø8 12 1C Ø9 13 1D
2BE6 E2        Ø788Ø         DC      13,-3Ø
     E2 E2 E2 E2 E2 E2 E2 E2
     E2 E2 E2 E2
2BF3 14        Ø789Ø         DB      2Ø,4EH
     4E
2BF5 F1        Ø79ØØ         DB      ØF1H,ØCH,Ø,3,ØF5H,1,ØFEH
     ØC ØØ Ø3 F5 Ø1 FE
2BFC F3        Ø791Ø         DB      ØF3H,3,Ø,1,1,1,ØF7H,22,4EH,12,Ø,3,ØF5H
     Ø3 ØØ Ø1 Ø1 Ø1 F7 16 4E
     ØC ØØ Ø3 F5
2CØ9 Ø1        Ø792Ø         DB      1,ØFBH,ØF5H,128,6DH,ØB6H
     FB F5 8Ø 6D B6
2CØF Ø1        Ø793Ø         DB      1,ØF7H,1,ØFFH,17,4EH
     F7 Ø1 FF 11 4E
2C15 F2        Ø794Ø         DB      ØF2H,Ø,4EH,61,4EH,ØF4H
     ØØ 4E 3D 4E F4
2C1B ØØ        Ø795Ø         DB      Ø,2Ø,11,2,22,13,4,24,15,6,26,17,8,28,19
     14 ØB Ø2 16 ØD Ø4 18 ØF
     Ø6 1A 11 Ø8 1C 13
2C2A ØA        Ø796Ø         DB      1Ø,1,21,12,3,23,14,5,25,16,7,27,18,9,29
     Ø1 15 ØC Ø3 17 ØE Ø5 19
     1Ø Ø7 1B 12 Ø9 1D
               Ø797Ø ;
2C39 1D        Ø798Ø FMTCYL$ DB      29,'Formatting cylinder   ',3
     46 6F 72 6D 61 74 74 69
```

Format Execution Code

```
     6E 67 2Ø 63 79 6C 69 6E
     64 65 72 2Ø 2Ø 2Ø Ø3
2C51 1D        Ø799Ø VERCYL$ DB      29,'Verifying  cylinder   ',3
     56 65 72 69 66 79 69 6E
     67 2Ø 2Ø 63 79 6C 69 6E
     64 65 72 2Ø 2Ø 2Ø Ø3
2C69 2A        Ø8ØØØ STAR$   DB      '*   ',3
     2Ø 2Ø 2Ø Ø3
2C6E 46        Ø8Ø1Ø FMTG$   DB      'Formatting...',CR
     6F 72 6D 61 74 74 69 6E
     67 2E 2E 2E ØD
2C7C 4E        Ø8Ø2Ø NOCYL$  DB      'No cylinders available for directory',CR
     6F 2Ø 63 79 6C 69 6E 64
     65 72 73 2Ø 61 76 61 69
     6C 61 62 6C 65 2Ø 66 6F
     72 2Ø 64 69 72 65 63 74
     6F 72 79 ØD
2CA1 44        Ø8Ø3Ø DIRCYL$ DB      'Directory will be placed on cylinder '
     69 72 65 63 74 6F 72 79
     2Ø 77 69 6C 6C 2Ø 62 65
     2Ø 7Ø 6C 61 63 65 64 2Ø
     6F 6E 2Ø 63 79 6C 69 6E
     64 65 72 2Ø
2CC6 3Ø        Ø8Ø4Ø DIRASC$ DB      'ØØ',CR
     3Ø ØD
2CC9 ØA        Ø8Ø5Ø IPLSYS$ DB      LF,'Initializing DIRECTORY information: ',3
     49 6E 69 74 69 61 6C 69
     7A 69 6E 67 2Ø 44 49 52
     45 43 54 4F 52 59 2Ø 69
     6E 66 6F 72 6D 61 74 69
     6F 6E 3A 2Ø Ø3
2CEF ØA        Ø8Ø6Ø PMTSYS$ DB      LF,'Load SYSTEM diskette  <ENTER>',CR
     4C 6F 61 64 2Ø 53 59 53
     54 45 4D 2Ø 64 69 73 6B
     65 74 74 65 2Ø 2Ø 3C 45
     4E 54 45 52 3E ØD
2DØE ØA        Ø8Ø7Ø FMTCAO$ DB      LF,LF,'Formatting complete',CR
     ØA 46 6F 72 6D 61 74 74
     69 6E 67 2Ø 63 6F 6D 7Ø
     6C 65 74 65 ØD
2D24 ØA        Ø8Ø8Ø FMTABT$ DB      LF,'Command aborted',CR
     43 6F 6D 6D 61 6E 64 2Ø
     61 62 6F 72 74 65 64 ØD
2D35 ØA        Ø8Ø9Ø NOTFMT$ DB      LF,'Can''t, Diskette not formatted',CR
     43 61 6E 27 74 2C 2Ø 44
     69 73 6B 65 74 74 65 2Ø
     6E 6F 74 2Ø 66 6F 72 6D
     61 74 74 65 64 ØD
               Ø81ØØ ;
               Ø811Ø ;       Patch area
               Ø812Ø ;
2EØØ           Ø813Ø         ORG     $<-8+1<+8
ØØCB           Ø814Ø GATBUF  DS      2Ø3              ;GAT sector buffer
2ECB 62        Ø815Ø         DB      RLS,Ø,Ø,Ø,Ø      ;Ver, cyl exc, type, pswd
     ØØ ØØ ØØ ØØ
2EDØ 2Ø        Ø816Ø         DB      '         MM/DD/YY'
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 4D
     4D 2F 44 44 2F 59 59
2EEØ ØØ        Ø817Ø         DC      32,Ø
```

Format Execution Code

```
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ
2FØØ          Ø818Ø BOOT    EQU     $
2FØØ          Ø819Ø CORE$   DEFL    $
43ØØ          Ø82ØØ         ORG     43ØØH              ;Execute at ROM BOOT
43ØØ          Ø821Ø         LORG    CORE$              ;  but load here
43ØØ ØØ       Ø822Ø         NOP
43Ø1 FEØØ     Ø823Ø         CP      Ø                  ;P/u the DIR track
              Ø824Ø ;
              Ø825Ø         IF      @MOD2
              Ø826Ø         DB      83H
              Ø827Ø         ENDIF
              Ø828Ø         IF      @MOD4
43Ø3 F3       Ø829Ø         DI
              Ø83ØØ         ENDIF
43Ø4 ØØ       Ø831Ø         DC      12,Ø
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ
431Ø 118DFB   Ø832Ø         LD      DE,8Ø*11+CRT4+29        ;Mod 4 video locn
4313 212943   Ø833Ø         LD      HL,DATADSK$        ;Xfer error to vidmem
4316 Ø117ØØ   Ø834Ø         LD      BC,STRLEN
4319 EDBØ     Ø835Ø         LDIR
431B 11153E   Ø836Ø         LD      DE,64*8+CRT3+21 ;Mod 3 video locn
431E 212943   Ø837Ø         LD      HL,DATADSK$        ;Xfer error to vidmem
4321 Ø117ØØ   Ø838Ø         LD      BC,STRLEN
4324 EDBØ     Ø839Ø         LDIR
4326 C32643   Ø84ØØ STOP    JP      STOP
4329 43       Ø841Ø DATADSK$        DB      'Cannot boot, DATA DISK!'
     61 6E 6E 6F 74 2Ø 62 6F
     6F 74 2C 2Ø 44 41 54 41
     2Ø 44 49 53 4B 21
ØØ17          Ø842Ø STRLEN  EQU     $-DATADSK$
434Ø ØØ       Ø843Ø         DC      -$&ØFFH,Ø
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ
```

Format Execution Code

```
44ØØ          Ø844Ø SAFESP  EQU     $
3ØØØ          Ø845Ø         ORG     CORE$+256
3ØØØ          Ø846Ø         LORG    CORE$+256
Ø1ØØ          Ø847Ø HITBUF  DS      256
              Ø848Ø ;
31ØØ          Ø849Ø         SUBTTL  '<Format Init Code>'
```

Format Init Code

```
31ØØ          Ø851Ø *GET    FORMAT2:3
              Ø395Ø ;FORMAT2/ASM - Format Initialization Code
              Ø396Ø ;
              Ø397Ø ;       FORMAT routine entry point
              Ø398Ø ;
              Ø399Ø FORMAT
31ØØ          Ø4ØØØ         @@CKBRKC                ;Check for break
31ØØ 3E6A     ØØØ83         LD      A,1Ø6
31Ø2 EF       ØØØ84         RST     4Ø
31Ø3 28Ø4     Ø4Ø1Ø         JR      Z,FORMATA       ;Continue if no break
31Ø5 21FFFF   Ø4Ø2Ø         LD      HL,-1           ;  else abort
31Ø8 C9       Ø4Ø3Ø         RET
              Ø4Ø4Ø ;
31Ø9 ED73D929 Ø4Ø5Ø FORMATA LD      (SPSAV+1),SP    ;Save the stack pointer
31ØD E5       Ø4Ø6Ø         PUSH    HL              ;Save cmdline ptr
31ØE          Ø4Ø7Ø         @@DSPLY HELLO$          ;Hello message
              ØØØ85         IFEQ    Ø1H,1
31ØE 21C236   ØØØ86         LD      HL,HELLO$
              ØØØ87         ENDIF
3111 3EØA     ØØØ88         LD      A,1Ø
3113 EF       ØØØ89         RST     4Ø
3114 CD5436   Ø4Ø8Ø         CALL    GETSYS2         ;Load SYS2 overlay
              Ø4Ø9Ø ;
              Ø41ØØ ;       Read config sector & extract DCT # cyls
              Ø411Ø ;
              Ø412Ø         IF      @MOD4
3117 11Ø2ØØ   Ø413Ø         LD      DE,2            ;Track Ø, sector 2
311A 4A       Ø414Ø         LD      C,D             ;Drive Ø
              Ø415Ø         ENDIF
              Ø416Ø ;
              Ø417Ø         IF      @MOD2
              Ø418Ø         LD      C,Ø             ;Drive Ø
311B          Ø419Ø         @@GTDCT                 ;Fetch DCT
              ØØØ9Ø         LD      A,81
              ØØØ91         RST     4Ø
              Ø42ØØ         LD      A,(IY+3)        ;Get dct data
              Ø421Ø         AND     28H             ;Bit 5/3
              Ø422Ø         CP      2ØH             ;8" floppy?
              Ø423Ø         JR      NZ,SETSYS1      ;Go if not
              Ø424Ø         LD      A,(IY+4)        ;Get data
              Ø425Ø         AND     5ØH             ;Bit 6/4
              Ø426Ø         CP      4ØH             ;DD not alien?
              Ø427Ø         JR      NZ,SETSYS1      ;Go if not
              Ø428Ø         LD      HL,HITBUF       ;Init buffer
              Ø429Ø         LD      D,(IY+9)        ;Get dir cyl
              Ø43ØØ         LD      E,Ø             ;Init GAT table
311B          Ø431Ø         @@RDSEC                 ;Read GAT table
              ØØØ92         LD      A,49
              ØØØ93         RST     4Ø
              Ø432Ø         CP      6               ;Directory read?
              Ø433Ø         JP      NZ,IOERR        ;Go on disk error
              Ø434Ø         LD      A,(HITBUF+ØCDH) ;Get data byte
              Ø435Ø         BIT     7,A             ;System disk?
              Ø436Ø SETSYS1 LD      DE,Ø<8+2        ;Init cyl Ø
              Ø437Ø         JR      NZ,$+3          ;Go if not system
              Ø438Ø         INC     D               ;Else on cyl 1
              Ø439Ø         LD      C,Ø             ;Drive Ø
              Ø44ØØ         ENDIF
              Ø441Ø ;
311B 21ØØ3Ø   Ø442Ø         LD      HL,HITBUF       ;Set disk buffer
```

Format Init Code

```
311E          Ø443Ø         @@RDSEC                      ;Read sysinfo sector
311E 3E31     ØØØ94         LD      A,49
312Ø EF       ØØØ95         RST     4Ø
3121 C2A529   Ø444Ø         JP      NZ,IOERR             ;Quit on read error
3124 2E76     Ø445Ø         LD      L,7ØH+6              ;Pt to default DCTs
              Ø446Ø ;
              Ø447Ø ;       Establish the default BOOT step rate
              Ø448Ø ;
3126 E5       Ø449Ø         PUSH    HL                   ;Pt IY to the
3127 FDE1     Ø45ØØ         POP     IY                   ;  start of the DCTs
3129 FD7EFD   Ø451Ø         LD      A,(IY+3-6)           ;P/u DCT$ default step
312C E6Ø3     Ø452Ø         AND     3                    ;  & strip off
312E 329731   Ø453Ø         LD      (STEPARM+1),A        ;Keep for Step parm
              Ø454Ø ;
              Ø455Ø ;       Keep cyl count on all 8 drives
              Ø456Ø ;
3131 Ø6Ø8     Ø457Ø         LD      B,8
3133 DD212136 Ø458Ø         LD      IX,DCTCYL            ;Pt to where to stuff
3137 11ØAØØ   Ø459Ø         LD      DE,1Ø                ;  1Ø-byte increments
313A 7E       Ø46ØØ DCTLP1  LD      A,(HL)               ;P/u default # CYL
313B DD77ØØ   Ø461Ø         LD      (IX),A               ;Save in table
313E DD23     Ø462Ø         INC     IX
314Ø 19       Ø463Ø         ADD     HL,DE
3141 1ØF7     Ø464Ø         DJNZ    DCTLP1               ;Loop for 8 DCTs
              Ø465Ø ;
3143 E1       Ø466Ø         POP     HL                   ;Rcvr ptr to cmdline
3144 7E       Ø467Ø FMT1    LD      A,(HL)               ;Ignore spaces
3145 23       Ø468Ø         INC     HL
3146 FE2Ø     Ø469Ø         CP      ' '
3148 28FA     Ø47ØØ         JR      Z,FMT1
314A FE3A     Ø471Ø         CP      ':'                  ;Colon drive indicator?
314C 281F     Ø472Ø         JR      Z,FMT2               ;Go on drive entry
              Ø473Ø ;
              Ø474Ø ;       Drive not entered, prompt for it
              Ø475Ø ;
314E 2B       Ø476Ø         DEC     HL                   ;Backspace command line
314F 2B       Ø477Ø         DEC     HL                   ;  & adjust for next INC
315Ø E5       Ø478Ø         PUSH    HL                   ;Save pointer
3151          Ø479Ø WHDRV   @@DSPLY WHDRV$               ;"which drive...
              ØØØ96         IFEQ    Ø1H,1
3151 218937   ØØØ97         LD      HL,WHDRV$
              ØØØ98         ENDIF
3154 3EØA     ØØØ99         LD      A,1Ø
3156 EF       ØØ1ØØ         RST     4Ø
3157 21ØØ3Ø   Ø48ØØ         LD      HL,HITBUF            ;Input buffer for now
315A Ø1ØØØ1   Ø481Ø         LD      BC,1<8               ;Max 1 char
315D          Ø482Ø         @@KEYIN                      ;Get a 1-char line
315D 3EØ9     ØØ1Ø1         LD      A,9
315F EF       ØØ1Ø2         RST     4Ø
316Ø DAB929   Ø483Ø         JP      C,FMTABT             ;Quit on Break
3163 7E       Ø484Ø         LD      A,(HL)               ;P/u the entry
3164 D63Ø     Ø485Ø         SUB     'Ø'                  ;Cvrt to binary
3166 FEØ8     Ø486Ø         CP      8                    ;Error if > 7
3168 3ØE7     Ø487Ø         JR      NC,WHDRV
316A E1       Ø488Ø         POP     HL                   ;Rcvr command pointer
316B 18Ø8     Ø489Ø         JR      FMT2A
              Ø49ØØ ;
              Ø491Ø ;       Drive entered
              Ø492Ø ;
```

Format Init Code

```
316D 7E        Ø493Ø FMT2    LD      A,(HL)          ;P/u drive #
316E D63Ø      Ø494Ø         SUB     'Ø'             ;Cvrt to ASCII
317Ø FEØ8      Ø495Ø         CP      8               ;Make sure not > 7
3172 D24F36    Ø496Ø         JP      NC,PRMERR
3175 322B2A    Ø497Ø FMT2A   LD      (FMTDRV+1),A    ;Stuff drive
3178 23        Ø498Ø         INC     HL              ;Bump cmdline ptr
3179 116Ø36    Ø499Ø         LD      DE,PRMTBL$      ;Parse any parameters
317C           Ø5ØØØ         @@PARAM
317C 3E11      ØØ1Ø3         LD      A,17
317E EF        ØØ1Ø4         RST     4Ø
317F C24F36    Ø5Ø1Ø         JP      NZ,PRMERR       ;Jump on parm error
               Ø5Ø2Ø ;
               Ø5Ø3Ø ;       Test if any other parm was entered
               Ø5Ø4Ø ;
3182 11ØØØØ    Ø5Ø5Ø SDPARM  LD      DE,Ø            ;Single density parm
3185 7A        Ø5Ø6Ø         LD      A,D
3186 B3        Ø5Ø7Ø         OR      E               ;Merge all theses parms
3187 11ØØØØ    Ø5Ø8Ø DDPARM  LD      DE,Ø            ;Double density parm
318A B2        Ø5Ø9Ø         OR      D
318B B3        Ø51ØØ         OR      E
318C 11ØØØØ    Ø511Ø SIDES   LD      DE,Ø            ;Sides parm
318F B2        Ø512Ø         OR      D
319Ø B3        Ø513Ø         OR      E
3191 11ØØØØ    Ø514Ø CPARM   LD      DE,Ø            ;Cylinder parm
3194 B2        Ø515Ø         OR      D
3195 B3        Ø516Ø         OR      E
3196 11ØØFF    Ø517Ø STEPARM LD      DE,ØFFØØH       ;Init to show if entry
3199 14        Ø518Ø         INC     D               ;Did user enter it?
319A B2        Ø519Ø         OR      D               ;Ø=no user entry
319B 32AC32    Ø52ØØ         LD      (PRMMRG+1),A    ;Set to non-zero if any
               Ø521Ø ;
               Ø522Ø ;       If Q-parm, then set NAME & MPW if not entered
               Ø523Ø ;
319E ED5BB132  Ø524Ø         LD      DE,(QPARM+1)    ;P/u Query parm
31A2 2AEB31    Ø525Ø         LD      HL,(NPARM+1)    ;P/u Name parm
31A5 7C        Ø526Ø         LD      A,H
31A6 B5        Ø527Ø         OR      L
31A7 2ØØ4      Ø528Ø         JR      NZ,$+6          ;Go if user entered name
31A9 ED53EB31  Ø529Ø         LD      (NPARM+1),DE    ;  else use Q-parm value
31AD 2A3B32    Ø53ØØ         LD      HL,(MPARM+1)    ;P/u Password parm
31BØ 7C        Ø531Ø         LD      A,H
31B1 B5        Ø532Ø         OR      L
31B2 2ØØ4      Ø533Ø         JR      NZ,$+6          ;Go if user entered password
31B4 ED533B32  Ø534Ø         LD      (MPARM+1),DE    ;Set to Q-parm entry
               Ø535Ø ;
31B8 3A2B2A    Ø536Ø         LD      A,(FMTDRV+1)    ;P/u drive
31BB 4F        Ø537Ø         LD      C,A             ;Set in drive register
31BC 212136    Ø538Ø         LD      HL,DCTCYL       ;Find default # cyls
31BF 85        Ø539Ø         ADD     A,L             ;Index the DCTCYL table
31CØ 6F        Ø54ØØ         LD      L,A             ;  according to drive #
31C1 8C        Ø541Ø         ADC     A,H
31C2 95        Ø542Ø         SUB     L
31C3 67        Ø543Ø         LD      H,A
31C4 7E        Ø544Ø         LD      A,(HL)          ;P/u cylinder count
31C5 3C        Ø545Ø         INC     A               ;Offset from 1
31C6 323D33    Ø546Ø         LD      (PCYL2+1),A     ;Stuff default for 5"
31C9           Ø547Ø         @@GTDCT                 ;Find the DCT pointer
31C9 3E51      ØØ1Ø5         LD      A,81
31CB EF        ØØ1Ø6         RST     4Ø
```

Format Init Code

```
31CC FDE5      Ø548Ø          PUSH    IY
31CE E1        Ø549Ø          POP     HL              ;Xfer DCT to HL
31CF 11DD2A    Ø55ØØ          LD      DE,SYSDCT       ;Save the system's DCT
31D2 Ø1ØAØØ    Ø551Ø          LD      BC,1Ø           ;  for the drive since
31D5 EDBØ      Ø552Ø          LDIR                    ;  we are altering it
31D7 3A1C26    Ø553Ø          LD      A,(SYSPRM+1)    ;Check if "SYSTEM" parm
31DA 3C        Ø554Ø          INC     A               ; entered
31DB 2ØØ7      Ø555Ø          JR      NZ,FMT2B        ;Go if not
31DD FDCBØ35E  Ø556Ø          BIT     3,(IY+3)        ;Check if hard drive
31E1 CA4936    Ø557Ø          JP      Z,NOTHARD       ;Can't "SYSTEM" floppy
31E4 CDF629    Ø558Ø FMT2B    CALL    DRVNOP          ;Test if drive enabled
31E7 C2A529    Ø559Ø          JP      NZ,IOERR
31EA 21ØØØØ    Ø56ØØ NPARM    LD      HL,Ø            ;NAME parm entered?
31ED 7C        Ø561Ø          LD      A,H
31EE B5        Ø562Ø          OR      L
31EF 3C        Ø563Ø          INC     A               ;Was it just NAME?
31FØ 2826      Ø564Ø          JR      Z,DSKNAM        ;Prompt if so
31F2 3D        Ø565Ø          DEC     A               ;If entered, use it
31F3 2ØØ3      Ø566Ø          JR      NZ,$+5
31F5 21Ø63A    Ø567Ø DFTNAM   LD      HL,PAKNAM$
31F8 11DØ2E    Ø568Ø          LD      DE,GATBUF+ØDØH  ;Yes, move name to field
31FB Ø6Ø8      Ø569Ø          LD      B,8             ;8-chars max
31FD 7E        Ø57ØØ MOVNAM   LD      A,(HL)          ;P/u a char
31FE FE22      Ø571Ø          CP      '"'             ;Closing "
32ØØ 2829      Ø572Ø          JR      Z,CKNAME        ;Exit if end of parm
32Ø2 FE2Ø      Ø573Ø          CP      2ØH             ;Permit all but controls
32Ø4 DA2B32    Ø574Ø          JP      C,CKNAME
32Ø7 FE61      Ø575Ø          CP      'a'             ;If char is lower case,
32Ø9 38Ø6      Ø576Ø          JR      C,MOVNAM1
32ØB FE7B      Ø577Ø          CP      'z'+1
32ØD 3ØØ2      Ø578Ø          JR      NC,MOVNAM1
32ØF EE2Ø      Ø579Ø          XOR     2ØH             ;  make it UC
3211 12        Ø58ØØ MOVNAM1  LD      (DE),A          ;Put char in buffer
3212 23        Ø581Ø          INC     HL              ;Bump both ptrs
3213 13        Ø582Ø          INC     DE
3214 1ØE7      Ø583Ø          DJNZ    MOVNAM          ;Loop til complete
3216 1813      Ø584Ø          JR      CKNAME          ;Check if valid name
               Ø585Ø ;
               Ø586Ø ;        Prompt user for name parameter
               Ø587Ø ;
3218           Ø588Ø DSKNAM   @@DSPLY DSKNAM$         ;"diskette name?
               ØØ1Ø7          IFEQ    Ø1H,1
3218 21A637    ØØ1Ø8          LD      HL,DSKNAM$
               ØØ1Ø9          ENDIF
321B 3EØA      ØØ11Ø          LD      A,1Ø
321D EF        ØØ111          RST     4Ø
321E CD652A    Ø589Ø          CALL    GET8            ;Get 8 chars, make UC
3221 28D2      Ø59ØØ          JR      Z,DFTNAM        ;Use default if no entry
3223 48        Ø591Ø          LD      C,B             ;Only move to name field
3224 Ø6ØØ      Ø592Ø          LD      B,Ø             ;  how many were entered
3226 11DØ2E    Ø593Ø          LD      DE,GATBUF+ØDØH
3229 EDBØ      Ø594Ø          LDIR
322B 11DØ2E    Ø595Ø CKNAME   LD      DE,GATBUF+ØDØH  ;Now check if illegal
322E CDBC35    Ø596Ø          CALL    CKMPWØ          ;  chars in name
3231 C24136    Ø597Ø          JP      NZ,BADNAM       ;  & quit if so
3234 21D82E    Ø598Ø GETDAT   LD      HL,GATBUF+ØD8H  ;Get today's date & stuff
3237           Ø599Ø          @@DATE
3237 3E12      ØØ112          LD      A,18
3239 EF        ØØ113          RST     4Ø
```

Format Init Code

```
                Ø6ØØØ ;
                Ø6Ø1Ø ;         Master Password handling
                Ø6Ø2Ø ;
323A 21ØØØØ     Ø6Ø3Ø MPARM     LD      HL,Ø            ;Did user enter the MPW?
323D 7C         Ø6Ø4Ø           LD      A,H
323E B5         Ø6Ø5Ø           OR      L
323F 3C         Ø6Ø6Ø           INC     A               ;If only MPW, then prompt
324Ø 2821       Ø6Ø7Ø           JR      Z,MPW           ;Go prompt if not
3242 3D         Ø6Ø8Ø           DEC     A
3243 2ØØ3       Ø6Ø9Ø           JR      NZ,$+5          ;If entered, use it
3245 21ØE3A     Ø61ØØ DFTMPW    LD      HL,PAKMPW$      ;  else use ours
3248 115736     Ø611Ø           LD      DE,MPWBUF       ;Shift to pswd field
324B Ø6Ø8       Ø612Ø           LD      B,8
324D 7E         Ø613Ø MOVMPW    LD      A,(HL)
324E FE3Ø       Ø614Ø           CP      3ØH             ;No spaces permitted
325Ø 3819       Ø615Ø           JR      C,PRSMPW        ;End also on closing "
3252 FE61       Ø616Ø           CP      'a'             ;Need cvrt to UC?
3254 38Ø6       Ø617Ø           JR      C,MOVMPW1
3256 FE7B       Ø618Ø           CP      'z'+1
3258 3ØØ2       Ø619Ø           JR      NC,MOVMPW1
325A EE2Ø       Ø62ØØ           XOR     2ØH             ;Cvrt to UC
325C 12         Ø621Ø MOVMPW1   LD      (DE),A          ;Store the char and
325D 13         Ø622Ø           INC     DE              ;  bump the buffer ptrs
325E 23         Ø623Ø           INC     HL
325F 1ØEC       Ø624Ø           DJNZ    MOVMPW
3261 18Ø8       Ø625Ø           JR      PRSMPW          ;Check if valid password
                Ø626Ø ;
                Ø627Ø ;         Prompt for master password
                Ø628Ø ;
3263 21B737     Ø629Ø MPW       LD      HL,MPW$         ;"master...
3266 CD9535     Ø63ØØ           CALL    INPMPW
3269 3ØDA       Ø631Ø           JR      NC,DFTMPW       ;Use default on <ENTER>
                Ø632Ø ;
                Ø633Ø ;         Parse the password & stuff into GAT sector buffer
                Ø634Ø ;
326B 115736     Ø635Ø PRSMPW    LD      DE,MPWBUF
326E CDB535     Ø636Ø           CALL    CKMPW           ;Check for valid MPW
3271 C2A529     Ø637Ø           JP      NZ,IOERR
3274 22CE2E     Ø638Ø           LD      (GATBUF+ØCEH),HL        ;Stuff it
3277 FDCBØ466   Ø639Ø           BIT     4,(IY+4)        ;Jump if alien controller
327B C2E133     Ø64ØØ           JP      NZ,CALCGPC
327E 212936     Ø641Ø           LD      HL,TBLDATA      ;Pt to config tables
3281 11Ø6ØØ     Ø642Ø           LD      DE,6            ;Index the table
3284 FDCBØ36E   Ø643Ø           BIT     5,(IY+3)        ;8" drive?
3288 28Ø2       Ø644Ø           JR      Z,INITDEN       ;Bypass if not
328A 19         Ø645Ø           ADD     HL,DE           ;  else move to 8" configs
328B 19         Ø646Ø           ADD     HL,DE
328C 22EF32     Ø647Ø INITDEN   LD      (SETSDEN+1),HL  ;  & stuff for SDEN option
328F EB         Ø648Ø           EX      DE,HL           ;6->HL, SDEN->DE
329Ø 19         Ø649Ø           ADD     HL,DE           ;Pt to DDEN index table
3291 22DF32     Ø65ØØ           LD      (SETDDEN+1),HL  ;Stuff DDEN config ptr
3294 EB         Ø651Ø           EX      DE,HL           ;HL=SDEN, DE=DDEN
3295 FDCBØ3B6   Ø652Ø           RES     6,(IY+3)        ;Set DCT to SDEN
3299 FDCBØ476   Ø653Ø           BIT     6,(IY+4)        ;Test if DDEN capability
329D 28Ø5       Ø654Ø           JR      Z,SETSTD        ;Go if single
329F EB         Ø655Ø           EX      DE,HL           ;HL->DDEN table
32AØ FDCBØ3F6   Ø656Ø           SET     6,(IY+3)        ;Set DCT to DDEN
32A4 CD5935     Ø657Ø SETSTD    CALL    SETUP           ;Init to std config
32A7 FDCBØ4AE   Ø658Ø           RES     5,(IY+4)        ;Set to 1-sided
```

Format Init Code

```
32AB 3EØØ      Ø659Ø PRMMRG  LD      A,Ø              ;<>Ø if config parms
32AD B7        Ø66ØØ         OR      A                ;  in command line
32AE 2ØØ8      Ø661Ø         JR      NZ,GETDEN
32BØ 11FFFF    Ø662Ø QPARM   LD      DE,-1            ;Prompts? Default=Y
32B3 7A        Ø663Ø         LD      A,D
32B4 B3        Ø664Ø         OR      E
32B5 CAD633    Ø665Ø         JP      Z,PSTEP1         ;Go if no prompting
32B8 FDCBØ476  Ø666Ø GETDEN  BIT     6,(IY+4)         ;Bypass DDEN request msg
32BC 283A      Ø667Ø         JR      Z,PMTSIDE        ;  if no DDEN capability
32BE 3AAC32    Ø668Ø         LD      A,(PRMMRG+1)     ;Also, don't prompt if
32C1 B7        Ø669Ø         OR      A                ;  any config parm was
32C2 2Ø13      Ø67ØØ         JR      NZ,GDDEN1        ;  entered with command
32C4 216538    Ø671Ø         LD      HL,DEN?$         ;Density <S,D>...
32C7 CD5D2A    Ø672Ø         CALL    GET3
32CA 282C      Ø673Ø         JR      Z,PMTSIDE        ;Go on <ENTER>
32CC 7E        Ø674Ø         LD      A,(HL)           ;P/u respsonse
32CD FE53      Ø675Ø         CP      'S'              ;Single Density?
32CF 281D      Ø676Ø         JR      Z,SETSDEN
32D1 FE44      Ø677Ø         CP      'D'              ;Double density?
32D3 28Ø9      Ø678Ø         JR      Z,SETDDEN
32D5 18E1      Ø679Ø         JR      GETDEN           ;Redo if bad response
32D7 3A8831    Ø68ØØ GDDEN1  LD      A,(DDPARM+1)     ;Not prompted, was DDEN
32DA EEFF      Ø681Ø         XOR     -1               ;  set in command line?
32DC 2ØØ9      Ø682Ø         JR      NZ,GSDEN1        ;Bypass if not
32DE 21ØØØØ    Ø683Ø SETDDEN LD      HL,$-$           ;P/u DDEN index table
32E1 FDCBØ3F6  Ø684Ø         SET     6,(IY+3)         ;Set DCT to DDEN
32E5 18ØE      Ø685Ø         JR      CHGDEN
32E7 3A8331    Ø686Ø GSDEN1  LD      A,(SDPARM+1)     ;Was SDEN parm
32EA EEFF      Ø687Ø         XOR     -1               ;  on command line?
32EC 2ØØA      Ø688Ø         JR      NZ,PMTSIDE       ;Go if not
32EE 21ØØØØ    Ø689Ø SETSDEN LD      HL,$-$           ;P/u SDEN index table
32F1 FDCBØ3B6  Ø69ØØ         RES     6,(IY+3)         ;Set DCT to SDEN
32F5 CD5935    Ø691Ø CHGDEN  CALL    SETUP            ;Init #CYLs & alloc
32F8 3AAC32    Ø692Ø PMTSIDE LD      A,(PRMMRG+1)     ;Config parms entered
32FB B7        Ø693Ø         OR      A                ;On command line?
32FC 2Ø2Ø      Ø694Ø         JR      NZ,PMTS1         ;Bypass if yes
32FE FDE5      Ø695Ø         PUSH    IY               ;P/u flag table
33ØØ           Ø696Ø         @@FLAGS                  ;  and check if
33ØØ 3E65      ØØ114         LD      A,1Ø1
33Ø2 EF        ØØ115         RST     4Ø
33Ø3 FDCBØB6E  Ø697Ø         BIT     5,(IY+'L'-'A')   ;  2-side inhibit?
33Ø7 FDE1      Ø698Ø         POP     IY
33Ø9 2Ø13      Ø699Ø         JR      NZ,PMTS1         ;If set, use 1 side
33ØB 214638    Ø7ØØØ         LD      HL,SIDES$        ;"double sided...?
33ØE CD5D2A    Ø7Ø1Ø         CALL    GET3             ;Get # sides wanted
3311 2816      Ø7Ø2Ø         JR      Z,PMTCYL         ;Go on <ENTER>
3313 7E        Ø7Ø3Ø         LD      A,(HL)           ;P/u response char
3314 FE31      Ø7Ø4Ø         CP      '1'              ;1 is ok
3316 2811      Ø7Ø5Ø         JR      Z,PMTCYL
3318 FE32      Ø7Ø6Ø         CP      '2'              ;  and so is 2
331A 2ØDC      Ø7Ø7Ø         JR      NZ,PMTSIDE       ;  but redo on anything else
331C 18Ø5      Ø7Ø8Ø         JR      TSTSID
               Ø7Ø9Ø ;
               Ø71ØØ ;       Check side parm from command line
               Ø711Ø ;
331E 3A8D31    Ø712Ø PMTS1   LD      A,(SIDES+1)      ;How many sides?
3321 FEØ2      Ø713Ø         CP      2
3323 2ØØ4      Ø714Ø TSTSID  JR      NZ,PMTCYL        ;DCT ok if not 2
3325 FDCBØ4EE  Ø715Ø         SET     5,(IY+4)         ;Set 2-sided drive
```

Format Init Code

```
3329 FD7EØ3    Ø716Ø PMTCYL  LD      A,(IY+3)        ;No cylinder request
332C E628      Ø717Ø         AND     28H             ;  if either hard drive
332E 2Ø33      Ø718Ø         JR      NZ,PMTSTEP      ;  or 8" drive
333Ø 3AAC32    Ø719Ø PCYL1   LD      A,(PRMMRG+1)    ;P/u config test byte &
3333 B7        Ø72ØØ         OR      A               ;  bypass cyl req if user
3334 2Ø19      Ø721Ø         JR      NZ,PCYL4        ;  entered cmd line parms
3336 21CA37    Ø722Ø         LD      HL,NUMCYL$      ;"number of cyls..?
3339 CD5D2A    Ø723Ø         CALL    GET3
333C 3EØØ      Ø724Ø PCYL2   LD      A,Ø             ;P/u default # cyls
333E C48235    Ø725Ø         CALL    NZ,CVBIN        ;Get # of cyls on CR
3341 FE61      Ø726Ø PCYL3   CP      96+1            ;System cannot support
3343 3ØEB      Ø727Ø         JR      NC,PCYL1        ;  anything over 96 (95)
3345 FE23      Ø728Ø         CP      35
3347 38E7      Ø729Ø         JR      C,PCYL1         ;Must be 35 or more
3349 3D        Ø73ØØ         DEC     A               ;Adjust to zero offset
334A FD77Ø6    Ø731Ø         LD      (IY+6),A        ;  & stuff in DCT
334D 1814      Ø732Ø         JR      PMTSTEP
               Ø733Ø ;
               Ø734Ø ;       User entered config parms with command line
               Ø735Ø ;
334F 3A9231    Ø736Ø PCYL4   LD      A,(CPARM+1)     ;Was cyl= one of them?
3352 B7        Ø737Ø         OR      A
3353 28ØE      Ø738Ø         JR      Z,PMTSTEP       ;Bypass if not
3355 FE61      Ø739Ø         CP      96+1
3357 D24F36    Ø74ØØ         JP      NC,PRMERR       ;Parm error if too big
335A FE23      Ø741Ø         CP      35
335C DA4F36    Ø742Ø         JP      C,PRMERR        ;  or too small
335F 3D        Ø743Ø         DEC     A               ;Adjust to zero offset
336Ø FD77Ø6    Ø744Ø         LD      (IY+6),A        ;  & stuff into DCT
3363 FDCBØ466  Ø745Ø PMTSTEP BIT     4,(IY+4)        ;Alien controller?
3367 2Ø8F      Ø746Ø         JR      NZ,PMTSIDE      ;No adjustable step rate if so
               Ø747Ø ;
               Ø748Ø ;       If step rate parm wasn't entered, prompt
               Ø749Ø ;       for it but first determine 8" or 5" drive
               Ø75ØØ ;
3369 3AAC32    Ø751Ø         LD      A,(PRMMRG+1)    ;Did user enter config
336C B7        Ø752Ø         OR      A               ;Parms on command line?
336D 2Ø67      Ø753Ø         JR      NZ,PSTEP1       ;Go to step prompt if yes
               Ø754Ø ;
336F FDE5      Ø755Ø         PUSH    IY              ;P/u flag table and
3371           Ø756Ø         @@FLAGS                 ;  check if
3371 3E65      ØØ116         LD      A,1Ø1
3373 EF        ØØ117         RST     4Ø
3374 FDCBØB46  Ø757Ø         BIT     Ø,(IY+'L'-'A')  ;  step prompt inhibited
3378 FDE1      Ø758Ø         POP     IY
337A 2Ø5A      Ø759Ø         JR      NZ,PSTEP1       ;Bypass if set
               Ø76ØØ ;
337C FDCBØ36E  Ø761Ø         BIT     5,(IY+3)        ;Need prompt, 8"?
338Ø 2Ø2A      Ø762Ø         JR      NZ,STEP8        ;Jump if 8"
               Ø763Ø ;
               Ø764Ø ;       5" drive step rate parsing
               Ø765Ø ;
3382 21E137    Ø766Ø STEP5   LD      HL,STEP5$       ;"...step rate - 5"
3385 CD5D2A    Ø767Ø         CALL    GET3
3388 CD8235    Ø768Ø         CALL    CVBIN           ;Get 5" step rate
338B B7        Ø769Ø         OR      A               ;Use default?
338C 2848      Ø77ØØ         JR      Z,PSTEP1        ;Go if parm not entered
338E Ø6ØØ      Ø771Ø         LD      B,Ø             ;Init key to Ø
339Ø FEØ6      Ø772Ø         CP      6
```

Format Init Code

```
3392 2849       Ø773Ø          JR      Z,GOTSTEP
3394 Ø6Ø1       Ø774Ø          LD      B,1             ;Init key to 1
3396 FEØC       Ø775Ø          CP      12
3398 2843       Ø776Ø          JR      Z,GOTSTEP
339A Ø6Ø2       Ø777Ø          LD      B,2             ;Init key to 2
339C FE14       Ø778Ø          CP      2Ø
339E 283D       Ø779Ø          JR      Z,GOTSTEP
33AØ Ø6Ø3       Ø78ØØ          LD      B,3             ;Init key to 3
33A2 FE1E       Ø781Ø          CP      3Ø
33A4 2837       Ø782Ø          JR      Z,GOTSTEP
33A6 FE28       Ø783Ø          CP      4Ø
33A8 2833       Ø784Ø          JR      Z,GOTSTEP
33AA 18D6       Ø785Ø          JR      STEP5           ;Re-request, bad value
                Ø786Ø ;
                Ø787Ø ;        8" drive step rate parsing
                Ø788Ø ;
33AC 211338     Ø789Ø STEP8    LD      HL,STEP8$       ;"step rate - 8"...
33AF CD5D2A     Ø79ØØ          CALL    GET3
33B2 CD8235     Ø791Ø          CALL    CVBIN           ;Get 8" step rate
33B5 B7         Ø792Ø          OR      A               ;Use default?
33B6 281E       Ø793Ø          JR      Z,PSTEP1        ;Go if not entered
33B8 Ø6ØØ       Ø794Ø          LD      B,Ø             ;Init key to Ø
33BA FEØ3       Ø795Ø          CP      3
33BC 281F       Ø796Ø          JR      Z,GOTSTEP
33BE Ø6Ø1       Ø797Ø          LD      B,1             ;Init key to 1
33CØ FEØ6       Ø798Ø          CP      6
33C2 2819       Ø799Ø          JR      Z,GOTSTEP
33C4 Ø6Ø2       Ø8ØØØ          LD      B,2             ;Init key to 2
33C6 FEØA       Ø8Ø1Ø          CP      1Ø
33C8 2813       Ø8Ø2Ø          JR      Z,GOTSTEP
33CA Ø6Ø3       Ø8Ø3Ø          LD      B,3             ;Init key to 3
33CC FEØF       Ø8Ø4Ø          CP      15
33CE 28ØD       Ø8Ø5Ø          JR      Z,GOTSTEP
33DØ FE14       Ø8Ø6Ø          CP      2Ø
33D2 28Ø9       Ø8Ø7Ø          JR      Z,GOTSTEP
33D4 18D6       Ø8Ø8Ø          JR      STEP8           ;Bad entry, re-request
33D6 3A9731     Ø8Ø9Ø PSTEP1   LD      A,(STEPARM+1)   ;P/u step parm entry
33D9 E6Ø3       Ø81ØØ          AND     3               ;Keep 2 lo-order bits
33DB 18Ø1       Ø811Ø          JR      $+3
33DD 78         Ø812Ø GOTSTEP  LD      A,B             ;Stuff boot step rate key
33DE 32E72A     Ø813Ø          LD      (STEPDFT),A
                Ø814Ø ;
                Ø815Ø ;        Routine to calculate the # of grans per logical
                Ø816Ø ;        cylinder so that the GAT byte can be constructed
                Ø817Ø ;
33E1 FD7EØ8     Ø818Ø CALCGPC  LD      A,(IY+8)        ;P/u # of grans per cyl
33E4 Ø7         Ø819Ø          RLCA                    ;Rotate to bits Ø-2
33E5 Ø7         Ø82ØØ          RLCA
33E6 Ø7         Ø821Ø          RLCA
33E7 E6Ø7       Ø822Ø          AND     7               ;Strip off other data
33E9 3C         Ø823Ø          INC     A               ;Adj for zero offset
                Ø824Ø ;
                Ø825Ø ;        If double siding (cylindering), double the count
                Ø826Ø ;
33EA FDCBØ46E Ø827Ø          BIT     5,(IY+4)        ;Test if 2-sided drive
33EE 28Ø1       Ø828Ø          JR      Z,$+3           ;Bypass if only 1-sided
33FØ 87         Ø829Ø          ADD     A,A             ;Double the grans/cyl
33F1 Ø1FFFF     Ø83ØØ          LD      BC,ØFFFFH       ;Init GAT byte to ones
33F4 CB2Ø       Ø831Ø CGPC1    SLA     B               ;Now keep removing low
```

Format Init Code

```
33F6 3D         Ø832Ø          DEC     A                 ;  order bits , 1 bit for
33F7 2ØFB       Ø833Ø          JR      NZ,CGPC1          ;  each available granule
33F9 21ØØ2E     Ø834Ø          LD      HL,GATBUF         ;Pt to GAT buffer area
33FC FD7EØ6     Ø835Ø          LD      A,(IY+6)          ;P/u highest # cylinder
33FF 7Ø         Ø836Ø CGPC2    LD      (HL),B            ;Stuff the GAT byte into
34ØØ 2C         Ø837Ø          INC     L                 ;Each position of the GAT
34Ø1 BD         Ø838Ø          CP      L                 ;One byte per cylinder
34Ø2 3ØFB       Ø839Ø          JR      NC,CGPC2
                Ø84ØØ ;
                Ø841Ø ;        Test if we are at 2Ø2 first by ignoring the
                Ø842Ø ;        first two instructions with LD DE,xxxx
                Ø843Ø ;
34Ø4 3ECB       Ø844Ø          LD      A,ØCBH            ;Continue to stuff GAT
34Ø6 11         Ø845Ø          DB      11H               ;  until cyl 2Ø2
34Ø7 71         Ø846Ø CGPC3    LD      (HL),C            ;Use FFH to show unused
34Ø8 2C         Ø847Ø          INC     L
34Ø9 BD         Ø848Ø          CP      L                 ;First test here for
34ØA 2ØFB       Ø849Ø          JR      NZ,CGPC3          ;  match against 2Ø2
                Ø85ØØ ;
                Ø851Ø ;        Prompt for destination disk & prepare it
                Ø852Ø ;
34ØC 3A2B2A     Ø853Ø          LD      A,(FMTDRV+1)      ;P/u drive
34ØF B7         Ø854Ø          OR      A
341Ø 2Ø2Ø       Ø855Ø          JR      NZ,PFMT1          ;Bypass if other than Ø
3412            Ø856Ø PMTDST   @@DSPLY PMTDST$           ;"load dest disk...
                ØØ118          IFEQ    Ø1H,1
3412 21CØ38     ØØ119          LD      HL,PMTDST$
                ØØ12Ø          ENDIF
3415 3EØA       ØØ121          LD      A,1Ø
3417 EF         ØØ122          RST     4Ø
3418 FDE5       Ø857Ø          PUSH    IY                ;Save DCT pointer
341A            Ø858Ø          @@FLAGS                   ;Point to flags
341A 3E65       ØØ123          LD      A,1Ø1
341C EF         ØØ124          RST     4Ø
341D FDCB126E   Ø859Ø          BIT     5,(IY+'S'-'A')    ;Check for JCL active
3421 FDE1       Ø86ØØ          POP     IY                ;Restore pointer
3423 C2B929     Ø861Ø          JP      NZ,FMTABT         ;Abort if in JCL
3426 21ØØ3Ø     Ø862Ø          LD      HL,HITBUF
3429 Ø1ØØØØ     Ø863Ø          LD      BC,Ø              ;Zero characters means
342C            Ø864Ø          @@KEYIN                   ;Enter or Break only
342C 3EØ9       ØØ125          LD      A,9
342E EF         ØØ126          RST     4Ø
342F DAB929     Ø865Ø          JP      C,FMTABT          ;Abort if Break
3432 FDE5       Ø866Ø PFMT1    PUSH    IY                ;Xfer DCT ptr to HL
3434 E1         Ø867Ø          POP     HL                ;  & move DCT again
3435 111736     Ø868Ø          LD      DE,TMPDCT         ;  to store tempy
3438 Ø1ØAØØ     Ø869Ø          LD      BC,1Ø
343B EDBØ       Ø87ØØ          LDIR
                Ø871Ø          IF      @MOD2
                Ø872Ø          CALL    SELECT
                Ø873Ø          JP      NZ,IOERR          ;Go on error
                Ø874Ø          ENDIF
343D CDFF29     Ø875Ø          CALL    RESTOR            ;Restore to cyl Ø
344Ø C2A529     Ø876Ø          JP      NZ,IOERR          ;Go on error
3443 CDØ92A     Ø877Ø          CALL    RSELCT            ;Reselect drive
3446 C2A529     Ø878Ø          JP      NZ,IOERR          ;Go on error
3449 FDCBØ466   Ø879Ø          BIT     4,(IY+4)          ;Jump if alien controller
344D 2Ø4Ø       Ø88ØØ          JR      NZ,PFMT3
344F 218738     Ø881Ø          LD      HL,NOTRDY$        ;Init "drive not ready
```

Format Init Code

```
3452 CB7F       08820          BIT     7,A               ;Test FDC status for READY
3454 C2BC29     08830          JP      NZ,EXTERR         ;Quit if not ready
3457 21AC38     08840          LD      HL,NODRV$         ;Init "drive not in...
345A CB57       08850          BIT     2,A               ;Test FDC status for TRACK-0
345C CABC29     08860          JP      Z,EXTERR          ;  & error if not at track 0
345F CDEC35     08870          CALL    CKDRV             ;Ck if floppy not present
3462 20AE       08880          JR      NZ,PMTDST
3464 219738     08890          LD      HL,CANTWR$        ;Init "write protected..
3467 07         08900          RLCA                      ;Align to bit 7
3468 FDB603     08910          OR      (IY+3)            ;Combine with soft WP
346B E680       08920          AND     80H               ;WP error?
346D C2BC29     08930          JP      NZ,EXTERR         ;Can't format over WP
3470 3A1C26     08940          LD      A,(SYSPRM+1)      ;Don't check space needed
3473 B7         08950          OR      A                 ;  if SYSTEM info only
3474 2019       08960          JR      NZ,PFMT3
3476 210031     08970          LD      HL,FORMAT         ;Start of format buffer
3479 110000     08980 PFMT2    LD      DE,0              ;P/u format space needed
347C 19         08990          ADD     HL,DE             ;Pt to last addr needed
347D 54         09000          LD      D,H               ;Xfer to reg DE
347E 5D         09010          LD      E,L
347F 210000     09020          LD      HL,0              ;Set up for HIGH$ fetch
3482 45         09030          LD      B,L
3483            09040          @@HIGH$                   ;Make sure it won't wrap
3483 3E64       00127          LD      A,100
3485 EF         00128          RST     40
3486 AF         09050          XOR     A
3487 ED52       09060          SBC     HL,DE             ;  into protected memory
3489 216037     09070          LD      HL,NOMEM$         ;Init "insufficient mem..
348C DABC29     09080          JP      C,EXTERR          ;Quit if no memory available
348F 110000     09090 PFMT3    LD      DE,0              ;Init to cyl 0, sect 0
3492 CD272A     09100          CALL    VERSEC            ;Verify BOOT
3495 C24535     09110          JP      NZ,PFMT6          ;Assume unformatted if err
                09120 ;
                09130 ;        Appears formatted, is there SYSTEM information?
                09140 ;
3498 3A1C26     09150          LD      A,(SYSPRM+1)      ;Ignore data if SYSTEM
349B B7         09160          OR      A                 ;  info only
349C C24535     09170          JP      NZ,PFMT6
349F 210030     09180          LD      HL,HITBUF         ;Pt to i/o buffer
34A2 CD222A     09190          CALL    RDSEC             ;Now try to read BOOT
34A5 C2A529     09200          JP      NZ,IOERR          ;Jump on error
34A8            09210          @@LOGOT HASDAT$           ;Show "disk contains data
                00129          IFEQ    01H,1
34A8 21E338     00130          LD      HL,HASDAT$
                00131          ENDIF
34AB 3E0C       00132          LD      A,12
34AD EF         00133          RST     40
34AE 21FA38     09220          LD      HL,NOFMT$         ;Init "non-std format
                09230 ;
                09240 ;        BOOT was read, is there a valid directory pointer
                09250 ;
34B1 3A0230     09260          LD      A,(HITBUF+2)      ;P/u dir cyl # (possible)
34B4 FDBE06     09270          CP      (IY+6)            ;Check against max cyl #
34B7 3069       09280          JR      NC,PFMT5          ;Go if bigger (or =)
                09290 ;
                09300 ;        Read the assumed GAT & test it
                09310 ;
34B9 210030     09320          LD      HL,HITBUF
34BC 5D         09330          LD      E,L
```

Format Init Code

```
34BD 57                 LD      D,A             ;Pt to assumed GAT sector
34BE 21ØØ3Ø             LD      HL,HITBUF       ;Pt to buffer
34C1 CD222A             CALL    RDSEC           ;Read the sector
34C4 FEØ6               CP      6               ;Dir errcod returned?
34C6 28Ø5               JR      Z,PFMT4         ;Jump if yes & grab data
34C8 21ØE39             LD      HL,CANTRD$      ;Init "unreadable dir...
34CB 1855               JR      PFMT5
34CD 212339      PFMT4  LD      HL,NODIR$       ;Init "non-init dir
34DØ 3ADA3Ø             LD      A,(HITBUF+ØDAH) ;Check if date field
34D3 FE2F               CP      '/'             ;  is present
34D5 2Ø4B               JR      NZ,PFMT5        ;Jump if no
                 ;
                 ;      The directory is readable - request its MPW
                 ;
34D7 21DØ3Ø             LD      HL,HITBUF+ØDØH
34DA 114239             LD      DE,PACKID$+5    ;Move name & date into
34DD Ø1Ø8ØØ             LD      BC,8            ;  display message field
34EØ EDBØ               LDIR
34E2 115139             LD      DE,PACKID$+14H
34E5 ØEØ8               LD      C,8
34E7 EDBØ               LDIR
                 ;
                 ;      If MPW = "PASSWORD", just ck ABS
                 ;
34E9 2ACE3Ø             LD      HL,(HITBUF+ØCEH)        ;P/u disk MPW
34EC 11EØ42             LD      DE,PASSWORD     ;Password=PASSWORD
34EF AF                 XOR     A
34FØ ED52               SBC     HL,DE           ;Is it password?
34F2 213D39             LD      HL,PACKID$      ;Init"Name=, Date=
34F5 282B               JR      Z,PFMT5         ;If match, go check ABS
34F7                    @@LOGOT                 ;Log the ID field
                        IFEQ    ØØH,1
                        LD      HL,
                        ENDIF
34F7 3EØC               LD      A,12
34F9 EF                 RST     4Ø
34FA FDE5               PUSH    IY              ;Abort if in JCL
34FC                    @@FLAGS
34FC 3E65               LD      A,1Ø1
34FE EF                 RST     4Ø
34FF FDCB126E           BIT     5,(IY+'S'-'A')  ;Test if "DOing"
35Ø3 FDE1               POP     IY
35Ø5 C2B929             JP      NZ,FMTABT       ;Can't get PW if in JCL
                 ;
                 ;      User must enter Current Pack's MPW to proceed
                 ;
35Ø8 215A39      OLDMPW LD      HL,OLDMPW$      ;"What's the old MPW?
35ØB CD9535             CALL    INPMPW          ;Grab user input to match
35ØE 3ØF8               JR      NC,OLDMPW
351Ø 115736             LD      DE,MPWBUF
3513 CDB935             CALL    HASHMPW         ;Hash user entry
                 ;
                 ;      Routine to test master password for match
                 ;
3516 EB                 EX      DE,HL           ;Xfer hashed MPW to DE
3517 2ACE3Ø             LD      HL,(HITBUF+ØCEH)        ;Else grab pack MPW
351A AF                 XOR     A               ;Clear carry flag
351B ED52               SBC     HL,DE           ;Did user enter pack MPW?
351D C24536             JP      NZ,BADMPW       ;Abort if no match
```

Format Init Code

```
352Ø 1823                  JR      PFMT6
                 ;
                 ;         The directory was not readable - req assurance
                 ;
3522             PFMT5     @@LOGOT
                           IFEQ    ØØH,1
                           LD      HL,
                           ENDIF
3522 3EØC                  LD      A,12
3524 EF                    RST     4Ø
3525 11ØØØØ      APARM     LD      DE,Ø             ;ABS parameter
3528 1C                    INC     E
3529 281A                  JR      Z,PFMT6          ;Go if ABS used
352B FDE5                  PUSH    IY
352D                       @@FLAGS
352D 3E65                  LD      A,1Ø1
352F EF                    RST     4Ø
353Ø FDCB126E              BIT     5,(IY+'S'-'A')   ;Test if "DOing"
3534 FDE1                  POP     IY
3536 C2B929                JP      NZ,FMTABT        ;Abort if JCL but no ABS
3539 21B439                LD      HL,SURE?$        ;"are you sure...?
353C CD5D2A                CALL    GET3             ;Get response
353F 7E                    LD      A,(HL)
354Ø FE59                  CP      'Y'              ;If not Yes, abort
3542 C2B929                JP      NZ,FMTABT
3545 FDE5        PFMT6     PUSH    IY               ;Move drive code table
3547 D1                    POP     DE               ;  back into place
3548 211736                LD      HL,TMPDCT        ;  into system slot
354B Ø1ØAØØ                LD      BC,1Ø
354E EDBØ                  LDIR
355Ø CDFF29                CALL    RESTOR           ;Restore to cylinder Ø
3553 C2A529                JP      NZ,IOERR         ;Go on error
3556 C3Ø126                JP      GOFMT            ;Go and format it
                 ;
                 ;         Routine to set up the DCT for format
                 ;
3559 3A3D33      SETUP     LD      A,(PCYL2+1)      ;P/u the highest # cyl
355C FDCBØ36E              BIT     5,(IY+3)         ;If 8" drive, use 77
356Ø 28Ø2                  JR      Z,$+4            ;Go if only 5"
3562 3E4D                  LD      A,77             ;8" drives are 77 cyls
3564 3D                    DEC     A
3565 FD77Ø6                LD      (IY+6),A         ;Stuff in our DCT
3568 5E                    LD      E,(HL)           ;Grab address to
3569 23                    INC     HL               ;  master formatting table
356A 56                    LD      D,(HL)
356B 23                    INC     HL
356C ED53Ø926              LD      (FMTTBL+1),DE    ;Stuff for later use
357Ø 5E                    LD      E,(HL)           ;P/u DCT+7 data
3571 23                    INC     HL               ;Max sector, # of heads
3572 56                    LD      D,(HL)           ;P/u DCT+8 data, # of
3573 23                    INC     HL               ;  sectors/gran & grans/cyl
3574 FD73Ø7                LD      (IY+7),E         ;Stuff these values into
3577 FD72Ø8                LD      (IY+8),D         ;  our DCT
357A 5E                    LD      E,(HL)           ;P/u space needed for
357B 23                    INC     HL               ;  the formatting buffer
357C 56                    LD      D,(HL)
357D ED537A34              LD      (PFMT2+1),DE     ;  & stuff that for later
3581 C9                    RET
                 ;
```

Format Init Code

```
                1Ø38Ø ;        Convert decimal ASCII to binary
                1Ø39Ø ;
3582 1EØØ       1Ø4ØØ CVBIN    LD      E,Ø              ;Init value to Ø
3584 7E         1Ø41Ø CVB1     LD      A,(HL)           ;Get a character
3585 23         1Ø42Ø          INC     HL               ;Bump buff ptr
3586 D63Ø       1Ø43Ø          SUB     3ØH              ;Make binary
3588 47         1Ø44Ø          LD      B,A
3589 FEØA       1Ø45Ø          CP      ØAH              ;Was it a decimal digit?
358B 7B         1Ø46Ø          LD      A,E
358C DØ         1Ø47Ø          RET     NC               ;Return if not
358D 87         1Ø48Ø          ADD     A,A              ;Mult previous value X 1Ø
358E 87         1Ø49Ø          ADD     A,A
358F 83         1Ø5ØØ          ADD     A,E
359Ø 87         1Ø51Ø          ADD     A,A
3591 8Ø         1Ø52Ø          ADD     A,B              ;Add in new digit
3592 5F         1Ø53Ø          LD      E,A              ;Put results in E
3593 18EF       1Ø54Ø          JR      CVB1             ;Loop
                1Ø55Ø ;
3595            1Ø56Ø INPMPW   @@DSPLY
                ØØ148          IFEQ    ØØH,1
                ØØ149          LD      HL,
                ØØ15Ø          ENDIF
3595 3EØA       ØØ151          LD      A,1Ø
3597 EF         ØØ152          RST     4Ø
3598 215736     1Ø57Ø          LD      HL,MPWBUF        ;Use this buffer
359B Ø6Ø8       1Ø58Ø          LD      B,8              ;8 chars max
359D CD6B2A     1Ø59Ø          CALL    GET8A            ;Input the pswd
35AØ C8         1Ø6ØØ          RET     Z                ;Go if Enter only
35A1 EB         1Ø61Ø          EX      DE,HL
35A2 83         1Ø62Ø          ADD     A,E              ;Find where the X'ØD' was
35A3 6F         1Ø63Ø          LD      L,A              ;  stuffed & cover it
35A4 7A         1Ø64Ø          LD      A,D
35A5 CEØØ       1Ø65Ø          ADC     A,Ø
35A7 67         1Ø66Ø          LD      H,A
35A8 3EØ8       1Ø67Ø          LD      A,8              ;If 8 chars entered,
35AA 9Ø         1Ø68Ø          SUB     B
35AB 37         1Ø69Ø          SCF                      ;  done
35AC C8         1Ø7ØØ          RET     Z
35AD 47         1Ø71Ø          LD      B,A              ;  else pad the buffer
35AE 362Ø       1Ø72Ø FILLBLK  LD      (HL),' '         ;  w/spaces
35BØ 23         1Ø73Ø          INC     HL
35B1 1ØFB       1Ø74Ø          DJNZ    FILLBLK
35B3 37         1Ø75Ø          SCF
35B4 C9         1Ø76Ø          RET
                1Ø77Ø ;
35B5 CDBC35     1Ø78Ø CKMPW    CALL    CKMPWØ
35B8 CØ         1Ø79Ø          RET     NZ
                1Ø8ØØ ;
                1Ø81Ø ;        Hash a diskette password
                1Ø82Ø ;
35B9 3EE4       1Ø83Ø HASHMPW  LD      A,ØE4H           ;Use SYS2 routine
35BB EF         1Ø84Ø          RST     4Ø
                1Ø85Ø ;
35BC Ø6Ø8       1Ø86Ø CKMPWØ   LD      B,8              ;8 char to check
35BE D5         1Ø87Ø          PUSH    DE               ;Xfer start of PW
35BF E1         1Ø88Ø          POP     HL               ;  to HL
35CØ 7E         1Ø89Ø          LD      A,(HL)           ;P/u 1st char
35C1 18ØE       1Ø9ØØ          JR      CKMPW2           ;  & check <A-Z>
35C3 23         1Ø91Ø CKMPW1   INC     HL               ;Advance to next char
```

Format Init Code

```
35C4 7E         1Ø92Ø          LD      A,(HL)          ;P/u the char
35C5 FE2Ø       1Ø93Ø          CP      ' '
35C7 2818       1Ø94Ø          JR      Z,CKMPW7        ;Go on space
35C9 FE3Ø       1Ø95Ø          CP      'Ø'
35CB 3818       1Ø96Ø          JR      C,INVMPW        ;Bad if less than o
35CD FE3A       1Ø97Ø          CP      '9'+1           ;  or greater than 9
35CF 38Ø8       1Ø98Ø          JR      C,CKMPW3
35D1 FE41       1Ø99Ø CKMPW2   CP      'A'
35D3 381Ø       11ØØØ          JR      C,INVMPW        ;  but less than A
35D5 FE5B       11Ø1Ø          CP      'Z'+1
35D7 3ØØC       11Ø2Ø          JR      NC,INVMPW       ;More than Z also bad
35D9 1ØE8       11Ø3Ø CKMPW3   DJNZ    CKMPW1          ;Char ok, do another
35DB AF         11Ø4Ø          XOR     A               ;Set Z, PW good
35DC C9         11Ø5Ø          RET
                11Ø6Ø ;
35DD 23         11Ø7Ø CKMPW5   INC     HL              ;Next char position
35DE BE         11Ø8Ø          CP      (HL)            ;No imbedded spaces
35DF 2ØØ4       11Ø9Ø          JR      NZ,INVMPW
35E1 1ØFA       111ØØ CKMPW7   DJNZ    CKMPW5          ;Loop til 8 checked
35E3 AF         1111Ø          XOR     A               ;Set Z = PW good
35E4 C9         1112Ø          RET
                1113Ø ;
35E5 21DA39     1114Ø INVMPW   LD      HL,INVMPW$      ;Init "Invalid PW
35E8 3E3F       1115Ø          LD      A,63            ;Indicate extended error
35EA B7         1116Ø          OR      A               ;Set NZ condition
35EB C9         1117Ø          RET
                1118Ø ;
                1119Ø ;        Brief routine to check a drive for availability
                112ØØ ;
35EC 21ØØ3Ø     1121Ø CKDRV    LD      HL,HITBUF
35EF            1122Ø          @@TIME                  ;P/u the timer pointer
35EF 3E13       ØØ153          LD      A,19
35F1 EF         ØØ154          RST     4Ø
35F2 EB         1123Ø          EX      DE,HL           ;TIME$ to HL
35F3 2B         1124Ø          DEC     HL              ;TIMER$ to HL
35F4 7E         1125Ø          LD      A,(HL)          ;P/u current timer value
35F5 C6ØF       1126Ø          ADD     A,15            ;Set timeout to 5ØØms
35F7 57         1127Ø          LD      D,A             ;Save for test later
                1128Ø ;
                1129Ø ;        Test for diskette in drive & rotating
                113ØØ ;
35F8 CDØ836     1131Ø CKDR1    CALL    CKDR6           ;Test index pulse
35FB 2ØFB       1132Ø          JR      NZ,CKDR1        ;Jump on index
35FD CDØ836     1133Ø CKDR2    CALL    CKDR6           ;Test index pulse
36ØØ 28FB       1134Ø          JR      Z,CKDR2         ;Jump on no index
36Ø2 CDØ836     1135Ø CKDR2A   CALL    CKDR6
36Ø5 2ØFB       1136Ø          JR      NZ,CKDR2A       ;Jump on index
36Ø7 C9         1137Ø          RET
36Ø8 FB         1138Ø CKDR6    EI                      ;Make sure they're ON
36Ø9 7E         1139Ø          LD      A,(HL)          ;P/u latest TIMER$ value
36ØA 92         114ØØ          SUB     D               ;5ØØms passed?
36ØB 28Ø6       1141Ø          JR      Z,CKDR7
36ØD CDØ92A     1142Ø          CALL    RSELCT          ;Select & wait not busy
361Ø CB4F       1143Ø          BIT     1,A             ;Test index
3612 C9         1144Ø          RET
3613 D1         1145Ø CKDR7    POP     DE              ;Pop the ret address
3614 F6Ø1       1146Ø          OR      1               ;Set "Illegal drive #
3616 C9         1147Ø          RET                     ;With NZ
                1148Ø ;
```

```
                 1149Ø ;       Temporary storage space for format drive DCT
                 115ØØ ;
ØØØA             1151Ø TMPDCT  DS      1Ø
ØØØ8             1152Ø DCTCYL  DS      8                ;Default # cyls
                 1153Ø ;
                 1154Ø ;       Config table for single density 5"
                 1155Ø ;
3629             1156Ø TBLDATA EQU     $
3629 EA2A        1157Ø         DW      S5TBL,24Ø9H,3381
     Ø924 35ØD
                 1158Ø ;
                 1159Ø ;       Config table for double density 5"
                 116ØØ ;
362F 2A2B        1161Ø         DW      D5TBL,4511H,65Ø6
     1145 6A19
                 1162Ø ;
                 1163Ø ;       Config table for single density 8"
                 1164Ø ;
3635 812B        1165Ø         DW      S8TBL,27ØFH,5464
     ØF27 5815
                 1166Ø ;
                 1167Ø ;       Config table for double density 8"
                 1168Ø ;
363B C62B        1169Ø         DW      D8TBL,491DH,1Ø673
     1D49 B129
                 117ØØ ;
                 1171Ø ;       Parm error exit
                 1172Ø ;
3641 21F439      1173Ø BADNAM  LD      HL,BADNAM$
3644 DD          1174Ø         DB      ØDDH
3645 21DA39      1175Ø BADMPW  LD      HL,INVMPW$
3648 DD          1176Ø         DB      ØDDH
3649 214737      1177Ø NOTHARD LD      HL,HARD$
364C C3BC29      1178Ø         JP      EXTERR
364F 3E2C        1179Ø PRMERR  LD      A,44             ;Init Parm ERROR
3651 C3A529      118ØØ         JP      IOERR
                 1181Ø ;
                 1182Ø ;       Load SYS2 overlay
                 1183Ø ;
3654 3E84        1184Ø GETSYS2 LD      A,84H
3656 EF          1185Ø         RST     28H
                 1186Ø ;
3657 2Ø          1187Ø MPWBUF  DB      '        '
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
                 1188Ø PRMTBL$
ØØ8Ø             1189Ø VAL     EQU     8ØH
ØØ4Ø             119ØØ SW      EQU     4ØH
ØØ2Ø             1191Ø STR     EQU     2ØH
ØØ1Ø             1192Ø SGL     EQU     1ØH
366Ø 8Ø          1193Ø         DB      8ØH
3661 74          1194Ø         DB      SW!STR!SGL!4,'NAME',Ø
     4E 41 4D 45 ØØ
3666             1195Ø NRESP   EQU     $-1
3667 EB31        1196Ø         DW      NPARM+1
3669 73          1197Ø         DB      SW!STR!SGL!3,'MPW',Ø
     4D 5Ø 57 ØØ
366D             1198Ø MRESP   EQU     $-1
366E 3B32        1199Ø         DW      MPARM+1
367Ø 44          12ØØØ         DB      SW!4,'SDEN',Ø
     53 44 45 4E ØØ
```

Format Init Code

```
3676 8331      12Ø1Ø           DW      SDPARM+1
3678 44        12Ø2Ø           DB      SW!4,'DDEN',Ø
     44 44 45 4E ØØ
367E 8831      12Ø3Ø           DW      DDPARM+1
368Ø 85        12Ø4Ø           DB      VAL!5,'SIDES',Ø
     53 49 44 45 53 ØØ
3687 8D31      12Ø5Ø           DW      SIDES+1
3689 93        12Ø6Ø           DB      VAL!SGL!3,'CYL',Ø
     43 59 4C ØØ
368E 9231      12Ø7Ø           DW      CPARM+1
369Ø 84        12Ø8Ø           DB      VAL!4,'STEP',Ø
     53 54 45 5Ø ØØ
3696 9731      12Ø9Ø           DW      STEPARM+1
3698 53        121ØØ           DB      SW!SGL!3,'ABS',Ø
     41 42 53 ØØ
369D 2635      1211Ø           DW      APARM+1
369F 55        1212Ø           DB      SW!SGL!5,'QUERY',Ø
     51 55 45 52 59 ØØ
36A6 B132      1213Ø           DW      QPARM+1
36A8 46        1214Ø           DB      SW!6,'SYSTEM',Ø
     53 59 53 54 45 4D ØØ
36BØ 1C26      1215Ø           DW      SYSPRM+1
36B2 94        1216Ø           DB      VAL!SGL!4,'WAIT',Ø
     57 41 49 54 ØØ
36B8 2C27      1217Ø           DW      WAITPRM+1
36BA 93        1218Ø           DB      VAL!SGL!3,'DIR',Ø
     44 49 52 ØØ
36BF 1228      1219Ø           DW      DIRPARM+1
36C1 ØØ        122ØØ           NOP
               1221Ø ;
36C2 46        1222Ø HELLO$    DB      'FORMAT'
     4F 52 4D 41 54
36C8           1223Ø *GET      CLIENT:3
               1224Ø ;CLIENTS/ASM - File to establish sign-on headers
               1225Ø ;
36C8 2Ø        1226Ø           DB      ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
36F2 2Ø        1227Ø           DB      ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
               1228Ø ;
37Ø7 41        1229Ø           DB      'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
372F 2Ø        123ØØ           DB      ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
3747 43        1231Ø HARD$     DB      'Cannot "SYSTEM" a floppy',CR
     61 6E 6E 6F 74 2Ø 22 53
```

Format Init Code

```
     59 53 54 45 4D 22 2Ø 61
     2Ø 66 6C 6F 7Ø 7Ø 79 ØD
376Ø 49          1232Ø NOMEM$  DB      'Insufficient memory for '
     6E 73 75 66 66 69 63 69
     65 6E 74 2Ø 6D 65 6D 6F
     72 79 2Ø 66 6F 72 2Ø
3778 73          1233Ø         DB      'specified format',CR
     7Ø 65 63 69 66 69 65 64
     2Ø 66 6F 72 6D 61 74 ØD
3789 57          1234Ø WHDRV$  DB      'Which drive is to be used ? ',3
     68 69 63 68 2Ø 64 72 69
     76 65 2Ø 69 73 2Ø 74 6F
     2Ø 62 65 2Ø 75 73 65 64
     2Ø 3F 2Ø Ø3
37A6 44          1235Ø DSKNAM$ DB      'Diskette name ? ',3
     69 73 6B 65 74 74 65 2Ø
     6E 61 6D 65 2Ø 3F 2Ø Ø3
37B7 4D          1236Ø MPW$    DB      'Master password ? ',3
     61 73 74 65 72 2Ø 7Ø 61
     73 73 77 6F 72 64 2Ø 3F
     2Ø Ø3
37CA 4E          1237Ø NUMCYL$ DB      'Number of cylinders ? ',3
     75 6D 62 65 72 2Ø 6F 66
     2Ø 63 79 6C 69 6E 64 65
     72 73 2Ø 3F 2Ø Ø3
37E1 42          1238Ø STEP5$  DB      'Boot strap stepping rate '
     6F 6F 74 2Ø 73 74 72 61
     7Ø 2Ø 73 74 65 7Ø 7Ø 69
     6E 67 2Ø 72 61 74 65 2Ø
37FA 3C          1239Ø         DB      '<6, 12, 2Ø, 3Ø msecs> ? ',3
     36 2C 2Ø 31 32 2C 2Ø 32
     3Ø 2C 2Ø 33 3Ø 2Ø 6D 73
     65 63 73 3E 2Ø 3F 2Ø Ø3
3813 42          124ØØ STEP8$  DB      'Bootstrap stepping rate '
     6F 6F 74 73 74 72 61 7Ø
     2Ø 73 74 65 7Ø 7Ø 69 6E
     67 2Ø 72 61 74 65 2Ø
382B 3C          1241Ø         DB      '<3, 6, 1Ø, 15/2Ø msecs> ? ',3
     33 2C 2Ø 36 2C 2Ø 31 3Ø
     2C 2Ø 31 35 2F 32 3Ø 2Ø
     6D 73 65 63 73 3E 2Ø 3F
     2Ø Ø3
3846 45          1242Ø SIDES$  DB      'Enter number of sides <1,2> ? ',3
     6E 74 65 72 2Ø 6E 75 6D
     62 65 72 2Ø 6F 66 2Ø 73
     69 64 65 73 2Ø 3C 31 2C
     32 3E 2Ø 3F 2Ø Ø3
3865 53          1243Ø DEN?$   DB      'Single or Double density <S,D> ? ',3
     69 6E 67 6C 65 2Ø 6F 72
     2Ø 44 6F 75 62 6C 65 2Ø
     64 65 6E 73 69 74 79 2Ø
     3C 53 2C 44 3E 2Ø 3F 2Ø
     Ø3
3887 44          1244Ø NOTRDY$ DB      'Drive not ready',CR
     72 69 76 65 2Ø 6E 6F 74
     2Ø 72 65 61 64 79 ØD
3897 57          1245Ø CANTWR$ DB      'Write protected disk',CR
     72 69 74 65 2Ø 7Ø 72 6F
     74 65 63 74 65 64 2Ø 64
```

Format Init Code

```
     69 73 6B ØD
38AC 44         1246Ø NODRV$  DB      'Drive not in system',CR
     72 69 76 65 2Ø 6E 6F 74
     2Ø 69 6E 2Ø 73 79 73 74
     65 6D ØD
38CØ 4C         1247Ø PMTDST$ DB      'Load destination diskette  <ENTER>',CR
     6F 61 64 2Ø 64 65 73 74
     69 6E 61 74 69 6F 6E 2Ø
     64 69 73 6B 65 74 74 65
     2Ø 2Ø 3C 45 4E 54 45 52
     3E ØD
38E3 44         1248Ø HASDAT$ DB      'Disk contains data -- ',3
     69 73 6B 2Ø 63 6F 6E 74
     61 69 6E 73 2Ø 64 61 74
     61 2Ø 2D 2D 2Ø Ø3
38FA 4E         1249Ø NOFMT$  DB      'Non-standard format',CR
     6F 6E 2D 73 74 61 6E 64
     61 72 64 2Ø 66 6F 72 6D
     61 74 ØD
39ØE 55         125ØØ CANTRD$ DB      'Unreadable directory',CR
     6E 72 65 61 64 61 62 6C
     65 2Ø 64 69 72 65 63 74
     6F 72 79 ØD
3923 4E         1251Ø NODIR$  DB      'Non-initialized directory',CR
     6F 6E 2D 69 6E 69 74 69
     61 6C 69 7A 65 64 2Ø 64
     69 72 65 63 74 6F 72 79
     ØD
393D 4E         1252Ø PACKID$ DB      'Name=XXXXXXXX  Date=MM/DD/YY',CR
     61 6D 65 3D 58 58 58 58
     58 58 58 58 2Ø 2Ø 44 61
     74 65 3D 4D 4D 2F 44 44
     2F 59 59 ØD
395A 2Ø         1253Ø OLDMPW$ DB      '  Enter its Master Password'
     2Ø 45 6E 74 65 72 2Ø 69
     74 73 2Ø 4D 61 73 74 65
     72 2Ø 5Ø 61 73 73 77 6F
     72 64
3975 2Ø         1254Ø         DB      ' or <BREAK> to abort: ',3
     6F 72 2Ø 3C 42 52 45 41
     4B 3E 2Ø 74 6F 2Ø 61 62
     6F 72 74 3A 2Ø Ø3
398C 2A         1255Ø LASTMSG DB      '*** The target drive is a hard disk ***',LF
     2A 2A 2Ø 54 68 65 2Ø 74
     61 72 67 65 74 2Ø 64 72
     69 76 65 2Ø 69 73 2Ø 61
     2Ø 68 61 72 64 2Ø 64 69
     73 6B 2Ø 2A 2A 2A ØA
39B4 41         1256Ø SURE?$  DB      'Are you sure you want to format it ? ',3
     72 65 2Ø 79 6F 75 2Ø 73
     75 72 65 2Ø 79 6F 75 2Ø
     77 61 6E 74 2Ø 74 6F 2Ø
     66 6F 72 6D 61 74 2Ø 69
     74 2Ø 3F 2Ø Ø3
39DA ØA         1257Ø INVMPW$ DB      LF,'Invalid Master Password',LF,CR
     49 6E 76 61 6C 69 64 2Ø
     4D 61 73 74 65 72 2Ø 5Ø
     61 73 73 77 6F 72 64 ØA
     ØD
```

Format Init Code

```
39F4 49         1258Ø BADNAM$ DB      'Invalid Disk Name',CR
     6E 76 61 6C 69 64 2Ø 44
     69 73 6B 2Ø 4E 61 6D 65
     ØD
3AØ6 44         1259Ø PAKNAM$ DB      'DATADISK'
     41 54 41 44 49 53 4B
3AØE 5Ø         126ØØ PAKMPW$ DB      'PASSWORD'
     41 53 53 57 4F 52 44
                Ø852Ø ;
3A16            Ø853Ø         SUBTTL  <>
31ØØ            Ø854Ø         END     FORMAT
```

```
@@1            ØØØØ @@2            ØØØØ @@3            ØØØØ
@@4            ØØØØ @MOD2          ØØØØ @MOD4          FFFF
AFLOP          27D3 APARM          3525 BADMPW         3645
BADNAM         3641 BADNAM$        39F4 BFMT1          26A4
BFMT2          26A7 BFMT3          26CF BFMT4          26D5
BFMT5          26FE BGNFMT         2698 BGNVER         2735
BOOT           2FØØ BOOTDIR        2A9D BOOTST$        26ØØ
BREAK          29B9 BVER1          2747 BVER1Ø         27B2
BVER3          2767 BVER4          2768 BVER5          2771
BVER8          278A BVER9          27A9 CALC1          2823
CALC2          2836 CALC3          283A CALCDIR        28Ø6
CALCGPC        33E1 CANTRD$        39ØE CANTWR$        3897
CGPC1          33F4 CGPC2          33FF CGPC3          34Ø7
CHGDEN         32F5 CKDR1          35F8 CKDR2          35FD
CKDR2A         36Ø2 CKDR6          36Ø8 CKDR7          3613
CKDRV          35EC CKMPW          35B5 CKMPWØ         35BC
CKMPW1         35C3 CKMPW2         35D1 CKMPW3         35D9
CKMPW5         35DD CKMPW7         35E1 CKNAME         322B
CKWAIT         2724 CODE1          265F CODE1A         2661
CODF1          2669 CODF1A         266C CODF2          267Ø
CODF2A         2677 CODF3          267A CODF4          2682
CODF5          2657 CODRET         2665 CORE$          2FØØ
CPARM          3191 CR             ØØØD CRT3           3CØØ
CRT4           F8ØØ CVB1           3584 CVBIN          3582
CVD1           2A52 CVD2           2A59 CVDEC          2A5Ø
CYLGRN         2951 D5TBL          2B2A D8TBL          2BC6
DATADSK$       4329 DCTCYL         3621 DCTLP1         313A
DDPARM         3187 DEN?$          3865 DFTMPW         3245
DFTNAM         31F5 DIRASC$        2CC6 DIRCYL$        2CA1
DIRDIR         2ABD DIRPARM        2811 DIRSET         2821
DRVNOP         29F6 DSKNAM         3218 DSKNAM$        37A6
DSPCYL         2A89 ERREXIT        29C5 EXIT           29C8
EXIT2          29DF EXIT3          29ED EXIT4          29F4
EXTERR         29BC FILLBLK        35AE FMT1           3144
FMT2           316D FMT2A          3175 FMT2B          31E4
FMTABT         29B9 FMTABT$        2D24 FMTCAO$        2DØE
FMTCYL$        2C39 FMTDAT         2639 FMTDRV         2A2A
FMTG$          2C6E FMTHD          2A13 FMTTBL         26Ø8
FORMAT         31ØØ FORMATA        31Ø9 GATBUF         2EØØ
GDDEN1         32D7 GENSYS         284Ø GET3           2A5D
GET8           2A65 GET8A          2A6B GETDAT         3234
GETDEN         32B8 GETSYS2        3654 GETUC          2A77
GETUC1         2A82 GOFMT          26Ø1 GOTSTEP        33DD
GSDEN1         32E7 GSYS1          28F2 GSYS2          2981
GSYS3          298B HARD$          3747 HASDAT$        38E3
HASHMPW        35B9 HELLO$         36C2 HITBUF         3ØØØ
HRDRV          27C1 HRDRV1         27E5 INITDEN        328C
INPMPW         3595 INVMPW         35E5 INVMPW$        39DA
IOERR          29A5 IPLSYS$        2CC9 LASTMSG        398C
LF             ØØØA LSIID          28DB MOVFREE        2794
MOVMPW         324D MOVMPW1        325C MOVNAM         31FD
MOVNAM1        3211 MPARM          323A MPW            3263
MPW$           37B7 MPWBUF         3657 MRESP          366D
NOCYL$         2C7C NODIR          281E NODIR$         3923
NODRV$         38AC NOFMT$         38FA NOMEM$         376Ø
NOTFMT$        2D35 NOTHARD        3649 NOTRDY$        3887
NPARM          31EA NRESP          3666 NUMCYL$        37CA
OLDMPW         35Ø8 OLDMPW$        395A PACKID$        393D
```

```
PAKMPW$        3AØE PAKNAM$        3AØ6 PASSWORD       42EØ
PCYL1          333Ø PCYL2          333C PCYL3          3341
PCYL4          334F PFMT1          3432 PFMT2          3479
PFMT3          348F PFMT4          34CD PFMT5          3522
PFMT6          3545 PMTCYL         3329 PMTDST         3412
PMTDST$        38CØ PMTS1          331E PMTSIDE        32F8
PMTSTEP        3363 PMTSYS$        2CEF PRMERR         364F
PRMMRG         32AB PRMTBL$        366Ø PRSMPW         326B
PSTEP1         33D6 QPARM          32BØ RDSEC          2A22
RESTOR         29FF RETCOD         29C9 RLS            ØØ62
RSELCT         2AØ9 S5TBL          2AEA S8TBL          2B81
SAFESP         44ØØ SDPARM         3182 SECCYL         2AE8
SECSKEW        26A1 SECTRK         2AE9 SELECT         29FA
SETDDEN        32DE SETSDEN        32EE SETSTD         32A4
SETUP          3559 SGL            ØØ1Ø SIDES          318C
SIDES$         3846 SPSAV          29D8 STAR$          2C69
STEP5          3382 STEP5$         37E1 STEP8          33AC
STEP8$         3813 STEPARM        3196 STEPDFT        2AE7
STEPIN         2AØ4 STOP           4326 STR            ØØ2Ø
STRLEN         ØØ17 SURE?$         39B4 SW             ØØ4Ø
SYSDCT         2ADD SYSPRM         261B TBLDATA        3629
TMPDCT         3617 TRKSKEW        27Ø2 TSTSID         3323
VAL            ØØ8Ø VERCYL$        2C51 VERS1          2A3C
VERSEC         2A27 VERSKEW        2764 VERSYS         2A31
WAITPRM        272B WHDRV          3151 WHDRV$         3789
WRCYL          2AØE WRDIR          2A41 WRDIR1         2A44
WRGAT1         28DF WRSEC          2A18 WRSYS          2A1D
@@ABORT        BE7D @@ADTSK        BF1Ø @@BANK         C428
@@BKSP         C1Ø8 @@BREAK        C43E @@CHNIO        BE68
@@CKBRKC       C48C @@CKDRV        BF64 @@CKEOF        C11D
@@CKTSK        BEFB @@CLOSE        CØF3 @@CLS          C476
@@CMNDI        BEA7 @@CMNDR        BEBC @@CTL          BCCC
@@DATE         BE3E @@DCSTAT       BFA3 @@DEBUG        BEE6
@@DECHEX       C3A8 @@DIRRD        C315 @@DIRWR        C32A
@@DIV16        C393 @@DIV8         C37E @@DODIR        BF79
@@DSP          BC9Ø @@DSPLY        BD3Ø @@ERROR        BED1
@@EXIT         BE92 @@FEXT         C282 @@FLAGS        C412
@@FNAME        C297 @@FSPEC        C26D @@GATRD        C3ØØ
@@GATWR        C33F @@GET          BCA4 @@GTDCB        C2C1
@@GTDCT        C2AC @@GTMOD        C2D6 @@HDFMT        CØ4B
@@HEX16        C3E7 @@HEX8         C3D2 @@HEXDEC       C3BD
@@HIGH$        C3FC @@INIT         CØC9 @@KBD          BDØ8
@@KEY          BC7C @@KEYIN        BD1C @@KLTSK        BF4F
@@LOAD         C243 @@LOC          C132 @@LOF          C147
@@LOGER        BD67 @@LOGOT        BD7C @@MSG          BDB3
@@MUL16        C369 @@MUL8         C354 @@OPEN         CØDE
@@PARAM        BE29 @@PAUSE        BE14 @@PEOF         C15C
@@POSN         C171 @@PRINT        BDC8 @@PRT          BCEØ
@@PUT          BCB8 @@RAMDIR       BF8E @@RDSEC        CØ21
@@RDSSC        C2EB @@READ         C186 @@REMOV        CØB4
@@RENAM        CØ9F @@REW          C19B @@RMTSK        BF25
@@RPTSK        BF3A @@RREAD        C1BØ @@RSLCT        CØØC
@@RSTOR        BFCD @@RUN          C258 @@RWRIT        C1C5
@@SEEK         BFF7 @@SEEKSC       C1DA @@SKIP         C1EF
@@SLCT         BFB8 @@STEPI        BFE2 @@TIME         BE53
@@VDCTL        BDFF @@VER          C2Ø4 @@VRSEC        CØ36
@@WEOF         C219 @@WHERE        BCF4 @@WRITE        C22E
@@WRSEC        CØ6Ø @@WRSSC        CØ75 @@WRTRK        CØ8A
```

```
ØØØØØ Total errors
```

NOTES:

NOTES:

FORMS/FLT - Printer output formmating filter

The Forms filter allows formatting of data sent to the *PR device. It is installed with the SET and FILTER Library commands. Its parameters are adjusted with the FORMS Library command.

```
                ;FORMS/ASM - Printer Formatting Filter
ØØØØ                    TITLE   <FORMS/FLT - LS-DOS 6.2>
                ;
ØØØA            LF      EQU     1Ø
ØØØD            CR      EQU     13
                ;
ØØØØ            *GET    SVCMAC:3                ;SVC Macro equivalents
                ;SVCMAC/ASM - LS-DOS Version VI
                *LIST   OFF
                *LIST   ON
ØØØØ            *GET    COPYCOM:3               ;Copyright message
                ; COPYCOM - File for Copyright COMment block
                ;
ØØØØ                    COM     '<*(C) 1982,83,84 by LSI*>'
                ;
24ØØ                    ORG     24ØØH
                ;
                BEGIN
24ØØ                    @@CKBRKC                ;Check for break
24ØØ 3E6A               LD      A,1Ø6
24Ø2 EF                 RST     4Ø
24Ø3 28Ø4               JR      Z,BEGINA        ;Continue if no Break
24Ø5 21FFFF             LD      HL,-1
24Ø8 C9                 RET                     ;  else abort
                ;
24Ø9 D5         BEGINA  PUSH    DE              ;Save DCB address
24ØA DDE1               POP     IX              ;  in index reg
24ØC ED534B26           LD      (PFDCB),DE      ;  and in filter header
241Ø                    @@DSPLY HELLO$          ;Welcome the user
                        IFEQ    Ø1H,1
241Ø 212525             LD      HL,HELLO$
                        ENDIF
2413 3EØA               LD      A,1Ø
2415 EF                 RST     4Ø
                ;
                ;       Check if entry from SET command
                ;
2416                    @@FLAGS                 ;IY => flag table base
2416 3E65               LD      A,1Ø1
2418 EF                 RST     4Ø
2419 FDCBØ25E           BIT     3,(IY+'C'-'A')  ;System request?
241D CAØ525             JP      Z,VIASET        ;Quit if not
                ;
                ;       Check if filter is already resident
                ;
242Ø 112125             LD      DE,FF$          ;Check if filter is
2423                    @@GTMOD                 ;  already resident
2423 3E53               LD      A,83
2425 EF                 RST     4Ø
2426 EB                 EX      DE,HL           ;Put DCB ptr to HL
2427 2Ø23               JR      NZ,NOTRES       ;Go if not
                ;
                ;       Make sure that the new DCB is same as the old
                ;
2429 ED4B4B26           LD      BC,(PFDCB)      ;Replace DCB pointer
242D 79                 LD      A,C             ;  with new one
242E 4E                 LD      C,(HL)          ;P/u DCB pointer LSB
242F ØØ                 NOP
243Ø 23                 INC     HL
2431 78                 LD      A,B
2432 46                 LD      B,(HL)          ;P/u DCB pointer MSB
```

```
2433 21Ø6ØØ                  LD      HL,6            ;Get old DCB name &
2436 Ø9                      ADD     HL,BC           ;  stuff into error
2437 7E                      LD      A,(HL)          ;  message in case
2438 2C                      INC     L               ;  a different DCB
2439 66                      LD      H,(HL)          ;  is referenced
243A 6F                      LD      L,A
243B 22FB25                  LD      (DCBNAM$),HL    ;Stuff message with spec
243E B4                      OR      H
243F 2876                    JR      Z,ISRES
2441 2A4B26                  LD      HL,(PFDCB)      ;P/u DCB existing DCB
2444 B7                      OR      A               ;  pointer
2445 ED42                    SBC     HL,BC           ;Same DCB pointer?
2447 C2Ø925                  JP      NZ,DCBERR       ;Can't install if diff
244A 186B                    JR      ISRES
                   ;
                   ;         Module is not resident
                   ;
244C 114B49        NOTRES    LD      DE,'IK'
244F                         @@GTDCB                 ;Locate low memory ptr
244F 3E52                    LD      A,82
2451 EF                      RST     4Ø
2452 C21725                  JP      NZ,IOERR        ;Quit if not found
2455 2D                      DEC     L
2456 56                      LD      D,(HL)          ;P/u pointer to
2457 2D                      DEC     L               ;  start of free
2458 5E                      LD      E,(HL)          ;  low core
2459 ED53A724                LD      (LCPTR+1),DE    ;Save loc for later
245D E5                      PUSH    HL              ;Save low core ptr
245E 21Ø1Ø1                  LD      HL,PFEND-PFFLT
2461 19                      ADD     HL,DE           ;Start + driver length
2462 E5                      PUSH    HL
2463 2B                      DEC     HL              ;Point to last byte
2464 22DD24                  LD      (SVEND+1),HL
2467 Ø1ØØ13                  LD      BC,13ØØH        ;Max addr + 1
246A AF                      XOR     A
246B ED42                    SBC     HL,BC
246D D1                      POP     DE              ;Rcvr new lc
246E E1                      POP     HL              ;Rcvr low core ptr
246F 382F                    JR      C,PUTLOW        ;If room, put low
                   ;
                   ;         Check if high memory available
                   ;
2471                         @@FLAGS
2471 3E65                    LD      A,1Ø1
2473 EF                      RST     4Ø
2474 FDCBØ246                BIT     Ø,(IY+'C'-'A')  ;Memory frozen?
2478 C2ØD25                  JP      NZ,NOROOM       ;"No memory...
247B 21ØØØØ                  LD      HL,Ø            ;Get HIGH$
247E 45                      LD      B,L
247F                         @@HIGH$
247F 3E64                    LD      A,1ØØ
2481 EF                      RST     4Ø
2482 22DD24                  LD      (SVEND+1),HL    ;Save for relocator
2485 5D                      LD      E,L             ;Xfer new last
2486 54                      LD      D,H             ;  to reg DE
2487 AF                      XOR     A               ;Calc new start
2488 Ø1Ø1Ø1                  LD      BC,PFEND-PFFLT  ;BC = filter len
248B ED42                    SBC     HL,BC
248D Ø6ØØ                    LD      B,Ø
248F                         @@HIGH$                 ;Set new HIGH$
248F 3E64                    LD      A,1ØØ
```

```
2491 EF                         RST     4Ø
2492 23                         INC     HL              ;Point to new start
2493 EB                         EX      DE,HL
2494 D5                         PUSH    DE
2495 CDD624                     CALL    RELO            ;Relocate internal references
2498 D1                         POP     DE
2499 3EFF                       LD      A,ØFFH
249B 32C824                     LD      (HGHFLG),A      ;Flag to notify user
249E 18Ø9                       JR      MOVMOD          ;  himem used
                       ;
                       ;        Room in low core - move driver low
                       ;
24AØ 73                PUTLOW   LD      (HL),E          ;Stuff low core ptr
24A1 2C                         INC     L               ;  with new low
24A2 72                         LD      (HL),D
24A3 CDD624                     CALL    RELO            ;Relocate vectors
24A6 11ØØØØ            LCPTR    LD      DE,$-$          ;Low core pointer
                       ;
                       ;        Move module to memory
                       ;
24A9 D5                MOVMOD   PUSH    DE              ;Save start
24AA 214326                     LD      HL,PFFLT
24AD Ø1Ø1Ø1                     LD      BC,PFEND-PFFLT  ;Calc driver length
24BØ EDBØ                       LDIR
24B2 D1                         POP     DE              ;Pop filter start
24B3 FDCBØ3EE                   SET     5,(IY+'D'-'A')  ;Set PF in DFLAG$
                       ;
24B7 21FE25            ISRES    LD      HL,PFACT$       ;Init "FORMS installed
24BA DD36ØØ47                   LD      (IX),4ØH!7      ;Init DCB type to "C/P/G"
24BE DD73Ø1                     LD      (IX+1),E        ;  & filter & stuff the
24C1 DD72Ø2                     LD      (IX+2),D        ;  filter address
24C4                            @@LOGOT                 ;Display installation
                                IFEQ    ØØH,1
                                LD      HL,
                                ENDIF
24C4 3EØC                       LD      A,12
24C6 EF                         RST     4Ø
24C7 3EØØ                       LD      A,$-$
24C8                   HGHFLG   EQU     $-1             ;Flag filter went high
24C9 B7                         OR      A               ;Skip if not set
24CA 28Ø6                       JR      Z,NTHGH
24CC 211B26                     LD      HL,HMEM$        ;  else show "Went in himem
24CF                            @@LOGOT
                                IFEQ    ØØH,1
                                LD      HL,
                                ENDIF
24CF 3EØC                       LD      A,12
24D1 EF                         RST     4Ø
24D2 21ØØØØ            NTHGH    LD      HL,Ø            ;No error
24D5 C9                         RET                     ;Done, back to user
                       ;
                       ;        Relocate internal references in driver
                       ;
24D6 DDE5              RELO     PUSH    IX
24D8 DD214427                   LD      IX,RELTAB       ;Point to relocation tbl
24DC 21ØØØØ            SVEND    LD      HL,$-$          ;Find distance to move
24DF 224526                     LD      (PFFLT+2),HL    ;Set last byte used
24E2 114327                     LD      DE,PFEND-1
24E5 B7                         OR      A               ;Clear carry flag
24E6 ED52                       SBC     HL,DE
24E8 44                         LD      B,H             ;Move to BC
```

```
24E9 4D         Ø158Ø         LD      C,L
24EA 3EØE       Ø159Ø         LD      A,TABLEN         ;Get table length
24EC DD6EØØ     Ø16ØØ RLOOP   LD      L,(IX)           ;Get address to change
24EF DD66Ø1     Ø161Ø         LD      H,(IX+1)
24F2 5E         Ø162Ø         LD      E,(HL)           ;P/U address
24F3 23         Ø163Ø         INC     HL
24F4 56         Ø164Ø         LD      D,(HL)
24F5 EB         Ø165Ø         EX      DE,HL            ;Offset it
24F6 Ø9         Ø166Ø         ADD     HL,BC
24F7 EB         Ø167Ø         EX      DE,HL
24F8 72         Ø168Ø         LD      (HL),D           ;Put it back
24F9 2B         Ø169Ø         DEC     HL
24FA 73         Ø17ØØ         LD      (HL),E
24FB DD23       Ø171Ø         INC     IX
24FD DD23       Ø172Ø         INC     IX
24FF 3D         Ø173Ø         DEC     A
25ØØ 2ØEA       Ø174Ø         JR      NZ,RLOOP         ;Loop till done
25Ø2 DDE1       Ø175Ø         POP     IX
25Ø4 C9         Ø176Ø         RET
                Ø177Ø ;
                Ø178Ø ;       Error exits
                Ø179Ø ;
25Ø5 21BØ25     Ø18ØØ VIASET  LD      HL,VIASET$       ;"Install with Set
25Ø8 DD         Ø181Ø         DB      ØDDH
25Ø9 21DF25     Ø182Ø DCBERR  LD      HL,DCBERR$       ;"Filter in use
25ØC DD         Ø183Ø         DB      ØDDH
25ØD 21C525     Ø184Ø NOROOM  LD      HL,NOROOM$       ;"Memory frozen
251Ø            Ø185Ø         @@LOGOT                  ;Show the error
                ØØØ3Ø         IFEQ    ØØH,1
                ØØØ31         LD      HL,
                ØØØ32         ENDIF
251Ø 3EØC       ØØØ33         LD      A,12
2512 EF         ØØØ34         RST     4Ø
2513 21FFFF     Ø186Ø         LD      HL,-1            ;Set abort code
2516 C9         Ø187Ø         RET
                Ø188Ø ;
2517 6F         Ø189Ø IOERR   LD      L,A              ;Error # to HL
2518 26ØØ       Ø19ØØ         LD      H,Ø
251A F6CØ       Ø191Ø         OR      ØCØH             ;Abbrev, return
251C 4F         Ø192Ø         LD      C,A              ;Error code to C
251D            Ø193Ø         @@ERROR                  ;  for error display
251D 3E1A       ØØØ35         LD      A,26
251F EF         ØØØ36         RST     4Ø
252Ø C9         Ø194Ø         RET
                Ø195Ø ;
                Ø196Ø ;       Messages & Data tables
                Ø197Ø ;
2521 24         Ø198Ø FF$     DB      '$FF',3
     46 46 Ø3
2525 46         Ø199Ø HELLO$  DB      'FORMS Filter'
     4F 52 4D 53 2Ø 46 69 6C
     74 65 72
2531            Ø2ØØØ *GET    CLIENT:3
                Ø395Ø ;CLIENTS/ASM - File to establish sign-on headers
                Ø396Ø ;
2531 2Ø         Ø397Ø         DB      ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
255B 2Ø         Ø398Ø          DB       ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
                Ø399Ø ;
257Ø 41         Ø4ØØØ          DB       'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
2598 2Ø         Ø4Ø1Ø          DB       ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
                Ø2Ø1Ø ;
25BØ 4D         Ø2Ø2Ø VIASET$ DB       'Must install via SET',CR
     75 73 74 2Ø 69 6E 73 74
     61 6C 6C 2Ø 76 69 61 2Ø
     53 45 54 ØD
25C5 4E         Ø2Ø3Ø NOROOM$ DB       'No memory space available',CR
     6F 2Ø 6D 65 6D 6F 72 79
     2Ø 73 7Ø 61 63 65 2Ø 61
     76 61 69 6C 61 62 6C 65
     ØD
25DF 46         Ø2Ø4Ø DCBERR$ DB       'Filter already attached to *xx',CR
     69 6C 74 65 72 2Ø 61 6C
     72 65 61 64 79 2Ø 61 74
     74 61 63 68 65 64 2Ø 74
     6F 2Ø 2A 78 78 ØD
25FB            Ø2Ø5Ø DCBNAM$ EQU      $-3
25FE 46         Ø2Ø6Ø PFACT$  DB       'Forms filter is now resident',CR
     6F 72 6D 73 2Ø 66 69 6C
     74 65 72 2Ø 69 73 2Ø 6E
     6F 77 2Ø 72 65 73 69 64
     65 6E 74 ØD
261B ØA         Ø2Ø7Ø HMEM$   DB       LF,'Note: filter installed in high memory.',CR
     4E 6F 74 65 3A 2Ø 66 69
     6C 74 65 72 2Ø 69 6E 73
     74 61 6C 6C 65 64 2Ø 69
     6E 2Ø 68 69 67 68 2Ø 6D
     65 6D 6F 72 79 2E ØD
                Ø2Ø8Ø ;
                Ø2Ø9Ø ;
                Ø21ØØ ;       Printer Filter - PF
                Ø211Ø ;       Provides hard or soft form feed, line wraparound,
                Ø212Ø ;       automatic form feeds between pages, tabs, blank
                Ø213Ø ;       lines, 1 byte translation table, left margins,
                Ø214Ø ;       and set-top-of-form character.
                Ø215Ø ;
                Ø216Ø *MOD
ØØØ3            Ø217Ø PFBIT   EQU      3                  ;Position in DFLAG
ØØØØ            Ø218Ø SPLBIT  EQU      Ø                  ;Position in DFLAG
ØØØA            Ø219Ø LF      EQU      1Ø
ØØØD            Ø22ØØ CR      EQU      13
                Ø221Ø ;
2643 1814       Ø222Ø PFFLT   JR       PFBGN              ;Branch around header
2645 4327       Ø223Ø         DW       PFEND-1            ;Last byte used
2647 Ø3         Ø224Ø         DB       3,'$FF'            ;Name length/name
     24 46 46
```

```
264B 0000      PFDCB   DW      $-$             ;Link to DCB
264D 0000              DW      0
               ;
               ;       Filter data area
               ;
264F           PFDATA$ EQU     $
0000           PMAX    EQU     $-PFDATA$
264F 42                DB      66              ;Page size (max lines per page)
0001           LCOUNT  EQU     $-PFDATA$
2650 00                DB      0               ;Line counter
0002           LMAX    EQU     $-PFDATA$
2651 42                DB      66              ;Max lines to print
0003           CCOUNT  EQU     $-PFDATA$
2652 00                DB      0               ;Chars per line printed
0004           XL1     EQU     $-PFDATA$
2653 00                DB      0               ;Translate from
0005           XL2     EQU     $-PFDATA$
2654 00                DB      0               ;Translate to
0006           INDENT  EQU     $-PFDATA$
2655 00                DB      0               ;Indent after line wraparound
0007           ADDLF   EQU     $-PFDATA$
2656 04                DB      4               ;Bit-0, LF after CR; bit-1=FF
                                               ;Bit-2, TAB expand (1)
0008           CMAX    EQU     $-PFDATA$
2657 00                DB      0               ;Max CPL before wraparound
0009           MARGIN  EQU     $-PFDATA$
2658 00                DB      0               ;Left hand margin
               ;
               ;       Start of filter
               ;
2659 281A      PFBGN   JR      Z,FFENTRY       ;Go if @PUT
265B 11                DB      011H            ;Ignore next inst if not
265C 0602      PFPUT   LD      B,2             ;Init for @PUT
265E DDE5              PUSH    IX
2660 DD2A4B26          LD      IX,(PFDCB)      ;Grab the DCB vector
2662           RX01    EQU     $-2
2664                   @@CHNIO                 ;  & chain to it
2664 3E14              LD      A,20
2666 EF                RST     40
2667 DDE1              POP     IX
2669 C9                RET
               ;
               ;       Peform the tab function
               ;
266A DD7E03    DOTAB   LD      A,(IX+CCOUNT)   ;How many spaces to
266D E607              AND     7               ;  next tab stop?
266F D608              SUB     8
2671 ED44              NEG
2673 1867              JR      @INDENT         ;Space over to it
               ;
               ;       Filter code
               ;
2675 DD214F26  FFENTRY LD      IX,PFDATA$      ;Base register
2677           RX02    EQU     $-2
               ;
2679 DD7E04    CKXLAT  LD      A,(IX+XL1)      ;Get xlate in
267C B9                CP      C               ;Translate this char?
267D 2004              JR      NZ,CONT         ;Go if not xlated char
267F DD7E05            LD      A,(IX+XL2)      ;Xlated to this
2682 4F                LD      C,A
2683 79        CONT    LD      A,C             ;P/u char to test
```

```
2684 FE0C       02840         CP      0CH               ;Form feed?
2686 CA1B27     02850         JP      Z,DOTOF
2687            02860 RX14    EQU     $-2
2689 FE06       02870         CP      6                 ;SET TOF?
268B CA3E27     02880         JP      Z,SETTOF
268C            02890 RX03    EQU     $-2
268E FE0D       02900         CP      CR                ;CR?
2690 287A       02910         JR      Z,DOCRLF
2692 FE0A       02920         CP      LF                ;LF?
2694 2876       02930         JR      Z,DOCRLF
2696 DD7E09     02940         LD      A,(IX+MARGIN)     ;Left margin to do?
2699 B7         02950         OR      A
269A 280B       02960         JR      Z,NOMARG          ;Go if not
269C DD3403     02970         INC     (IX+CCOUNT)       ;Check current char count
269F DD3503     02980         DEC     (IX+CCOUNT)       ;If at newline,
26A2 C5         02990         PUSH    BC
26A3 CCDC26     03000         CALL    Z,@INDENT         ;  need a margin now
26A4            03010 RX13    EQU     $-2
26A6 C1         03020         POP     BC
26A7 79         03030 NOMARG  LD      A,C               ;P/u character again
26A8 DDCB0756   03040         BIT     2,(IX+ADDLF)      ;Expand tabs?
26AC 2804       03050         JR      Z,CONTA
26AE FE09       03060         CP      9                 ;Tab?
26B0 28B8       03070         JR      Z,DOTAB
26B2 FE20       03080 CONTA   CP      20H               ;Other control code?
26B4 38A6       03090         JR      C,PFPUT           ;Pass on unchanged if so
                03100 ;
                03110 ;       Got a character to output
                03120 ;
26B6 C5         03130 PUTCHAR PUSH    BC                ;Save character
26B7 CDC026     03140         CALL    SETUP             ;Setup for next char
26B8            03150 RX12    EQU     $-2
26BA C1         03160         POP     BC
26BB C0         03170         RET     NZ                ;Quit on error
26BC CC5C26     03180         CALL    Z,PFPUT           ;Now put the char
26BD            03190 RX04    EQU     $-2
26BF C9         03200         RET
                03210 ;
                03220 ;       Do the end of line check
                03230 ;
26C0 DD3403     03240 SETUP   INC     (IX+CCOUNT)       ;Inc char counter
26C3 DD7E08     03250         LD      A,(IX+CMAX)       ;Wraparound needed?
26C6 A7         03260         AND     A
26C7 C8         03270         RET     Z                 ;Quit if feature is off
26C8 DDBE03     03280         CP      (IX+CCOUNT)
26CB 3075       03290         JR      NC,EXITZ          ;Done if not needed
26CD CD0C27     03300         CALL    DOCRLF            ;Do carriage return
26CE            03310 RX05    EQU     $-2
26D0 C0         03320         RET     NZ
26D1 DD3403     03330         INC     (IX+CCOUNT)       ;Adjust char counter
                03340 ;
                03350 ;       Check on indent needed
                03360 ;
26D4 DD7E06     03370         LD      A,(IX+INDENT)     ;P/u indent
26D7 DD8609     03380         ADD     A,(IX+MARGIN)     ;Add in the MARGIN
26DA B7         03390         OR      A
26DB C8         03400         RET     Z                 ;Done if none
26DC C5         03410 @INDENT PUSH    BC                ;In case of recursive
26DD 47         03420         LD      B,A               ;  calls
26DE 0E20       03430         LD      C,' '             ;Print spaces
26E0 C5         03440 SPACES  PUSH    BC                ;Save counter
```

```
26E1 AF                      XOR     A
26E2 CDB626                  CALL    PUTCHAR          ;Put the character
26E3               RX06      EQU     $-2
26E5 C1                      POP     BC               ;Recover counter
26E6 2002                    JR      NZ,$+4           ;Exit on PUT error
26E8 10F6                    DJNZ    SPACES
26EA C1                      POP     BC
26EB C9                      RET
26EC DDCB0746      LINFEED   BIT     0,(IX+ADDLF)
26F0 2808                    JR      Z,DOWN1          ;Go if hardware auto-LF
26F2 0E0D                    LD      C,CR             ;Else do CR and LF
26F4 CD5C26                  CALL    PFPUT
26F5               RX11      EQU     $-2
26F7 C0                      RET     NZ
26F8 1808                    JR      DOWNLF
26FA DD7E03        DOWN1     LD      A,(IX+CCOUNT)
26FD A7                      AND     A                ;Line empty?
26FE 0E0D                    LD      C,CR             ;Do CR if not
2700 2002                    JR      NZ,DOWNCR
2702 0E0A          DOWNLF    LD      C,LF             ;Do LF if so
2704 CD5C26        DOWNCR    CALL    PFPUT
2705               RX07      EQU     $-2
2707 DD360300                LD      (IX+CCOUNT),0    ;Starting new line
270B C9                      RET
                   ;
270C CDEC26        DOCRLF    CALL    LINFEED          ;CRLF & check if page end
270D               RX08      EQU     $-2
270F C0                      RET     NZ
                   ;
2710 DD3401                  INC     (IX+LCOUNT)
2713 DD7E01                  LD      A,(IX+LCOUNT)    ;Time to do form feed?
2716 DDBE02                  CP      (IX+LMAX)
2719 3827                    JR      C,EXITZ          ;Return if not
                   ;
271B DD7E00        DOTOF     LD      A,(IX+PMAX)      ;How many lines to feed?
271E DD9601                  SUB     (IX+LCOUNT)
2721 281B                    JR      Z,SETTOF         ;Skip if zero
2723 C5                      PUSH    BC               ;In case called by DOTAB
2724 47                      LD      B,A
2725 DDCB074E                BIT     1,(IX+ADDLF)     ;Hardware form feed?
2729 2807                    JR      Z,SOFTFF         ;Go if not
272B 0E0C                    LD      C,0CH            ;  else load up TOF char
272D CD5C26                  CALL    PFPUT            ;  and send it
272E               RX09      EQU     $-2
2730 180B                    JR      FFEXIT
2732 C5            SOFTFF    PUSH    BC
2733 CDEC26                  CALL    LINFEED          ;Do LF's
2734               RX10      EQU     $-2
2736 C1                      POP     BC
2737 2802                    JR      Z,CHRGONE        ;This linefeed sent OK
2739 C1                      POP     BC               ;  else clean stack
273A C9                      RET                      ;  and return error
273B 10F5          CHRGONE   DJNZ    SOFTFF
273D C1            FFEXIT    POP     BC
                   ;
                   ;         Set the top-of-form
                   ;
273E DD360100      SETTOF    LD      (IX+LCOUNT),0    ;Reset line counter
2742 BF            EXITZ     CP      A
2743 C9                      RET
                   ;
```

```
2744           Ø4Ø6Ø PFEND   EQU     $
               Ø4Ø7Ø ;
2744 6226      Ø4Ø8Ø RELTAB  DW      RXØ1,RXØ2,RXØ3,RXØ4,RXØ5,RXØ6,RXØ7,RXØ8
     7726 8C26 BD26 CE26 E326 Ø527 ØD27
2754 2E27      Ø4Ø9Ø         DW      RXØ9,RX1Ø,RX11,RX12,RX13,RX14
     3427 F526 B826 A426 8726
ØØØE           Ø41ØØ TABLEN  EQU     $-RELTAB/2
               Ø411Ø ;
24ØØ           Ø412Ø         END     BEGIN
```

```
@@1            ØØØØ @@2           ØØØØ @@3           ØØØØ
@@4            ØØØØ @INDENT       26DC @MOD2         ØØØØ
@MOD4          FFFF ADDLF         ØØØ7 BEGIN         24ØØ
BEGINA         24Ø9 CCOUNT        ØØØ3 CHRGONE       273B
CKXLAT         2679 CMAX          ØØØ8 CONT          2683
CONTA          26B2 CR            ØØØD DCBERR        25Ø9
DCBERR$        25DF DCBNAM$       25FB DOCRLF        27ØC
DOTAB          266A DOTOF         271B DOWN1         26FA
DOWNCR         27Ø4 DOWNLF        27Ø2 EXITZ         2742
FF$            2521 FFENTRY       2675 FFEXIT        273D
HELLO$         2525 HGHFLG        24C8 HMEM$         261B
INDENT         ØØØ6 IOERR         2517 ISRES         24B7
LCOUNT         ØØØ1 LCPTR         24A6 LF            ØØØA
LINFEED        26EC LMAX          ØØØ2 MARGIN        ØØØ9
MOVMOD         24A9 NOMARG        26A7 NOROOM        25ØD
NOROOM$        25C5 NOTRES        244C NTHGH         24D2
PFACT$         25FE PFBGN         2659 PFBIT         ØØØ3
PFDATA$        264F PFDCB         264B PFEND         2744
PFFLT          2643 PFPUT         265C PMAX          ØØØØ
PUTCHAR        26B6 PUTLOW        24AØ RELO          24D6
RELTAB         2744 RLOOP         24EC RXØ1          2662
RXØ2           2677 RXØ3          268C RXØ4          26BD
RXØ5           26CE RXØ6          26E3 RXØ7          27Ø5
RXØ8           27ØD RXØ9          272E RX1Ø          2734
RX11           26F5 RX12          26B8 RX13          26A4
RX14           2687 SETTOF        273E SETUP         26CØ
SOFTFF         2732 SPACES        26EØ SPLBIT        ØØØØ
SVEND          24DC TABLEN        ØØØE VIASET        25Ø5
VIASET$        25BØ XL1           ØØØ4 XL2           ØØØ5
@@ABORT        8FAE @@ADTSK       9Ø41 @@BANK        9559
@@BKSP         9239 @@BREAK       956F @@CHNIO       8F99
@@CKBRKC       95BD @@CKDRV       9Ø95 @@CKEOF       924E
@@CKTSK        9Ø2C @@CLOSE       9224 @@CLS         95A7
@@CMNDI        8FD8 @@CMNDR       8FED @@CTL         8DFD
@@DATE         8F6F @@DCSTAT      9ØD4 @@DEBUG       9Ø17
@@DECHEX       94D9 @@DIRRD       9446 @@DIRWR       945B
@@DIV16        94C4 @@DIV8        94AF @@DODIR       9ØAA
@@DSP          8DC1 @@DSPLY       8E61 @@ERROR       9ØØ2
@@EXIT         8FC3 @@FEXT        93B3 @@FLAGS       9543
@@FNAME        93C8 @@FSPEC       939E @@GATRD       9431
@@GATWR        947Ø @@GET         8DD5 @@GTDCB       93F2
@@GTDCT        93DD @@GTMOD       94Ø7 @@HDFMT       917C
@@HEX16        9518 @@HEX8        95Ø3 @@HEXDEC      94EE
@@HIGH$        952D @@INIT        91FA @@KBD         8E39
@@KEY          8DAD @@KEYIN       8E4D @@KLTSK       9Ø8Ø
@@LOAD         9374 @@LOC         9263 @@LOF         9278
@@LOGER        8E98 @@LOGOT       8EAD @@MSG         8EE4
@@MUL16        949A @@MUL8        9485 @@OPEN        92ØF
@@PARAM        8F5A @@PAUSE       8F45 @@PEOF        928D
@@POSN         92A2 @@PRINT       8EF9 @@PRT         8E11
@@PUT          8DE9 @@RAMDIR      9ØBF @@RDSEC       9152
@@RDSSC        941C @@READ        92B7 @@REMOV       91E5
@@RENAM        91DØ @@REW         92CC @@RMTSK       9Ø56
@@RPTSK        9Ø6B @@RREAD       92E1 @@RSLCT       913D
@@RSTOR        9ØFE @@RUN         9389 @@RWRIT       92F6
@@SEEK         9128 @@SEEKSC      93ØB @@SKIP        932Ø
@@SLCT         9ØE9 @@STEPI       9113 @@TIME        8F84
@@VDCTL        8F3Ø @@VER         9335 @@VRSEC       9167
@@WEOF         934A @@WHERE       8E25 @@WRITE       935F
@@WRSEC        9191 @@WRSSC       91A6 @@WRTRK       91BB
```

```
24ØØ is the transfer address
ØØØØØ Total errors
```

NOTES:

NOTES:

KSM/FLT - Keystroke multiply filter

The KSM filter allows multiple characters or lines to be assigned to an alphabetic key. It must be installed with the SET and FILTER Library commands. It will install in high memory, and will not attempt to use the low driver zone.

```
               00100 ;KSM/ASM - Keystroke Multiply Filter
0000           00110          TITLE   <KSM/FLT - LS-DOS 6.2>
               00120 ;
000A           00130 LF       EQU     10
000D           00140 CR       EQU     13
               00150 ;
0000           00160 *GET     SVCMAC:3                ;SVC Macro equivalents
               00010 ;SVCMAC/ASM - LS-DOS Version VI
               00020 *LIST    OFF
               03900 *LIST    ON
0000           00170 *GET     COPYCOM:3               ;Copyright message
               03920 ; COPYCOM - File for Copyright COMment block
               03930 ;
0000           03940          COM     '<*(C) 1982,83,84 by LSI*>'
               00180 ;
2400           00190          ORG     2400H
               00200 ;
               00210 KSM
2400           00220          @@CKBRKC                ;Check for break
2400 3E6A      00001          LD      A,106
2402 EF        00002          RST     40
2403 2804      00230          JR      Z,KSMA          ;Contine if not
2405 21FFFF    00240          LD      HL,-1           ;  else abort
2408 C9        00250          RET
               00260 ;
2409 ED53CA27  00270 KSMA     LD      (KSMDCB),DE     ;Save ptr to DCB
240D E5        00280          PUSH    HL              ;Save ptr to cmdline buf
240E           00290          @@DSPLY HELLO$          ;Display copyright msg
               00003          IFEQ    01H,1
240E 217225    00004          LD      HL,HELLO$
               00005          ENDIF
2411 3E0A      00006          LD      A,10
2413 EF        00007          RST     40
2414           00300          @@FLAGS                 ;Get flags
2414 3E65      00008          LD      A,101
2416 EF        00009          RST     40
2417 E1        00310          POP     HL              ;Rcvr cmndline pointer
               00320 ;
               00330 ;        Check if entry from SET command
               00340 ;
2418 FDCB025E  00350          BIT     3,(IY+'C'-'A')  ;System request?
241C CA4B25    00360          JP      Z,VIASET        ;Quit if not
241F 11A126    00370          LD      DE,KSMFCB       ;Point to FCB
2422           00380          @@FSPEC                 ;Fetch the KSM filespec
2422 3E4E      00010          LD      A,78
2424 EF        00011          RST     40
2425 C25725    00390          JP      NZ,SPCREQ       ;Jump on bad spec
2428 D5        00400          PUSH    DE              ;Save FCB pointer
2429 119626    00410          LD      DE,PRMTBL$      ;Load param table pointer
242C           00420          @@PARAM                 ;Parse parms
242C 3E11      00012          LD      A,17
242E EF        00013          RST     40
242F D1        00430          POP     DE              ;Recover FCB pointer
2430 C26325    00440          JP      NZ,IOERR        ;Go on parm error
2433 217225    00450          LD      HL,DFTKSM       ;Init to default ext
2436           00460          @@FEXT                  ;Fetch if not entered
2436 3E4F      00014          LD      A,79
2438 EF        00015          RST     40
               00470 ;
               00480 ;        Transfer requested ENTER char to test loc
               00490 ;
```

```
2439 213BØØ     ØØ5ØØ EPARM   LD      HL,';'          ; set default ";"
243C 3A9D26     ØØ51Ø         LD      A,(ERSP)        ;Test parm response
243F CB77       ØØ52Ø         BIT     6,A             ;Flag is no good!
2441 C26125     ØØ53Ø         JP      NZ,PRMERR
2444 CB6F       ØØ54Ø         BIT     5,A             ;Test string or value
2446 7E         ØØ55Ø         LD      A,(HL)          ;P/u assumed string
2447 2ØØ1       ØØ56Ø         JR      NZ,$+3          ;Go if string entry
2449 7D         ØØ57Ø         LD      A,L             ;P/u hex or dec entry
244A 321328     ØØ58Ø         LD      (ECHAR+1),A     ;Stuff it in there
244D D5         ØØ59Ø         PUSH    DE
244E 116D25     ØØ6ØØ         LD      DE,KSM$         ;Check if filter is
2451            ØØ61Ø         @@GTMOD                 ;  already resident
2451 3E53       ØØØ16         LD      A,83
2453 EF         ØØØ17         RST     4Ø
2454 227D24     ØØ62Ø         LD      (KSMMEM+1),HL   ;Stuff start
2457 EB         ØØ63Ø         EX      DE,HL           ;Put DCB ptr to HL
2458 D1         ØØ64Ø         POP     DE
2459 2Ø2C       ØØ65Ø         JR      NZ,OPENKSM      ;Go if not
                ØØ66Ø ;
                ØØ67Ø ;       Make sure that the new DCB is same as the old
                ØØ68Ø ;
245B E5         ØØ69Ø         PUSH    HL              ;Save where to stuff
245C 4E         ØØ7ØØ         LD      C,(HL)          ;P/u DCB pointer LSB
245D 23         ØØ71Ø         INC     HL
245E 46         ØØ72Ø         LD      B,(HL)          ;P/u DCB pointer MSB
245F 21Ø6ØØ     ØØ73Ø         LD      HL,6            ;Get old DCB name &
2462 Ø9         ØØ74Ø         ADD     HL,BC           ;  stuff into error
2463 7E         ØØ75Ø         LD      A,(HL)          ;  message in case
2464 2C         ØØ76Ø         INC     L               ;  a different DCB
2465 66         ØØ77Ø         LD      H,(HL)          ;  is referenced
2466 6F         ØØ78Ø         LD      L,A
2467 227226     ØØ79Ø         LD      (DCBNAM$),HL
246A B4         ØØ8ØØ         OR      H               ;If DCB name is null,
246B 2ACA27     ØØ81Ø         LD      HL,(KSMDCB)
246E E5         ØØ82Ø         PUSH    HL              ;Save pointer to stuff
246F 28Ø3       ØØ83Ø         JR      Z,UPDPTR        ;  then OK to use
2471 B7         ØØ84Ø         OR      A
2472 ED42       ØØ85Ø         SBC     HL,BC           ;Same DCB pointer?
2474 C1         ØØ86Ø UPDPTR  POP     BC              ;Rcvr pointer to stuff
2475 E1         ØØ87Ø         POP     HL              ;Rcvr address to put pointer
2476 C24F25     ØØ88Ø         JP      NZ,DCBERR       ;Quit if filter in use
                ØØ89Ø ;
                ØØ9ØØ ;       Same DCB - Okay to stuff
                ØØ91Ø ;
2479 71         ØØ92Ø         LD      (HL),C          ;Store the DCB pointer
247A 23         ØØ93Ø         INC     HL
247B 7Ø         ØØ94Ø         LD      (HL),B
247C 21ØØØØ     ØØ95Ø KSMMEM  LD      HL,$-$          ;If res, ptr to start
247F Ø152ØØ     ØØ96Ø         LD      BC,ECHAR-DVRBGN+1
2482 Ø9         ØØ97Ø         ADD     HL,BC           ;Resident, stuff ECHAR
2483 3A1328     ØØ98Ø         LD      A,(ECHAR+1)     ;  where it is in memory
2486 77         ØØ99Ø         LD      (HL),A          ;Stuff in upper mem
2487 21C126     Ø1ØØØ OPENKSM LD      HL,KSMBUF       ;Pt to buffer area
248A Ø6ØØ       Ø1Ø1Ø         LD      B,Ø             ;Init LRL=256
248C            Ø1Ø2Ø         @@OPEN                  ;Open the file
248C 3E3B       ØØØ18         LD      A,59
248E EF         ØØØ19         RST     4Ø
248F C26325     Ø1Ø3Ø         JP      NZ,IOERR        ;Jump on open error
2492 212128     Ø1Ø4Ø         LD      HL,DVREND       ;Place file in memory 1st
2495 Ø61A       Ø1Ø5Ø         LD      B,26            ;Init for 26 lines
2497            Ø1Ø6Ø KSM1    @@GET                   ;Get a char from file
```

```
2497 3EØ3      ØØØ2Ø          LD      A,3
2499 EF        ØØØ21          RST     4Ø
249A 2ØØC      Ø1Ø7Ø          JR      NZ,KSM2         ;Jump on error
249C 77        Ø1Ø8Ø          LD      (HL),A          ;Stuff into memory
249D 23        Ø1Ø9Ø          INC     HL              ;Inc memory pointer
249E FEØD      Ø11ØØ          CP      CR              ;Found end-of-line?
24AØ 2ØF5      Ø111Ø          JR      NZ,KSM1         ;Loop if not
24A2 1ØF3      Ø112Ø          DJNZ    KSM1            ;Decrement the A-Z loop
24A4 2B        Ø113Ø          DEC     HL              ;Backup over last CR &
24A5 Ø4        Ø114Ø          INC     B               ;  adjust for one more
24A6 3E1C      Ø115Ø          LD      A,1CH           ;No error here, just EOF
24A8 F5        Ø116Ø KSM2     PUSH    AF              ;Save error code
24A9           Ø117Ø          @@CLOSE                 ;Close the file
24A9 3E3C      ØØØ22          LD      A,6Ø
24AB EF        ØØØ23          RST     4Ø
24AC F1        Ø118Ø          POP     AF
24AD FE1C      Ø119Ø          CP      1CH             ;Ck for eof
24AF C26325    Ø12ØØ          JP      NZ,IOERR        ;Jump on not eof error
24B2 36ØD      Ø121Ø KSM3     LD      (HL),CR         ;End with a <ENTER>
24B4 23        Ø122Ø          INC     HL              ;For all remaining
24B5 1ØFB      Ø123Ø          DJNZ    KSM3            ;"letters" not entered
24B7 DD2ACA27  Ø124Ø          LD      IX,(KSMDCB)     ;Rcvr user DCB entry
24BB 112128    Ø125Ø          LD      DE,DVREND       ;Calculate the length
24BE AF        Ø126Ø          XOR     A               ; of the KSM file just
24BF ED52      Ø127Ø          SBC     HL,DE           ; loaded
24C1 44        Ø128Ø          LD      B,H             ;Xfer length
24C2 4D        Ø129Ø          LD      C,L
24C3 2A7D24    Ø13ØØ          LD      HL,(KSMMEM+1)   ;If not previously res,
24C6 7D        Ø131Ø          LD      A,L             ;  move to HIGH$
24C7 B4        Ø132Ø          OR      H
24C8 281E      Ø133Ø          JR      Z,MOVTOHI
24CA C5        Ø134Ø          PUSH    BC              ;Save length
24CB E5        Ø135Ø          PUSH    HL              ;Save old start
24CC Ø9        Ø136Ø          ADD     HL,BC           ;Start + data
24CD 3812      Ø137Ø          JR      C,KSM3A         ;Bad if wrap past Ø
24CF Ø161ØØ    Ø138Ø          LD      BC,DVREND-DVRBGN+1
24D2 Ø9        Ø139Ø          ADD     HL,BC           ;Start + data + filter
24D3 38ØC      Ø14ØØ          JR      C,KSM3A         ;Bad if wrap past Ø
24D5 EB        Ø141Ø          EX      DE,HL           ;Save in reg DE
24D6 E1        Ø142Ø          POP     HL              ;Rcvr old start
24D7 23        Ø143Ø          INC     HL              ;Pt to last byte used
24D8 23        Ø144Ø          INC     HL
24D9 7E        Ø145Ø          LD      A,(HL)          ;P/u last byte used
24DA 23        Ø146Ø          INC     HL
24DB 66        Ø147Ø          LD      H,(HL)          ;  into HL
24DC 6F        Ø148Ø          LD      L,A
24DD E5        Ø149Ø          PUSH    HL
24DE AF        Ø15ØØ          XOR     A               ;Clear carry flag
24DF ED52      Ø151Ø          SBC     HL,DE           ;Is req > available?
24E1 E1        Ø152Ø KSM3A    POP     HL              ;Rcvr old start to reuse
24E2 C1        Ø153Ø          POP     BC              ;Rcvr length of req
24E3 DA5325    Ø154Ø          JP      C,NOROOM        ;Quit if file too big
24E6 18Ø9      Ø155Ø          JR      KSMØA
24E8 C5        Ø156Ø MOVTOHI  PUSH    BC              ;Save data length
24E9 21ØØØØ    Ø157Ø          LD      HL,Ø            ;P/u current high memory
24EC 45        Ø158Ø          LD      B,L
24ED           Ø159Ø          @@HIGH$
24ED 3E64      ØØØ24          LD      A,1ØØ
24EF EF        ØØØ25          RST     4Ø
24FØ C1        Ø16ØØ          POP     BC              ;Recover data length
24F1 22C327    Ø161Ø KSMØA    LD      (DVRBGN+2),HL   ;Stuff last byte used
```

```
24F4 22CF27    Ø162Ø          LD      (RX1),HL         ;Stuff ptr to flag byte
24F7 36ØØ      Ø163Ø          LD      (HL),Ø           ;Init the KSM char ptr
24F9 2B        Ø164Ø          DEC     HL               ;  to zero to show no
24FA 36ØØ      Ø165Ø          LD      (HL),Ø           ;  char avail at startup
24FC 2B        Ø166Ø          DEC     HL
24FD 112128    Ø167Ø          LD      DE,DVREND        ;Move data to high
25ØØ 1A        Ø168Ø MOVLP    LD      A,(DE)           ;Data is in reverse order
25Ø1 77        Ø169Ø          LD      (HL),A
25Ø2 2B        Ø17ØØ          DEC     HL               ;Dec himem ptr
25Ø3 13        Ø171Ø          INC     DE               ;  and inc the char ptr
25Ø4 ØB        Ø172Ø          DEC     BC               ;Reduce char count
25Ø5 78        Ø173Ø          LD      A,B              ;  and check if done
25Ø6 B1        Ø174Ø          OR      C
25Ø7 2ØF7      Ø175Ø          JR      NZ,MOVLP         ;Loop back if not
25Ø9 Ø16ØØØ    Ø176Ø          LD      BC,DVREND-DVRBGN         ;Get driver len
25ØC AF        Ø177Ø          XOR     A                ;Reduce potential HIGH$
25ØD ED42      Ø178Ø          SBC     HL,BC            ;  by driver length
25ØF 3A7D24    Ø179Ø          LD      A,(KSMMEM+1)     ;Don't update HIGH$
2512 B7        Ø18ØØ          OR      A                ;  if previously res
2513 28Ø9      Ø181Ø          JR      Z,DOHIGH         ;Go if not resident
               Ø182Ø ;
               Ø183Ø ;        Module already resident
               Ø184Ø ;
2515 ED5B7D24  Ø185Ø          LD      DE,(KSMMEM+1)    ;P/u module entry point
2519 213926    Ø186Ø          LD      HL,KSMRPL$       ;  & reuse the filter
251C 1818      Ø187Ø          JR      KSM8
               Ø188Ø ;
               Ø189Ø ;        Stuff new HIGH$ value (Note: B=Ø for driver
               Ø19ØØ ;        length so there is no damage on the @@HIGH$ SVC
               Ø191Ø ;
251E Ø6ØØ      Ø192Ø DOHIGH   LD      B,Ø
252Ø           Ø193Ø          @@HIGH$
252Ø 3E64      ØØØ26          LD      A,1ØØ
2522 EF        ØØØ27          RST     4Ø
2523 23        Ø194Ø          INC     HL               ;Pt to driver start
2524 EB        Ø195Ø          EX      DE,HL
2525 D5        Ø196Ø          PUSH    DE               ;Save start of driver
2526 21Ø9ØØ    Ø197Ø          LD      HL,KSMDCB-DVRBGN
2529 19        Ø198Ø          ADD     HL,DE            ;Point to filter DCB ptr
252A 22DF27    Ø199Ø          LD      (RX2),HL
252D 21C127    Ø2ØØØ          LD      HL,DVRBGN        ;Move parms also
253Ø EDBØ      Ø2Ø1Ø          LDIR
2532 D1        Ø2Ø2Ø          POP     DE               ;Rcvr driver ept
2533 212226    Ø2Ø3Ø          LD      HL,KSMACT$       ;Init "KSM installed
2536 DD36ØØ45  Ø2Ø4Ø KSM8     LD      (IX),4ØH!5       ;Init DCB type to "input"
253A DD73Ø1    Ø2Ø5Ø          LD      (IX+1),E         ;  & filter & stuff the
253D DD72Ø2    Ø2Ø6Ø          LD      (IX+2),D         ;  filter address
254Ø FDCBØ3F6  Ø2Ø7Ø          SET     6,(IY+'D'-'A')   ;Turn on device flag bit
2544           Ø2Ø8Ø          @@LOGOT                  ;Display installation msg
               ØØØ28          IFEQ    ØØH,1
               ØØØ29          LD      HL,
               ØØØ3Ø          ENDIF
2544 3EØC      ØØØ31          LD      A,12
2546 EF        ØØØ32          RST     4Ø
2547 21ØØØØ    Ø2Ø9Ø          LD      HL,Ø             ;Set no error
254A C9        Ø21ØØ          RET                      ;Back to the user
               Ø211Ø ;
               Ø212Ø ;        Error processing
               Ø213Ø ;
254B 21FB25    Ø214Ø VIASET   LD      HL,VIASET$       ;"Install with Set
254E DD        Ø215Ø          DB      ØDDH
```

```
254F 215226    Ø216Ø DCBERR  LD      HL,DCBERR$        ;"Filter in use already
2552 DD        Ø217Ø         DB      ØDDH
2553 217526    Ø218Ø NOROOM  LD      HL,NOROOM$        ;"Memory frozen
2556 DD        Ø219Ø         DB      ØDDH
2557 211Ø26    Ø22ØØ SPCREQ  LD      HL,SPCREQ$        ;"Missing filespec
255A           Ø221Ø         @@LOGOT                   ;Display an error
               ØØØ33         IFEQ    ØØH,1
               ØØØ34         LD      HL,
               ØØØ35         ENDIF
255A 3EØC      ØØØ36         LD      A,12
255C EF        ØØØ37         RST     4Ø
255D 21FFFF    Ø222Ø         LD      HL,-1             ;Set abort code
256Ø C9        Ø223Ø         RET
2561 3E2C      Ø224Ø PRMERR  LD      A,44              ;Init PARM ERROR
2563 6F        Ø225Ø IOERR   LD      L,A               ;Error code to HL
2564 26ØØ      Ø226Ø         LD      H,Ø
2566 F6CØ      Ø227Ø         OR      ØCØH              ;Set short, return
2568 4F        Ø228Ø         LD      C,A               ;Error to C
2569           Ø229Ø         @@ERROR                   ;  for error display
2569 3E1A      ØØØ38         LD      A,26
256B EF        ØØØ39         RST     4Ø
256C C9        Ø23ØØ         RET
               Ø231Ø ;
               Ø232Ø ;       Data and message area
               Ø233Ø ;
256D 24        Ø234Ø KSM$    DB      '$KSM',3
     4B 53 4D Ø3
2572           Ø235Ø DFTKSM  EQU     $                 ;Note: HELLO$ must follow
2572 4B        Ø236Ø HELLO$  DB      'KSM Filter'
     53 4D 2Ø 46 69 6C 74 65
     72
257C           Ø237Ø *GET    CLIENT:3
               Ø395Ø ;CLIENTS/ASM - File to establish sign-on headers
               Ø396Ø ;
257C 2Ø        Ø397Ø         DB      ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
25A6 2Ø        Ø398Ø         DB      ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
               Ø399Ø ;
25BB 41        Ø4ØØØ         DB      'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
25E3 2Ø        Ø4Ø1Ø         DB      ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
               Ø238Ø ;
25FB 4D        Ø239Ø VIASET$ DB      'Must install via SET',CR
     75 73 74 2Ø 69 6E 73 74
     61 6C 6C 2Ø 76 69 61 2Ø
     53 45 54 ØD
```

```
261Ø 46         Ø24ØØ SPCREQ$ DB      'Filespec required',CR
     69 6C 65 73 7Ø 65 63 2Ø
     72 65 71 75 69 72 65 64
     ØD
2622 4B         Ø241Ø KSMACT$ DB      'KSM is now operational',CR
     53 4D 2Ø 69 73 2Ø 6E 6F
     77 2Ø 6F 7Ø 65 72 61 74
     69 6F 6E 61 6C ØD
2639 4B         Ø242Ø KSMRPL$ DB      'KSM filter data replaced',CR
     53 4D 2Ø 66 69 6C 74 65
     72 2Ø 64 61 74 61 2Ø 72
     65 7Ø 6C 61 63 65 64 ØD
2652 4B         Ø243Ø DCBERR$ DB      'KSM filter already attached to *xx',CR
     53 4D 2Ø 66 69 6C 74 65
     72 2Ø 61 6C 72 65 61 64
     79 2Ø 61 74 74 61 63 68
     65 64 2Ø 74 6F 2Ø 2A 78
     78 ØD
2672            Ø244Ø DCBNAM$ EQU     $-3
2675 52         Ø245Ø NOROOM$ DB      'Request exceeds available memory',CR
     65 71 75 65 73 74 2Ø 65
     78 63 65 65 64 73 2Ø 61
     76 61 69 6C 61 62 6C 65
     2Ø 6D 65 6D 6F 72 79 ØD
2696 D2         Ø246Ø PRMTBL$ DB      'R'!8ØH,ØF5H,'ENTER',Ø
     F5 45 4E 54 45 52 ØØ
269D            Ø247Ø ERSP    EQU     $-1
                Ø248Ø ;
269E 3A24       Ø249Ø         DW      EPARM+1
26AØ ØØ         Ø25ØØ         DB      Ø
                Ø251Ø ;
ØØ2Ø            Ø252Ø KSMFCB  DEFS    32
Ø1ØØ            Ø253Ø KSMBUF  DEFS    256
                Ø254Ø ;
                Ø255Ø ;       Key-Stroke Multiplication driver
                Ø256Ø ;
27C1 18ØB       Ø257Ø DVRBGN  JR      START           ;Branch around header
27C3 ØØØØ       Ø258Ø         DW      $-$             ;Last byte used
27C5 Ø4         Ø259Ø         DB      4,'$KSM'
     24 4B 53 4D
27CA ØØØØ       Ø26ØØ KSMDCB  DW      $-$             ;Pointer to KSM's DCB
27CC ØØØØ       Ø261Ø         DW      Ø
                Ø262Ø ;
27CE 21ØØØØ     Ø263Ø START   LD      HL,Ø            ;P/u possible address to
27CF            Ø264Ø RX1     EQU     $-2
27D1 56         Ø265Ø         LD      D,(HL)          ;  a KSM that was parsed
27D2 2B         Ø266Ø         DEC     HL              ;  to a ';' logical ENTER
27D3 5E         Ø267Ø         LD      E,(HL)          ;If this vector is zero,
27D4 2B         Ø268Ø         DEC     HL              ;  no KSM continuation is
27D5 EB         Ø269Ø         EX      DE,HL           ;  pending - find a new
27D6 F5         Ø27ØØ         PUSH    AF              ;  entry. Save flags.
27D7 7C         Ø271Ø         LD      A,H             ;  If <> Ø, grab the KSM
27D8 B5         Ø272Ø         OR      L               ;  line continuation
27D9 2Ø2B       Ø273Ø         JR      NZ,DVR4A
27DB F1         Ø274Ø         POP     AF              ;Rcvr flags
27DC D5         Ø275Ø         PUSH    DE              ;Save ptr to 'A'-KSM
27DD DD2ACA27   Ø276Ø DVR1    LD      IX,(KSMDCB)     ;Chain to next DCB module
27DF            Ø277Ø RX2     EQU     $-2
27E1            Ø278Ø         @@CHNIO
27E1 3E14       ØØØ4Ø         LD      A,2Ø
27E3 EF         ØØØ41         RST     4Ø
```

```
27E4 D1         Ø279Ø          POP    DE              ;Rcvr 'A'-KSM pointer
27E5 CØ         Ø28ØØ          RET    NZ              ;Back if nothing or error
27E6 CB7F       Ø281Ø          BIT    7,A             ;Is it a CLEAR function?
27E8 C8         Ø282Ø          RET    Z               ;Ret if <CLEAR> not down
27E9 F5         Ø283Ø          PUSH   AF              ;Save key entry
27EA FEC1       Ø284Ø          CP     'A'+8ØH         ;Ck for range A-Z
27EC 38Ø4       Ø285Ø          JR     C,DVR2          ;Exit if < 'A'
27EE FEDB       Ø286Ø          CP     'Z'+1+8ØH
27FØ 38Ø3       Ø287Ø          JR     C,DVR3          ;Use it if A-Z
27F2 F1         Ø288Ø DVR2     POP    AF              ;Rcvr orig flag
27F3 BF         Ø289Ø          CP     A               ;Set Z-flag
27F4 C9         Ø29ØØ          RET
                Ø291Ø ;
                Ø292Ø ;        Key code entry includes <CLEAR> key
                Ø293Ø ;
27F5 F1         Ø294Ø DVR3     POP    AF              ;Rcvr orig flag
27F6 62         Ø295Ø          LD     H,D             ;Rcvr ptr to 'A'-KSM
27F7 6B         Ø296Ø          LD     L,E             ;  & xfer to reg HL
27F8 D6C1       Ø297Ø          SUB    8ØH+'A'         ;Adjust offset to index
27FA 28ØB       Ø298Ø          JR     Z,DVR5          ;Bypass if was 'A'
27FC 47         Ø299Ø          LD     B,A             ;Set loop counter
27FD 3EØD       Ø3ØØØ          LD     A,CR            ;Read past the KSM lines
27FF BE         Ø3Ø1Ø DVR4     CP     (HL)            ;  for letters preceding
28ØØ 2B         Ø3Ø2Ø          DEC    HL              ;  key entry to find the
28Ø1 2ØFC       Ø3Ø3Ø          JR     NZ,DVR4         ;  KSM line for entered
28Ø3 1ØFA       Ø3Ø4Ø          DJNZ   DVR4            ;  key code
28Ø5 3E         Ø3Ø5Ø          DB     3EH             ;Ignore next inst
                Ø3Ø6Ø ;
                Ø3Ø7Ø ;        Routine to pick up the next KSM character
                Ø3Ø8Ø ;        & return it to the system KI request
                Ø3Ø9Ø ;
28Ø6 F1         Ø31ØØ DVR4A    POP    AF              ;Clean the stack
28Ø7 7E         Ø311Ø DVR5     LD     A,(HL)          ;P/u the next KSM char
28Ø8 2B         Ø312Ø          DEC    HL              ;Dec pointer to next one
28Ø9 EB         Ø313Ø          EX     DE,HL           ;Put either a pointer to
28ØA 23         Ø314Ø          INC    HL              ;  the next KSM char or
28ØB FEØD       Ø315Ø          CP     CR              ;  if got last, zero the
28ØD 28ØB       Ø316Ø          JR     Z,DVR6          ;  data pointer
28ØF 73         Ø317Ø          LD     (HL),E          ;Stuff pointer to next
281Ø 23         Ø318Ø          INC    HL              ;  character to fetch
2811 72         Ø319Ø          LD     (HL),D
2812 FE3B       Ø32ØØ ECHAR    CP     ';'             ;Ck on logical line end
2814 2ØØ2       Ø321Ø          JR     NZ,DVR7         ;  & convert to <ENTER>
2816 3EØD       Ø322Ø          LD     A,CR            ;  if it was semi-colon
2818 BF         Ø323Ø DVR7     CP     A               ;Tell the system we have
2819 C9         Ø324Ø          RET                    ;  retrieved a char
                Ø325Ø ;
                Ø326Ø ;        Got the terminating X'ØD' - Clear the pointer
                Ø327Ø ;
281A AF         Ø328Ø DVR6     XOR    A               ;Clear the KSM char ptr
281B 77         Ø329Ø          LD     (HL),A          ;  as next request is new
281C 23         Ø33ØØ          INC    HL
281D 77         Ø331Ø          LD     (HL),A
281E FEFF       Ø332Ø          CP     ØFFH            ;Set NZ & A = Ø
282Ø C9         Ø333Ø          RET
2821            Ø334Ø DVREND   EQU    $
                Ø335Ø ;
24ØØ            Ø336Ø          END    KSM
```

```
@@1          ØØØØ @@2          ØØØØ @@3          ØØØØ
@@4          ØØØØ @MOD2        ØØØØ @MOD4        FFFF
CR           ØØØD DCBERR       254F DCBERR$      2652
DCBNAM$      2672 DFTKSM       2572 DOHIGH       251E
DVR1         27DD DVR2         27F2 DVR3         27F5
DVR4         27FF DVR4A        28Ø6 DVR5         28Ø7
DVR6         281A DVR7         2818 DVRBGN       27C1
DVREND       2821 ECHAR        2812 EPARM        2439
ERSP         269D HELLO$       2572 IOERR        2563
KSM          24ØØ KSM$         256D KSMØA        24F1
KSM1         2497 KSM2         24A8 KSM3         24B2
KSM3A        24E1 KSM8         2536 KSMA         24Ø9
KSMACT$      2622 KSMBUF       26C1 KSMDCB       27CA
KSMFCB       26A1 KSMMEM       247C KSMRPL$      2639
LF           ØØØA MOVLP        25ØØ MOVTOHI      24E8
NOROOM       2553 NOROOM$      2675 OPENKSM      2487
PRMERR       2561 PRMTBL$      2696 RX1          27CF
RX2          27DF SPCREQ       2557 SPCREQ$      261Ø
START        27CE UPDPTR       2474 VIASET       254B
VIASET$      25FB @@ABORT      8E86 @@ADTSK      8F19
@@BANK       9431 @@BKSP       9111 @@BREAK      9447
@@CHNIO      8E71 @@CKBRKC     9495 @@CKDRV      8F6D
@@CKEOF      9126 @@CKTSK      8FØ4 @@CLOSE      9ØFC
@@CLS        947F @@CMNDI      8EBØ @@CMNDR      8EC5
@@CTL        8CD5 @@DATE       8E47 @@DCSTAT     8FAC
@@DEBUG      8EEF @@DECHEX     93B1 @@DIRRD      931E
@@DIRWR      9333 @@DIV16      939C @@DIV8       9387
@@DODIR      8F82 @@DSP        8C99 @@DSPLY      8D39
@@ERROR      8EDA @@EXIT       8E9B @@FEXT       928B
@@FLAGS      941B @@FNAME      92AØ @@FSPEC      9276
@@GATRD      93Ø9 @@GATWR      9348 @@GET        8CAD
@@GTDCB      92CA @@GTDCT      92B5 @@GTMOD      92DF
@@HDFMT      9Ø54 @@HEX16      93FØ @@HEX8       93DB
@@HEXDEC     93C6 @@HIGH$      94Ø5 @@INIT       9ØD2
@@KBD        8D11 @@KEY        8C85 @@KEYIN      8D25
@@KLTSK      8F58 @@LOAD       924C @@LOC        913B
@@LOF        915Ø @@LOGER      8D7Ø @@LOGOT      8D85
@@MSG        8DBC @@MUL16      9372 @@MUL8       935D
@@OPEN       9ØE7 @@PARAM      8E32 @@PAUSE      8E1D
@@PEOF       9165 @@POSN       917A @@PRINT      8DD1
@@PRT        8CE9 @@PUT        8CC1 @@RAMDIR     8F97
@@RDSEC      9Ø2A @@RDSSC      92F4 @@READ       918F
@@REMOV      9ØBD @@RENAM      9ØA8 @@REW        91A4
@@RMTSK      8F2E @@RPTSK      8F43 @@RREAD      91B9
@@RSLCT      9Ø15 @@RSTOR      8FD6 @@RUN        9261
@@RWRIT      91CE @@SEEK       9ØØØ @@SEEKSC     91E3
@@SKIP       91F8 @@SLCT       8FC1 @@STEPI      8FEB
@@TIME       8E5C @@VDCTL      8EØ8 @@VER        92ØD
@@VRSEC      9Ø3F @@WEOF       9222 @@WHERE      8CFD
@@WRITE      9237 @@WRSEC      9Ø69 @@WRSSC      9Ø7E
@@WRTRK      9Ø93
24ØØ is the transfer address
ØØØØØ Total errors
```

NOTES:

LOG/CMD - Log in a disk

The main use of the Log utility is to allow swapping a double sided disk into drive Ø after booting on a single sided disk.

```
                  00100 ;LOG/ASM - Optional Disk Log Program
0000              00110           TITLE   <LOG - LS-DOS 6.2>
                  00120 ;
000D              00130 CR        EQU     13
000A              00140 LF        EQU     10
000E              00150 CRSON     EQU     14
                  00160 ;
0000              00170 *GET      SVCMAC:3                ;SVC Macro equivalents
                  00010 ;SVCMAC/ASM - LS-DOS Version VI
                  00020 *LIST     OFF
                  03900 *LIST     ON
0000              00180 *GET      COPYCOM:3               ;Copyright message
                  03920 ; COPYCOM - File for Copyright COMment block
                  03930 ;
0000              03940           COM     '<*(C) 1982,83,84 by LSI*>'
                  00190 ;
2600              00200           ORG     2600H
                  00210 ;
                  00220 LOG
2600              00230           @@CKBRKC                ;Check for break
2600 3E6A         00001           LD      A,106
2602 EF           00002           RST     40
2603 2804         00240           JR      Z,LOGA          ;Go if not
2605 21FFFF       00250           LD      HL,-1           ;  else abort
2608 C9           00260           RET
                  00270 ;
                  00280 LOGA
2609 ED738326     00290           LD      (STACK),SP      ;Save entry SP
260D E5           00300           PUSH    HL              ;Save cmdline ptr
260E              00310           @@DSPLY HELLO$          ;Display the signon msg
                  00003           IFEQ    01H,1
260E 219626       00004           LD      HL,HELLO$
                  00005           ENDIF
2611 3E0A         00006           LD      A,10
2613 EF           00007           RST     40
2614 E1           00320           POP     HL              ;Recover cmdline ptr
                  00330 ;
                  00340 ; Start of main module code
                  00350 ;
2615 0E00         00360 START     LD      C,0             ;Default drive 0
2617 7E           00370 SKIPSP    LD      A,(HL)          ;Scan command line
2618 23           00380           INC     HL
2619 FE20         00390           CP      ' '             ;Skip spaces
261B 28FA         00400           JR      Z,SKIPSP
261D FE3A         00410           CP      ':'             ;Look for colon
261F 200C         00420           JR      NZ,DEFALT       ;End of line if not found
2621 7E           00430           LD      A,(HL)          ;Get drive #
2622 D630         00440           SUB     30H             ;Make a number
2624 DA8926       00450           JP      C,ILLDRV        ;# too low
2627 FE08         00460           CP      7+1
2629 D28926       00470           JP      NC,ILLDRV       ;# too hi
262C 4F           00480           LD      C,A             ;Save in C
262D 79           00490 DEFALT    LD      A,C             ;Drive 0?
262E A7           00500           AND     A
262F 2018         00510           JR      NZ,NOWAIT       ;Go if not
2631              00520           @@DSPLY WAIT$           ;Display "Switch disks
                  00008           IFEQ    01H,1
2631 211E27       00009           LD      HL,WAIT$
                  00010           ENDIF
2634 3E0A         00011           LD      A,10
2636 EF           00012           RST     40
```

```
2637 2Ø52       ØØ53Ø           JR      NZ,IOERR
2639            ØØ54Ø           @@KEY                      ;Wait for a key
2639 3EØ1       ØØØ13           LD      A,1
263B EF         ØØØ14           RST     4Ø
263C 2Ø4D       ØØ55Ø           JR      NZ,IOERR
263E C5         ØØ56Ø           PUSH    BC                 ;Save the drive #
263F ØEØD       ØØ57Ø           LD      C,CR               ;Output a new line
2641            ØØ58Ø           @@DSP
2641 3EØ2       ØØØ15           LD      A,2
2643 EF         ØØØ16           RST     4Ø
2644 C1         ØØ59Ø           POP     BC                 ;Recover drive #
2645 2Ø44       ØØ6ØØ           JR      NZ,IOERR
2647 18Ø7       ØØ61Ø           JR      NOCHK              ;Can't call CKDRV if :Ø
                ØØ62Ø ;
2649            ØØ63Ø NOWAIT    @@CKDRV                    ;Drive ready?
2649 3E21       ØØØ17           LD      A,33
264B EF         ØØØ18           RST     4Ø
264C 3E2Ø       ØØ64Ø           LD      A,32               ;"Illegal drive number"
264E 2Ø3B       ØØ65Ø           JR      NZ,IOERR           ;Go if not ready
265Ø 21ØØ28     ØØ66Ø NOCHK     LD      HL,BUFFER          ;Sector buffer
2653 11ØØØØ     ØØ67Ø           LD      DE,Ø               ;Read boot sector
2656            ØØ68Ø           @@RDSEC
2656 3E31       ØØØ19           LD      A,49
2658 EF         ØØØ2Ø           RST     4Ø
2659 2Ø3Ø       ØØ69Ø           JR      NZ,IOERR           ;Go if error
265B            ØØ7ØØ           @@GTDCT                    ;Point IY to DCT
265B 3E51       ØØØ21           LD      A,81
265D EF         ØØØ22           RST     4Ø
265E 23         ØØ71Ø           INC     HL                 ;Point HL to byte 2
265F 23         ØØ72Ø           INC     HL
266Ø 7E         ØØ73Ø           LD      A,(HL)             ;Get dir cyl #
2661 FD77Ø9     ØØ74Ø           LD      (IY+9),A           ;  and put in DCT
                ØØ75Ø ;
2664 57         ØØ76Ø           LD      D,A                ;Now read GAT
2665 21ØØ28     ØØ77Ø           LD      HL,BUFFER          ;Disk sector buffer
2668 5D         ØØ78Ø           LD      E,L                ;Set to Ø
2669            ØØ79Ø           @@RDSEC
2669 3E31       ØØØ23           LD      A,49
266B EF         ØØØ24           RST     4Ø
266C FEØ6       ØØ8ØØ           CP      6                  ;Must be sys sector
266E 2Ø1B       ØØ81Ø           JR      NZ,IOERR           ;Go if error
                ØØ82Ø ;
267Ø 2ECD       ØØ83Ø           LD      L,ØCDH             ;Offset to disk type
2672 7E         ØØ84Ø           LD      A,(HL)             ;P/U disk type
2673 E62Ø       ØØ85Ø           AND     2ØH                ;Check # of sides bit
2675 47         ØØ86Ø           LD      B,A                ;Save in B
2676 FD7EØ4     ØØ87Ø           LD      A,(IY+4)           ;P/U byte in DCT
2679 E6DF       ØØ88Ø           AND     ØDFH               ;Mask out old value
267B BØ         ØØ89Ø           OR      B                  ;Put in new value
267C FD77Ø4     ØØ9ØØ           LD      (IY+4),A           ;Put back in DCT
                ØØ91Ø ;
267F 21ØØØØ     ØØ92Ø           LD      HL,Ø               ;Set no error
2682 31ØØØØ     ØØ93Ø $QUIT     LD      SP,$-$             ;P/u original stack
2683            ØØ94Ø STACK     EQU     $-2
2685            ØØ95Ø           @@CKBRKC                   ;Clear any break
2685 3E6A       ØØØ25           LD      A,1Ø6
2687 EF         ØØØ26           RST     4Ø
2688 C9         ØØ96Ø           RET                        ;Back to the user
                ØØ97Ø ;
2689 3E2Ø       ØØ98Ø ILLDRV    LD      A,32               ;Init "illegal drv"
268B 6F         ØØ99Ø IOERR     LD      L,A                ;Put error # into HL
```

```
268C 26ØØ      Ø1ØØØ         LD      H,Ø
268E F6CØ      Ø1Ø1Ø         OR      ØCØH            ;Abbrev, return
269Ø 4F        Ø1Ø2Ø         LD      C,A             ;Error code to C
2691           Ø1Ø3Ø         @@ERROR                 ;  for error display
2691 3E1A      ØØØ27         LD      A,26
2693 EF        ØØØ28         RST     4Ø
2694 18EC      Ø1Ø4Ø         JR      $QUIT
               Ø1Ø5Ø ;
2696 4C        Ø1Ø6Ø HELLO$  DB      'LOG Drive'
     4F 47 2Ø 44 72 69 76 65
269F           Ø1Ø7Ø *GET    CLIENT:3
               Ø395Ø ;CLIENTS/ASM - File to establish sign-on headers
               Ø396Ø ;
269F 2Ø        Ø397Ø         DB      ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
26C9 2Ø        Ø398Ø         DB      ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
               Ø399Ø ;
26DE 41        Ø4ØØØ         DB      'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
27Ø6 2Ø        Ø4Ø1Ø         DB      ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
271E 45        Ø1Ø8Ø WAIT$   DB      'Exchange disks and depress <ENTER> ',3
     78 63 68 61 6E 67 65 2Ø
     64 69 73 6B 73 2Ø 61 6E
     64 2Ø 64 65 7Ø 72 65 73
     73 2Ø 3C 45 4E 54 45 52
     3E 2Ø Ø3
28ØØ           Ø1Ø9Ø         ORG     $<-8+1<8
28ØØ           Ø11ØØ BUFFER  EQU     $
               Ø111Ø ;
26ØØ           Ø112Ø         END     LOG
```

```
$QUIT          2682 @@1        0000 @@2        0000
@@3            0000 @@4        0000 @MOD2      0000
@MOD4          FFFF BUFFER     2800 CR         000D
CRSON          000E DEFALT     262D HELLO$     2696
ILLDRV         2689 IOERR      268B LF         000A
LOG            2600 LOGA       2609 NOCHK      2650
NOWAIT         2649 SKIPSP     2617 STACK      2683
START          2615 WAIT$      271E @@ABORT    750F
@@ADTSK        75A2 @@BANK     7ABA @@BKSP     779A
@@BREAK        7AD0 @@CHNIO    74FA @@CKBRKC   7B1E
@@CKDRV        75F6 @@CKEOF    77AF @@CKTSK    758D
@@CLOSE        7785 @@CLS      7B08 @@CMNDI    7539
@@CMNDR        754E @@CTL      735E @@DATE     74D0
@@DCSTAT       7635 @@DEBUG    7578 @@DECHEX   7A3A
@@DIRRD        79A7 @@DIRWR    79BC @@DIV16    7A25
@@DIV8         7A10 @@DODIR    760B @@DSP      7322
@@DSPLY        73C2 @@ERROR    7563 @@EXIT     7524
@@FEXT         7914 @@FLAGS    7AA4 @@FNAME    7929
@@FSPEC        78FF @@GATRD    7992 @@GATWR    79D1
@@GET          7336 @@GTDCB    7953 @@GTDCT    793E
@@GTMOD        7968 @@HDFMT    76DD @@HEX16    7A79
@@HEX8         7A64 @@HEXDEC   7A4F @@HIGH$    7A8E
@@INIT         775B @@KBD      739A @@KEY      730E
@@KEYIN        73AE @@KLTSK    75E1 @@LOAD     78D5
@@LOC          77C4 @@LOF      77D9 @@LOGER    73F9
@@LOGOT        740E @@MSG      7445 @@MUL16    79FB
@@MUL8         79E6 @@OPEN     7770 @@PARAM    74BB
@@PAUSE        74A6 @@PEOF     77EE @@POSN     7803
@@PRINT        745A @@PRT      7372 @@PUT      734A
@@RAMDIR       7620 @@RDSEC    76B3 @@RDSSC    797D
@@READ         7818 @@REMOV    7746 @@RENAM    7731
@@REW          782D @@RMTSK    75B7 @@RPTSK    75CC
@@RREAD        7842 @@RSLCT    769E @@RSTOR    765F
@@RUN          78EA @@RWRIT    7857 @@SEEK     7689
@@SEEKSC       786C @@SKIP     7881 @@SLCT     764A
@@STEPI        7674 @@TIME     74E5 @@VDCTL    7491
@@VER          7896 @@VRSEC    76C8 @@WEOF     78AB
@@WHERE        7386 @@WRITE    78C0 @@WRSEC    76F2
@@WRSSC        7707 @@WRTRK    771C
2600 is the transfer address
00000 Total errors
```

NOTES:

MEMDISK/DCT - Memory disk driver

The Memdisk DCT program will establish a psuedo disk drive either in the main memory or in the alternate memory banks, if available. There must be room for Memdisk in the low driver zone or the installation will abort.

```
               ;MEMDISK/ASM - Memory Disk Driver
ØØØØ                    TITLE   <MEMDISK/DCT - LS-DOS 6.2>
               ;
ØØØØ           *GET     SVCMAC:3                ;SVC Macro equivalents
               ;SVCMAC/ASM - LS-DOS Version VI
               *LIST    OFF
               *LIST    ON
ØØØØ           *GET     VALUES:3                ;Misc. equates
               ;VALUES/ASM - Version 6
               *LIST OFF
               *LIST ON
ØØØØ           *GET     COPYCOM:3               ;Copyright message
               ; COPYCOM - File for Copyright COMment block
               ;
ØØØØ                    COM     '<*(C) 1982,83,84 by LSI*>'
               ;
ØAØØ           SDBPC    EQU     5*2*256         ;Single Density Bytes/Cyl
12ØØ           DDBPC    EQU     6*3*256         ;Double Density Bytes/Cyl
8ØØØ           LOWEST   EQU     8ØØØH           ;Lowest addr for Bank Ø
13ØØ           HIDRVR   EQU     13ØØH           ;Highest addr for Driver
23ØØ           BUFFER$  EQU     23ØØH           ;Temporary I/O buffer Add
ØØØ3           MINCYL   EQU     3
ØØØF           WP       EQU     15              ;Write Prot Disk Error #
               ;
2CØØ                    ORG     2CØØH
               ;
               START
2CØØ                    @@CKBRKC                ;Check for break
2CØØ 3E6A               LD      A,1Ø6
2CØ2 EF                 RST     4Ø
2CØ3 28Ø4               JR      Z,STARTA        ;Continue if not
2CØ5 21FFFF             LD      HL,-1           ;  else abort
2CØ8 C9                 RET
               ;
2CØ9           STARTA   EQU     $
2CØ9 ED73222C           LD      (EXIT+1),SP     ;Save SP location
               ;
               ;        Install or Disable MemDISK
               ;
2CØD CDF62C             CALL    CALCDRV         ;Calculate drive #
2C1Ø CD3F3Ø             CALL    DOMEM           ;Get type of memdisk
2C13 CD9A2E             CALL    INSTMEM         ;Install MemDISK
               ;
               ;        Exit - Clean stack, Set HL, Revector <BREAK>
               ;
2C16 21ØØØØ    NORMEX   LD      HL,Ø            ;Normal Exit - HL = Ø
2C19 18Ø6               JR      EXIT            ;Get SP & RETurn
               ;
2C1B CD2C2D    ABORT    CALL    GETDUP          ;Get duplicate DCT
2C1E 21FFFF             LD      HL,-1           ;Abort
               ;
2C21 31ØØØØ    EXIT     LD      SP,$-$          ;P/u SP address
2C24                    @@CKBRKC                ;Clear break
2C24 3E6A               LD      A,1Ø6
2C26 EF                 RST     4Ø
2C27 C9                 RET
               ;
2C28           *GET     MEMDISKB:3
               ;MEMDISKB/ASM - Miscellaneous Subroutines
2C28                    SUBTTL  '<MEMDISKB - Subroutines>'
```

MEMDISKB - Subroutines

```
2C28                       PAGE
                  ;
                  ;        SETBANK - Tell system which banks are used
                  ;
2C28 3EØØ         SETBANK  LD      A,$-$           ;P/u bank #
2C2A 4F                    LD      C,A             ;Xfer to C
2C2B FEØ3                  CP      3               ;Both banks 1 & 2 ?
2C2D 2ØØ5                  JR      NZ,STBANK       ;No - just 1 bank
2C2F ØD                    DEC     C               ;Set C = 2
2C3Ø CD342C                CALL    STBANK          ;Show Bank in use
2C33 ØD                    DEC     C               ;C = 1
2C34 C5           STBANK   PUSH    BC              ;Save BC
2C35 Ø6Ø3                  LD      B,3             ;Show in use function #
2C37                       @@BANK                  ;Let system know it
2C37 3E66                  LD      A,1Ø2
2C39 EF                    RST     4Ø
2C3A C1                    POP     BC
2C3B C9                    RET                     ;RETurn
                  ;
                  ;        FREBANK - Free up Bank C
                  ;
2C3C C5           FREBANK  PUSH    BC              ;Save C & B
2C3D Ø6Ø1                  LD      B,1             ;Show bank available
2C3F                       @@BANK
2C3F 3E66                  LD      A,1Ø2
2C41 EF                    RST     4Ø
2C42 C1                    POP     BC              ;Recover C
2C43 C9                    RET                     ;RETurn
                  ;
                  ;        DECASC2 - Display Number to video
                  ;
2C44 CDAE2C       DECASC2  CALL    SAVEREG         ;Save Registers
2C47 F5                    PUSH    AF              ;Save #
2C48 ØEØ8                  LD      C,BS            ;Backspace
2C4A CD592C                CALL    DSP             ;Output byte
2C4D CD592C                CALL    DSP             ;Twice
2C5Ø F1                    POP     AF              ;Recover A
2C51 CD632C                CALL    DECASC          ;Convert to ASCII
2C54 4C                    LD      C,H             ;P/u ms digit
2C55 CD592C                CALL    DSP
2C58 4D                    LD      C,L             ;P/u ls digit
                  ;
                  ;        DSP - Output byte to Video & exit if I/O err
                  ;
2C59              DSP      @@DSP                   ;Output byte
2C59 3EØ2                  LD      A,2
2C5B EF                    RST     4Ø
2C5C C8                    RET     Z               ;RETurn if good
                  ;
                  ;        IOERR - Set HL = Error # & Abort
                  ;
2C5D 6F           IOERR    LD      L,A             ;Set HL = I/O Error #
2C5E 26ØØ                  LD      H,Ø
2C6Ø C3212C                JP      EXIT            ;Go to exit routine
                  ;
                  ;        Display Decimal ASCII equivalent
                  ;
2C63 262F         DECASC   LD      H,2FH           ;H=msb  of BCD ASCII
2C65 24           LPADD    INC     H               ;Bump msb
2C66 D6ØA                  SUB     1Ø              ;Successive sub's of 1Ø
```

MEMDISKB - Subroutines

```
2C68 3ØFB      Ø48ØØ          JR      NC,LPADD         ;Keep sub til carry
2C6A C63A      Ø481Ø          ADD     A,3AH            ;A = lsb ASCII
2C6C 6F        Ø482Ø          LD      L,A              ;HL => DEC ASCII
2C6D C9        Ø483Ø          RET
               Ø484Ø ;
               Ø485Ø ;        DECHEX - Convert Decimal ASCII to Hex
               Ø486Ø ;
2C6E CD822C    Ø487Ø DECHEX   CALL    GETDIG           ;Get digit
2C71 23        Ø488Ø          INC     HL               ;Next byte in buffer
2C72 Ø5        Ø489Ø          DEC     B                ;Dec digit counter
2C73 28ØB      Ø49ØØ          JR      Z,DONE1          ;All done
2C75 57        Ø491Ø          LD      D,A              ;Xfer to D
2C76 CD822C    Ø492Ø          CALL    GETDIG           ;Get digit
2C79 5F        Ø493Ø          LD      E,A              ;Save digit
2C7A 7A        Ø494Ø          LD      A,D              ;P/u ten's digit
2C7B 87        Ø495Ø          ADD     A,A              ;Multiply
2C7C 87        Ø496Ø          ADD     A,A              ;  A times 1Ø
2C7D 82        Ø497Ø          ADD     A,D              ;  and add it
2C7E 87        Ø498Ø          ADD     A,A              ;  to the ones digit
2C7F 83        Ø499Ø          ADD     A,E              ;A = number of tracks
2C8Ø BF        Ø5ØØØ DONE1    CP      A                ;Set Z flag
2C81 C9        Ø5Ø1Ø          RET                      ; and RETurn
               Ø5Ø2Ø ;
2C82 7E        Ø5Ø3Ø GETDIG   LD      A,(HL)           ;P/u second digit
2C83 D63Ø      Ø5Ø4Ø          SUB     'Ø'              ;Cvt to binary
2C85 38Ø3      Ø5Ø5Ø          JR      C,ILLEGAL        ;Clr stack & RETurn NZ
2C87 FEØA      Ø5Ø6Ø          CP      1Ø               ;Legal digit
2C89 D8        Ø5Ø7Ø          RET     C                ;Yes - A = digit
2C8A 3C        Ø5Ø8Ø ILLEGAL  INC     A                ;Reset Z flag
2C8B E1        Ø5Ø9Ø          POP     HL               ;Clear stack
2C8C C9        Ø51ØØ          RET                      ;  and RETurn
               Ø511Ø ;
               Ø512Ø ;        Verify Error - P/u Bank / Address & display
               Ø513Ø ;
2C8D E5        Ø514Ø ERROR    PUSH    HL               ;L = lsb of Address
2C8E 3EC9      Ø515Ø          LD      A,ØC9H           ;Modify GETADR routine
2C9Ø 32722E    Ø516Ø          LD      (STFRET),A       ;HL <= page from DE
2C93 CD5D2E    Ø517Ø          CALL    GETADR
2C96 D1        Ø518Ø          POP     DE               ;E = lsb of address
2C97 6B        Ø519Ø          LD      L,E              ;HL = Bad RAM address
               Ø52ØØ ;
               Ø521Ø ;        Stuff Bank # and Address into string
               Ø522Ø ;
2C98 3E3Ø      Ø523Ø          LD      A,'Ø'            ;Cvt BANK # to ASCII
2C9A 81        Ø524Ø          ADD     A,C
2C9B 324737    Ø525Ø          LD      (VBANK),A        ;Stuff into string
2C9E EB        Ø526Ø          EX      DE,HL            ;Xfer address to DE
2C9F 215737    Ø527Ø          LD      HL,VLOC          ;HL => string destination
2CA2           Ø528Ø          @@HEX16                  ;Cvt DE to Hex ASCII @ HL
2CA2 3E63      ØØØ11          LD      A,99
2CA4 EF        ØØØ12          RST     4Ø
               Ø529Ø ;
               Ø53ØØ ;        Display string & restore hi/low mem
               Ø531Ø ;
2CA5 213137    Ø532Ø          LD      HL,BADRAM        ;"BAD RAM ...
2CA8           Ø533Ø          @@LOGOT                  ;Display it
               ØØØ13          IFEQ    ØØH,1
               ØØØ14          LD      HL,
               ØØØ15          ENDIF
```

MEMDISKB - Subroutines

```
2CA8 3EØC      ØØØ16          LD      A,12
2CAA EF        ØØØ17          RST     4Ø
2CAB C3EE2E    Ø534Ø          JP      OLDRVR          ;Leave & clear stack
               Ø535Ø ;
               Ø536Ø ;        SAVEREG - Save All Primary Registers
               Ø537Ø ;
2CAE E3        Ø538Ø SAVEREG  EX      (SP),HL
2CAF 22C42C    Ø539Ø          LD      (RETADDR+1),HL
2CB2 E1        Ø54ØØ          POP     HL
2CB3 E5        Ø541Ø          PUSH    HL
2CB4 ED53B832  Ø542Ø          LD      (SAVEDE),DE
2CB8 D5        Ø543Ø          PUSH    DE
2CB9 C5        Ø544Ø          PUSH    BC
2CBA F5        Ø545Ø          PUSH    AF
2CBB 11C62C    Ø546Ø          LD      DE,RESTREG
2CBE D5        Ø547Ø          PUSH    DE
2CBF ED5BB832  Ø548Ø          LD      DE,(SAVEDE)
2CC3 C3ØØØØ    Ø549Ø RETADDR  JP      $-$
2CC6 F1        Ø55ØØ RESTREG  POP     AF
2CC7 C1        Ø551Ø          POP     BC
2CC8 D1        Ø552Ø          POP     DE
2CC9 E1        Ø553Ø          POP     HL
2CCA C9        Ø554Ø          RET
               Ø555Ø ;
               Ø556Ø ;        CKBANK - Check if Bank C is in use
               Ø557Ø ;
2CCB C5        Ø558Ø CKBANK   PUSH    BC              ;Save BC
2CCC Ø6Ø2      Ø559Ø          LD      B,2             ;Bank in use ?
2CCE           Ø56ØØ          @@BANK                  ;Check it out
2CCE 3E66      ØØØ18          LD      A,1Ø2
2CDØ EF        ØØØ19          RST     4Ø
2CD1 C1        Ø561Ø          POP     BC              ;Recover BC
2CD2 C8        Ø562Ø          RET     Z               ;RETurn if available
2CD3 C3DA32    Ø563Ø          JP      BNKUSE          ;  else - display "in use"
               Ø564Ø ;
               Ø565Ø ;        INPUT - Input a line to the input buffer
               Ø566Ø ;
2CD6 21ØØ39    Ø567Ø INPUT    LD      HL,BUFFER       ;HL => Input buffer
2CD9           Ø568Ø          @@KEYIN                 ;Input line
2CD9 3EØ9      ØØØ2Ø          LD      A,9
2CDB EF        ØØØ21          RST     4Ø
2CDC DA1B2C    Ø569Ø          JP      C,ABORT         ;Exit if <BREAK> hit
2CDF Ø4        Ø57ØØ          INC     B               ;Set Z if no chars
2CEØ Ø5        Ø571Ø          DEC     B
2CE1 C9        Ø572Ø          RET                     ;  else RETurn
               Ø573Ø ;
               Ø574Ø ;        GETCYL - Get max # of cylinders in A
               Ø575Ø ;
2CE2 D5        Ø576Ø GETCYL   PUSH    DE              ;Save regs
2CE3 E5        Ø577Ø          PUSH    HL
               Ø578Ø ;
               Ø579Ø ;        Init DE = # bytes/cyl, A = dividend (-1)
               Ø58ØØ ;
2CE4 11ØØ12    Ø581Ø BPC      LD      DE,DDBPC        ;P/u bytes/cyl
2CE7 3EFF      Ø582Ø          LD      A,-1            ;Init avail cyl cnt = -1
               Ø583Ø ;
               Ø584Ø ;        Divide total bytes available by Bytes/cyl
               Ø585Ø ;
2CE9 3C        Ø586Ø DIVLP    INC     A               ;Bump cyl count
```

MEMDISKB - Subroutines

```
2CEA B7                    OR      A
2CEB ED52                  SBC     HL,DE            ;Take off 1 cyl
2CED 3ØFA                  JR      NC,DIVLP         ;Loop until carry
                   ;
                   ;       A = # of cyls avail, Restore regs
                   ;
2CEF E1                    POP     HL               ;Recover regs
2CFØ D1                    POP     DE
                   ;
                   ;       Set Z flag if more than 1 cylinder available
                   ;
2CF1 FEØ2                  CP      2                ;Ø or 1 ?
2CF3 D8                    RET     C                ;Yes - RETurn NZ
2CF4 BF                    CP      A                ;Set Z flag
2CF5 C9                    RET                      ;  and RETurn
                   ;
                   ;       CALCDRV - Calculate drive Number for MemDISK
                   ;
                   ;       DE => DCT block for Drive
                   ;
2CF6                 CALCDRV EQU     $
2CF6 EB                    EX      DE,HL            ;Xfer to HL
2CF7 22BA32                LD      (SAVEDCT),HL     ;Save DCT pointer
2CFA CD2Ø2D                CALL    SAVDCT           ;Save DCT
2CFD 7C                    LD      A,H              ;Drive number issued ?
2CFE B5                    OR      L
2CFF CABE32                JP      Z,NODRV          ;No drive entered
                   ;
                   ;       Get Start of Drive Code Table
                   ;
2DØ2 ØEØØ                  LD      C,Ø              ;Get start of DCT
2DØ4                       @@GTDCT                  ;Get DCT for Drive Ø
2DØ4 3E51                  LD      A,81
2DØ6 EF                    RST     4Ø
2DØ7 FDE5                  PUSH    IY               ;Get DCT start
2DØ9 D1                    POP     DE
                   ;
                   ;       Calculate Offset in Table
                   ;
2DØA AF                    XOR     A
2DØB ED52                  SBC     HL,DE            ;L = offset from start
2DØD B5                    OR      L                ;P/u offset
2DØE CAC232                JP      Z,BADDRV         ;Cannot use DRIVE Ø
                   ;
                   ;       Divide offset by 1Ø to get drive #
                   ;
2D11 Ø6FF                  LD      B,-1             ;Init dividend = -1
2D13 Ø4              DIVLP1 INC     B                ;Bump dividend
2D14 D6ØA                  SUB     1Ø               ;Subtract ten
2D16 3ØFB                  JR      NC,DIVLP1
                   ;
                   ;       Stuff away drive # into WRSEC routine
                   ;
2D18 78                    LD      A,B              ;P/u drive #
2D19 32C52F                LD      (DRIVE+1),A      ;Stuff away drive #
                   ;
                   ;       Point IY to System Flag table & RETurn
                   ;
2D1C                       @@FLAGS                  ;IY => Flags
```

MEMDISKB - Subroutines

```
2D1C 3E65                   LD      A,1Ø1
2D1E EF                     RST     4Ø
2D1F C9                     RET                     ;Later
                  ;
                  ;         SAVDCT - Save Old DCT setup
                  ;
2D2Ø CDAE2C       SAVDCT    CALL    SAVEREG         ;Save registers
2D23 11ØØ3A                 LD      DE,DUPDCT       ;Destination
2D26 Ø1ØAØØ       DOXFER1   LD      BC,1Ø           ;1Ø bytes to xfer
2D29 EDBØ                   LDIR
2D2B C9                     RET
                  ;
                  ;         GETDUP - Get Duplicate of original DCT setup
                  ;
2D2C ED5BBA32     GETDUP    LD      DE,(SAVEDCT)    ;DE => DCT+Ø
2D3Ø 21ØØ3A                 LD      HL,DUPDCT       ;Source
2D33 18F1                   JR      DOXFER1         ;Transfer back
                  ;
                  ;         GTDRV - P/u Next available Driver Address
                  ;
                  ;         IX <= Driver Address Pointer
                  ;         DE <= Current Address
                  ;
2D35 E5           GTDRV     PUSH    HL              ;Save HL
2D36 114B49                 LD      DE,'IK'         ;P/u *KI DCB address
2D39                        @@GTDCB
2D39 3E52                   LD      A,82
2D3B EF                     RST     4Ø
2D3C 2B                     DEC     HL              ;KIDCB - 2 => free area
2D3D E5                     PUSH    HL              ;Xfer to IX
2D3E DDE1                   POP     IX
2D4Ø 56                     LD      D,(HL)          ;P/u address in DE
2D41 2B                     DEC     HL
2D42 22F82E                 LD      (KIDCB$+1),HL   ;Save address to stuff
2D45 5E                     LD      E,(HL)
2D46 E1                     POP     HL              ;Recover HL
2D47 C9                     RET
                  ;
                  ;         INSTDRV - Relocate & Install Disk Driver
                  ;
2D48 EB           INSTDRV   EX      DE,HL           ;Xfer dest to HL
2D49 11BE2D                 LD      DE,DRIVER       ;Start of driver
2D4C E5                     PUSH    HL              ;Save Source & Dest ptrs
2D4D D5                     PUSH    DE
2D4E B7                     OR      A               ;Clear carry
2D4F ED52                   SBC     HL,DE           ;Get offset
                  ;
                  ;         Relocate internal references in driver
                  ;
2D51 DD217Ø2D               LD      IX,RELTBL       ;Point to relocation tbl
2D55 44                     LD      B,H             ;Move to BC
2D56 4D                     LD      C,L
2D57 DD6EØØ       RLOOP     LD      L,(IX)          ;Get address to change
2D5A DD66Ø1                 LD      H,(IX+1)
2D5D 7C                     LD      A,H
2D5E B5                     OR      L
2D5F 2829                   JR      Z,RELDUN
2D61 5E                     LD      E,(HL)          ;P/U address
2D62 23                     INC     HL
```

MEMDISKB - Subroutines

```
2D63 56         Ø699Ø           LD      D,(HL)
2D64 EB         Ø7ØØØ           EX      DE,HL           ;Offset it
2D65 Ø9         Ø7Ø1Ø           ADD     HL,BC
2D66 EB         Ø7Ø2Ø           EX      DE,HL
2D67 72         Ø7Ø3Ø           LD      (HL),D          ;Put it back
2D68 2B         Ø7Ø4Ø           DEC     HL
2D69 73         Ø7Ø5Ø           LD      (HL),E
2D6A DD23       Ø7Ø6Ø           INC     IX
2D6C DD23       Ø7Ø7Ø           INC     IX
2D6E 18E7       Ø7Ø8Ø           JR      RLOOP           ;Loop till done
                Ø7Ø9Ø ;
                Ø71ØØ ;         Relocation Table for Driver
                Ø711Ø ;
2D7Ø ØØ2E       Ø712Ø RELTBL    DW      REL1+1,REL2+1,REL3+1,REL4+1
     1Ø2E 412E 472E
2D78 7A2E       Ø713Ø           DW      REL5+1,REL6+2,REL7+1,REL8+1,REL8A+1
     E22D E62D EC2D 362E
2D82 7D2E       Ø714Ø           DW      REL8B+1,REL9+1,REL2A+1,Ø
     E92D Ø72E ØØØØ
                Ø715Ø ;
                Ø716Ø ;         Transfer MemDisk driver to driver area
                Ø717Ø ;
2D8A E1         Ø718Ø RELDUN    POP     HL              ;HL => Source DE => Dest
2D8B D1         Ø719Ø           POP     DE
2D8C D5         Ø72ØØ           PUSH    DE              ;Save start
2D8D Ø1DCØØ     Ø721Ø           LD      BC,LENGTH       ;# bytes to move
2D9Ø EDBØ       Ø722Ø           LDIR                    ;Block move
2D92 D1         Ø723Ø           POP     DE              ;Restore start
2D93 C9         Ø724Ø           RET                     ;RETurn
                Ø725Ø ;
                Ø726Ø ;         SETDCT - Set up Drive Code Table for MemDISK
                Ø727Ø ;
2D94 DD2ABA32   Ø728Ø SETDCT    LD      IX,(SAVEDCT)    ;IX => DCT address
2D98 DD36ØØC3   Ø729Ø           LD      (IX+Ø),ØC3H     ;Enable
2D9C DD73Ø1     Ø73ØØ           LD      (IX+1),E        ;Lsb of driver
2D9F DD72Ø2     Ø731Ø           LD      (IX+2),D        ;Msb of driver
2DA2 DD36Ø34Ø   Ø732Ø SDEND     LD      (IX+3),4ØH      ;DD,5",floppy,step=6
2DA6 DD36Ø45Ø   Ø733Ø SDENE     LD      (IX+4),5ØH      ;DDC=Y, 1 side, ALIEN
2DAA DD36Ø5ØØ   Ø734Ø           LD      (IX+5),Ø        ;Current Cyl = Ø
2DAE DD77Ø6     Ø735Ø           LD      (IX+6),A        ;# of tracks rel from Ø
2DB1 DD36Ø711   Ø736Ø SDENF     LD      (IX+7),17       ;18 spt (DD), 1Ø spt (SD)
2DB5 DD36Ø845   Ø737Ø SDENG     LD      (IX+8),45H      ;2/3 G/C, 5/6 S/G
2DB9 DD36Ø9Ø1   Ø738Ø           LD      (IX+9),1        ;Directory Cyl = 1
2DBD C9         Ø739Ø           RET                     ;RETurn
2DBE            ØØ55Ø *GET      MEMDISKC:3
                Ø74ØØ ;MEMDISKC/ASM - MemDISK Driver Code
2DBE            Ø741Ø           SUBTTL  '<MEMDISKC - MemDISK Driver>'
```

```
2DBE                      PAGE
                  ;
2DBE 181D         DRIVER  JR      INIT              ;Jump around header
2DCØ ØØØØ         OLDHIGH DW      Ø                 ;Old HIDRV$
2DC2 Ø3                   DB      3,'$MD'           ;Header
     24 4D 44
2DC6 ØØØØ         OLD_HI  DW      Ø                 ;Old HIGH$ (for bank Ø)
2DC8 ØØ           BANKIM  DB      ØØØØØØØØB         ;Bank Image
2DC9 ØØØØ         DRVLOW  DW      Ø                 ;What driver addr was
2DCB ØØØØ         MEMHIGH DW      Ø                 ;HIGH$ after installed
                  ;
                          IF      @MOD2
                          DC      32,Ø              ;Model 2 stack area
                  ;
                          ELSE
2DCD ØØ                   DC      16,Ø              ;Driver Stack Area
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ
                          ENDIF
2DDD              MYSTACK EQU     $                 ;Start of Mystack
                  ;
                  ;       Reset SP to MYSTACK, and CALL driver
                  ;
2DDD E5           INIT    PUSH    HL                ;Save Registers
2DDE D5                   PUSH    DE                ;
2DDF C5                   PUSH    BC                ;
2DEØ ED73EF2D     REL6    LD      (SAVESP+1),SP     ;Save original SP
2DE4 F3                   DI                        ;Interrupts off
2DE5 31DD2D       REL7    LD      SP,MYSTACK        ;Memdisk SP
2DE8 228C2E       REL9    LD      (BUFF+1),HL       ;Save buffer addr request
2DEB CDF62D       REL8    CALL    MEMDRIV           ;Call the actual driver
2DEE 31ØØØØ       SAVESP  LD      SP,$-$            ;P/u original SP
2DF1 FB                   EI                        ;Back on
2DF2 C1                   POP     BC                ;Restore Registers
2DF3 D1                   POP     DE
2DF4 E1                   POP     HL
2DF5 C9                   RET
                  ;
2DF6 78           MEMDRIV LD      A,B               ;Get operation byte
                  ;
2DF7 FEØ9         B9      CP      9                 ;Operation #9 ?
2DF9 2Ø27                 JR      NZ,B1Ø            ;No - Check for Verify
                  ;
                  ;       READ sector - Set Z if D = directory cyl
                  ;
2DFB 15                   DEC     D                 ;Set Z flag if Cyl = 1
2DFC F5                   PUSH    AF
2DFD 14                   INC     D                 ;Restore cyl #
                  ;
                  ;       Set up For transfer to temporary I/O buffer
                  ;
2DFE E5                   PUSH    HL                ;Save User I/O buffer ptr
2DFF CD5D2E       REL1    CALL    GETADR            ;HL => MemDISK Sector
2EØ2 38Ø8                 JR      C,DOXFER          ;High - use temporary buf
                  ;
                  ;       I/O buff is low - xfer MemDISK sector to it
                  ;
2EØ4 EDBØ                 LDIR                      ;Xfer directly to buffer
2EØ6 CD832E       REL2A   CALL    GETOLD            ;Get original bank
2EØ9 E1                   POP     HL                ;HL => User I/O buffer
```

MEMDISKC - MemDISK Driver

```
2E0A 180D       07990          JR      CHKDIR2          ;Check if directory cyl
                08000 ;
                08010 ;        Transfer MemDISK sector to Temporary Buffer
                08020 ;
2E0C D5         08030 DOXFER   PUSH    DE               ;DE => Temporary Buffer
2E0D EDB0       08040          LDIR                     ;Xfer to system area
                08050 ;
                08060 ;        Xfer data from temporary to User Buffer
                08070 ;
2E0F CD832E     08080 REL2     CALL    GETOLD           ;Get original bank
2E12 E1         08090          POP     HL               ;HL => Temporary buffer
2E13 D1         08100          POP     DE               ;DE => User I/O buffer
2E14 010001     08110          LD      BC,256           ;BC = 256 bytes to xfer
2E17 EDB0       08120          LDIR                     ;Xfer to user buffer
                08130 ;
                08140 ;        Set A = Error #6 if Cylinder 1 (Directory)
                08150 ;
2E19 F1         08160 CHKDIR2  POP     AF               ;Get Z
2E1A 2004       08170 CHKDIR   JR      NZ,NOTDIR        ;Not a directory read
2E1C 3E06       08180          LD      A,6              ;Error Code = 6
2E1E B7         08190          OR      A                ;NZ condition
2E1F C9         08200          RET                      ;And RETurn
2E20 AF         08210 NOTDIR   XOR     A                ;Set Z flag
2E21 C9         08220          RET                      ;And return
                08230 ;
2E22 FE0A       08240 B10      CP      10               ;Verify sector ?
2E24 2003       08250          JR      NZ,B13           ;Check more if not
                08260 ;
                08270 ;        Verify a sector
                08280 ;
2E26 15         08290          DEC     D                ;Directory Cylinder
2E27 18F1       08300          JR      CHKDIR           ;Check if Directory cyl
                08310 ;
2E29 FE0D       08320 B13      CP      13               ;Write a sector?
2E2B 201E       08330          JR      NZ,B14           ;Check further if not
                08340 ;
                08350 ;        Write A Sector
                08360 ;
2E2D 3E0F       08370 WRITES   LD      A,WP             ;WP error X'0F'
2E2F FDCB037E   08380          BIT     7,(IY+3)         ;Software Write Protect?
2E33 C0         08390          RET     NZ               ;Return with error
                08400 ;
                08410 ;        Set up for Tranfer to Temporary Buffer
                08420 ;
2E34 D5         08430          PUSH    DE               ;Save Cyl/Sector
2E35 CD8A2E     08440 REL8A    CALL    GETBUF           ;Get buffer ptr
2E38 3005       08450          JR      NC,RECVDE        ;Get back DE
2E3A 010001     08460          LD      BC,256           ;BC = 256 bytes to xfer
2E3D EDB0       08470          LDIR                     ;Xfer to temp buffer
2E3F D1         08480 RECVDE   POP     DE               ;DE = Cyl/sector
                08490 ;
                08500 ;        Get Sector from MemDISK & xfer to User buff
                08510 ;
2E40 CD5D2E     08520 REL3     CALL    GETADR           ;HL <= Mem, DE <= Buffer
2E43 EB         08530          EX      DE,HL
2E44 EDB0       08540          LDIR                     ;Xfer to user buffer
2E46 CD832E     08550 REL4     CALL    GETOLD           ;Get original back
2E49 AF         08560          XOR     A                ;Set Z flag
2E4A C9         08570          RET
```

MEMDISKC - MemDISK Driver

```
                 Ø858Ø ;
2E4B FEØE        Ø859Ø B14      CP      14              ;Write system sector?
2E4D 28DE        Ø860Ø          JR      Z,WRITES        ;Go if so
                 Ø861Ø ;
2E4F FEØC        Ø862Ø          CP      12              ;Format command?
2E51 28Ø4        Ø863Ø          JR      Z,B14A          ;Go if so
2E53 FEØF        Ø864Ø          CP      15              ;Write Track ?
2E55 2ØØ4        Ø865Ø          JR      NZ,EX1          ;No - exit Z
2E57 3EØ8        Ø866Ø B14A     LD      A,8             ;Yes - Exit NZ
2E59 B7          Ø867Ø          OR      A               ;Error = Device not avail
2E5A C9          Ø868Ø          RET
                 Ø869Ø ;
2E5B AF          Ø87ØØ EX1      XOR     A               ;Zero A, set Z
2E5C C9          Ø871Ø          RET                     ;Return with Z set
                 Ø872Ø ;
                 Ø873Ø ;        GETADR - Point HL to MemDISK area
                 Ø874Ø ;         - Point DE to Temporary buffer
                 Ø875Ø ;         - Set BC = 256 (bytes to xfer)
                 Ø876Ø ;
2E5D 7A          Ø877Ø GETADR   LD      A,D             ;P/u Cylinder #
                 Ø878Ø ;
                 Ø879Ø ;        Multiply cylinder # x 1Ø or 18 (sectors/cyl)
                 Ø88ØØ ;
2E5E 87          Ø881Ø SDENA    ADD     A,A             ;X 2 or NOP if Single Den
2E5F 57          Ø882Ø          LD      D,A             ;DDEN = x 2  SDEN = x 1
2E6Ø 87          Ø883Ø          ADD     A,A             ;DDEN = x 4  SDEN = x 2
2E61 87          Ø884Ø          ADD     A,A             ;DDEN = x 8  SDEN = x 4
2E62 87          Ø885Ø SDENB    ADD     A,A             ;DDEN = x 16  SDEN = x 5
2E63 82          Ø886Ø SDENC    ADD     A,D             ;DDEN = x 18  SDEN = x 1Ø
                 Ø887Ø ;
                 Ø888Ø ;        Add Sect offset (E) & add 8ØH if bank 2 active
                 Ø889Ø ;
2E64 83          Ø89ØØ          ADD     A,E             ;Add sector offset
2E65 C6ØØ        Ø891Ø OFFSET   ADD     A,$-$           ;8ØH if 2 active
                 Ø892Ø ;
                 Ø893Ø ;        Set HL => sector, C = Default bank (Ø or 1)
                 Ø894Ø ;
2E67 67          Ø895Ø          LD      H,A             ;Stuff msb in H
2E68 2EØØ        Ø896Ø          LD      L,Ø             ;Land on page boundary
2E6A ØEØØ        Ø897Ø DEFBANK  LD      C,$-$           ;C = Ø or C = 1
                 Ø898Ø ;
                 Ø899Ø ;        Set C = Bank #2 if Address > X'7FFF'
                 Ø9ØØØ ;
2E6C Ø7          Ø9Ø1Ø          RLCA                    ;Address > X'7FFF' ?
2E6D 3ØØ1        Ø9Ø2Ø          JR      NC,GOTBANK      ;No - got it
2E6F ØC          Ø9Ø3Ø          INC     C               ;Yes - Set C = 2
                 Ø9Ø4Ø ;
                 Ø9Ø5Ø ;        Force address > X'7FFF' & Select Bank C
                 Ø9Ø6Ø ;
2E7Ø CBFC        Ø9Ø7Ø GOTBANK  SET     7,H             ;Force Address > X'7FFF'
2E72 45          Ø9Ø8Ø STFRET   LD      B,L             ;Bring in Bank C
2E73             Ø9Ø9Ø          @@BANK
2E73 3E66        ØØØ28          LD      A,1Ø2
2E75 EF          ØØØ29          RST     4Ø
                 Ø91ØØ ;
                 Ø911Ø ;        Pick up Bank previously in use & Save
                 Ø912Ø ;
2E76 79          Ø913Ø          LD      A,C             ;P/u last bank
2E77 E67F        Ø914Ø          AND     7FH             ;Ignore Hi-bit
```

MEMDISKC - MemDISK Driver

```
2E79 32842E     Ø915Ø REL5    LD      (GETOLD+1),A     ;  and stuff away
                Ø916Ø ;
                Ø917Ø ;       Set DE => Overlay Buffer, BC = 256
                Ø918Ø ;
2E7C CD8A2E     Ø919Ø REL8B   CALL    GETBUF           ;Get buffer ptr
2E7F Ø1ØØØ1     Ø92ØØ         LD      BC,256           ;Set BC = 256
2E82 C9         Ø921Ø         RET
                Ø922Ø ;
                Ø923Ø ;       OLDBNK - Get original Bank used
                Ø924Ø ;
2E83 Ø1ØØØØ     Ø925Ø GETOLD  LD      BC,$-$           ;B = Ø, C = Bank #
2E86            Ø926Ø         @@BANK                   ;Get bank
2E86 3E66       ØØØ3Ø         LD      A,1Ø2
2E88 EF         ØØØ31         RST     4Ø
2E89 C9         Ø927Ø         RET
                Ø928Ø ;
                Ø929Ø ;       GETBUF - Get Buffer ptr to LDIR from or to
                Ø93ØØ ;
2E8A E5         Ø931Ø GETBUF  PUSH    HL               ;Save source/dest ptr
2E8B 11ØØØØ     Ø932Ø BUFF    LD      DE,$-$           ;P/u requested I/O buffer
2E8E 21ØØ7F     Ø933Ø         LD      HL,7FØØH         ;Use (BUFF+1) if < 7FØØH
2E91 B7         Ø934Ø         OR      A
2E92 ED52       Ø935Ø         SBC     HL,DE            ;Past 7FØØH ?
2E94 E1         Ø936Ø         POP     HL               ;Rcvr ptr
2E95 DØ         Ø937Ø         RET     NC               ;No - use requested buff
2E96 11ØØ23     Ø938Ø         LD      DE,BUFFER$       ;Yes - use BUFFER$
2E99 C9         Ø939Ø         RET
                Ø94ØØ ;
ØØDC            Ø941Ø LENGTH  EQU     $-DRIVER         ;Length of Driver
2E9A            ØØ56Ø *GET    MEMDISKA:3
                Ø942Ø ;MEMDISKA/ASM - Memdisk Initialization
2E9A            Ø943Ø         SUBTTL  '<MEMDISKA - Installation>'
```

MEMDISKA - Installation

```
2E9A            Ø944Ø          PAGE
                Ø945Ø ;
2E9A F5         Ø946Ø INSTMEM PUSH    AF                ;Save # cyls
2E9B C5         Ø947Ø          PUSH    BC                ;Save Bank #
                Ø948Ø ;
                Ø949Ø ;        Is there a MemDISK driver trapped ?
                Ø95ØØ ;
2E9C 11CØ34     Ø951Ø          LD      DE,MD$            ;"$MD"
2E9F            Ø952Ø          @@GTMOD                   ;MemDISK in ?
2E9F 3E53       ØØØ32          LD      A,83
2EA1 EF         ØØØ33          RST     4Ø
2EA2 2Ø11       Ø953Ø          JR      NZ,NOT__IN        ;No
                Ø954Ø ;
                Ø955Ø ;        There is a driver trapped - use that area
                Ø956Ø ;
2EA4 22EF2E     Ø957Ø          LD      (OLDRVR+1),HL     ;Save old driver addr
2EA7 EB         Ø958Ø          EX      DE,HL             ;Pt DE => Destination
2EA8 216737     Ø959Ø          LD      HL,RE_USE         ;Set re-use flag
2EAB 34         Ø96ØØ          INC     (HL)
2EAC 21DBØØ     Ø961Ø          LD      HL,LENGTH-1       ;Set HL = last used
2EAF 19         Ø962Ø          ADD     HL,DE             ;  address of driver
2EBØ 22CØ2D     Ø963Ø          LD      (OLDHIGH),HL      ;Xfer into driver
2EB3 1827       Ø964Ø          JR      DO_INST           ;Install driver
                Ø965Ø ;
                Ø966Ø ;        Driver is not in memory - is there room ?
                Ø967Ø ;
2EB5 CD352D     Ø968Ø NOT__IN CALL    GTDRV             ;P/u low driver ptr
2EB8 ED53EF2E   Ø969Ø          LD      (OLDRVR+1),DE     ;Save it
2EBC 21DBØØ     Ø97ØØ          LD      HL,LENGTH-1       ;HL = length of driver
2EBF Ø1ØØ13     Ø971Ø          LD      BC,HIDRVR         ;BC = 1 + highest avail
2EC2 19         Ø972Ø          ADD     HL,DE             ;HL => Last used by Mem
2EC3 22CØ2D     Ø973Ø          LD      (OLDHIGH),HL
2EC6 23         Ø974Ø          INC     HL
2EC7 B7         Ø975Ø          OR      A
2EC8 E5         Ø976Ø          PUSH    HL                ;Will MemDisk fit ?
2EC9 ED42       Ø977Ø          SBC     HL,BC
2ECB E1         Ø978Ø          POP     HL
2ECC 38Ø8       Ø979Ø          JR      C,OKTOGO          ;Yes - let's do it
                Ø98ØØ ;
                Ø981Ø ;        Insufficient Driver space
                Ø982Ø ;
2ECE 21D232     Ø983Ø          LD      HL,NOMEM          ;Alter exit message
2ED1 22112F     Ø984Ø          LD      ($NOT+1),HL
2ED4 1818       Ø985Ø          JR      OLDRVR            ;Reclaim hi mem if bank Ø
                Ø986Ø ;
                Ø987Ø ;        Save next avail mem addr & set Memdisk bit
                Ø988Ø ;
2ED6 DD74ØØ     Ø989Ø OKTOGO  LD      (IX),H            ;Stuff msb
2ED9 DD75FF     Ø99ØØ          LD      (IX-1),L          ;Stuff lsb
                Ø991Ø ;
                Ø992Ø ;        Install MemDISK driver & set up DCT
                Ø993Ø ;
2EDC CD482D     Ø994Ø DO_INST CALL    INSTDRV           ;Relocate, install driver
2EDF C1         Ø995Ø          POP     BC                ;C = Bank # requests
2EEØ F1         Ø996Ø          POP     AF                ;A = # cylinders
2EE1 CD942D     Ø997Ø          CALL    SETDCT            ;Set up DCT
                Ø998Ø ;
                Ø999Ø ;        Prompt for Format
                1ØØØØ ;
2EE4 CD7C32     1ØØ1Ø          CALL    FORMTIT           ;Format this ?
```

```
2EE7 282A                JR      Z,DOFORM1        ;Yes - do it
               ;
               ;         Format = No, Is there a MemDISK here ?
               ;
2EE9 3EØØ      MEMIN1    LD      A,$-$            ;Ø = not active
2EEB B7                  OR      A                ;
2EEC 2Ø34                JR      NZ,SHOWINU       ;MemDisk previously in
               ;
               ;         Abort installation - stuff X'C9' in DCT
               ;
2EEE 21ØØØØ    OLDRVR    LD      HL,$-$           ;P/u original driver addr
2EF1 3A6737              LD      A,(RE_USE)       ;Have we re-used driver
2EF4 B7                  OR      A                ;  area that was trapped ?
2EF5 2ØØ3                JR      NZ,DONTRES       ;Yes - don't reset memptr
2EF7 22ØØØØ    KIDCB$    LD      ($-$),HL         ;Stuff ptr used
2EFA 2ABA32    DONTRES   LD      HL,(SAVEDCT)     ;P/u DCT address
2EFD 36C9                LD      (HL),ØC9H        ;Disable it
2EFF FDCBØ3A6            RES     4,(IY+DFLAG$)    ;Reset MemDISK bit
2FØ3 3A292C              LD      A,(SETBANK+1)    ;P/u bank request
2FØ6 B7                  OR      A                ;If alternate bank(s),
2FØ7 2ØØ7                JR      NZ,$NOT          ;  don't reset high$
2FØ9 2AC634              LD      HL,(MDDATA+2)    ;Pu old high$
2FØC 47                  LD      B,A
2FØD                     @@HIGH$                  ;Reset high$
2FØD 3E64                LD      A,1ØØ
2FØF EF                  RST     4Ø
2F1Ø C3DE32    $NOT      JP      NOTACT           ;Show not installed
               ;
               ;         Format mem, init GAT & HIT, & BOOT-DIR entries
               ;
2F13 CD2D32    DOFORM1   CALL    FORMAT           ;Format
2F16 CD3Ø2F              CALL    WRBOOT           ;Write BOOT/SYS
2F19 CD5A2F              CALL    WRGAT            ;Initialize GAT
2F1C CDD52F              CALL    WRHIT            ;Initialize HIT
2F1F CDE22F              CALL    WRENT            ;Put DIR & BOOT entries
2F22 CD282C    SHOWINU   CALL    SETBANK          ;Show Banks in use
2F25 FDCBØ3E6            SET     4,(IY+DFLAG$)    ;Set MemDisk flag
2F29 211335              LD      HL,INSTALD       ;Init"MemDisk Installed
2F2C                     @@LOGOT                  ;Display the msg
                         IFEQ    ØØH,1
                         LD      HL,
                         ENDIF
2F2C 3EØC                LD      A,12
2F2E EF                  RST     4Ø
2F2F C9                  RET                      ;Done - GO TO EXIT
               ;
               ;         WRBOOT - Write BOOT/SYS information
               ;
2F3Ø AF        WRBOOT    XOR     A                ;Fill byte
2F31 21ØØ38              LD      HL,IOBUFF        ;HL => I/O buffer
               ;
               ;         Fill BOOT/SYS with Zeroes
               ;
2F34 77        FILBUF    LD      (HL),A           ;Stuff in byte
2F35 2C                  INC     L                ;One sector to
2F36 2ØFC                JR      NZ,FILBUF        ;  fill
               ;
               ;         Write # of Sectors in BOOT
               ;
```

MEMDISKA - Installation

```
2F38 57          1Ø54Ø          LD      D,A             ;Cylinder Ø
2F39 5F          1Ø55Ø          LD      E,A             ;Sector Ø
2F3A Ø6Ø6        1Ø56Ø BTSECS   LD      B,6             ;P/u Sec cnt - 5,6, or 18
2F3C CDC12F      1Ø57Ø BTLP     CALL    WRSEC           ;Write sector
2F3F 1C          1Ø58Ø          INC     E               ;Bump
2F4Ø 1ØFA        1Ø59Ø          DJNZ    BTLP
                 1Ø6ØØ ;
                 1Ø61Ø ;        Write Directory Cylinder byte in Sector Zero
                 1Ø62Ø ;
2F42 2EØ2        1Ø63Ø          LD      L,2             ;Byte 2
2F44 36Ø1        1Ø64Ø          LD      (HL),1          ;Directory cyl = 1
                 1Ø65Ø ;
                 1Ø66Ø ;        Write Sector Ø of Cylinder Ø
                 1Ø67Ø ;
2F46 11ØØØØ      1Ø68Ø          LD      DE,Ø            ;Cylinder Ø, Sector Ø
2F49 CDC12F      1Ø69Ø          CALL    WRSEC           ;Write Sector
                 1Ø7ØØ ;
                 1Ø71Ø ;        Make a duplicate of sector Ø in sector 1
                 1Ø72Ø ;
2F4C 1C          1Ø73Ø          INC     E               ;Sector 1
2F4D CDC12F      1Ø74Ø          CALL    WRSEC           ;Write sector
                 1Ø75Ø ;
                 1Ø76Ø ;        Write C/R in Auto Buffer in Sector 2
                 1Ø77Ø ;
2F5Ø 1EØ2        1Ø78Ø          LD      E,2             ;Sector 2
2F52 2E2Ø        1Ø79Ø          LD      L,2ØH           ;Byte X'2Ø'
2F54 36ØD        1Ø8ØØ          LD      (HL),CR         ;No auto
2F56 CDC12F      1Ø81Ø          CALL    WRSEC           ;Write sector
2F59 C9          1Ø82Ø          RET                     ;RETurn for now
                 1Ø83Ø ;
                 1Ø84Ø ;        WRGAT - Write Granule Allocation Table
                 1Ø85Ø ;
                 1Ø86Ø ;
2F5A 21ØØ38      1Ø87Ø WRGAT    LD      HL,IOBUFF       ;HL => I/O buffer
2F5D 36F9        1Ø88Ø GATØ     LD      (HL),ØF9H       ;DD - X'F9', SD - X'FD'
2F5F 23          1Ø89Ø          INC     HL              ;Bump
                 1Ø9ØØ ;
                 1Ø91Ø ;        Lock out next X'CA' bytes in GAT
                 1Ø92Ø ;
2F6Ø Ø6CA        1Ø93Ø          LD      B,ØCAH          ;Lock out the bytes
2F62 36FF        1Ø94Ø LOCKOUT  LD      (HL),ØFFH       ;GAT + X'Ø1' through
2F64 23          1Ø95Ø          INC     HL              ;GAT + X'CA'
2F65 1ØFB        1Ø96Ø          DJNZ    LOCKOUT
                 1Ø97Ø ;
                 1Ø98Ø ;        GAT + X'CB'
                 1Ø99Ø ;
2F67 3662        11ØØØ          LD      (HL),62H        ;GAT + X'CB'= Version 6.2
                 11Ø1Ø ;
                 11Ø2Ø ;        GAT + X'CC'
                 11Ø3Ø ;
2F69 3EØØ        11Ø4Ø CYLS     LD      A,$-$           ;P/u cylinder count
2F6B F5          11Ø5Ø          PUSH    AF              ;Save Cylinder count
2F6C D623        11Ø6Ø          SUB     35              ;Tracks in excess of 35
2F6E 23          11Ø7Ø          INC     HL              ;HL => next GAT byte
2F6F 77          11Ø8Ø          LD      (HL),A          ;GAT + X'CC'= tracks - 35
                 11Ø9Ø ;
                 111ØØ ;        GAT + X'CD'
                 1111Ø ;
2F7Ø 23          1112Ø          INC     HL              ;GAT + X'CD' =
```

MEMDISKA - Installation

```
2F71 3642      1113Ø GATCD   LD      (HL),42H        ;DDEN, 1 side, 3 gran/cyl
               1114Ø ;
               1115Ø ;       GAT + X'CE' & X'CF'
               1116Ø ;
2F73 23        1117Ø         INC     HL              ;GAT + X'CE' & X'CF' =
2F74 36EØ      1118Ø         LD      (HL),ØEØH       ;16-bit Hash code of
2F76 23        1119Ø         INC     HL              ;"PASSWORD"
2F77 3642      112ØØ         LD      (HL),42H        ;Hash = X'42EØ'
               1121Ø ;
               1122Ø ;       GAT + X'DØ' - X'D7'
               1123Ø ;
2F79 23        1124Ø         INC     HL              ;HL => next GAT byte
2F7A 11B834    1125Ø         LD      DE,MEMDISK      ;"MEMDISK " is Pack name
2F7D ØEØ8      1126Ø         LD      C,8             ;Eight bytes
2F7F EB        1127Ø         EX      DE,HL           ;Swap 'em for LDIR
2F8Ø EDBØ      1128Ø         LDIR                    ;Stuff in ID
2F82 EB        1129Ø         EX      DE,HL           ;HL => GAT + X'D8'
               113ØØ ;
               1131Ø ;       GAT + X'D8' - X'DF'
               1132Ø ;
2F83           1133Ø         @@DATE                  ;Stuff date in GAT
2F83 3E12      ØØØ41         LD      A,18
2F85 EF        ØØØ42         RST     4Ø
               1134Ø ;
               1135Ø ;       Stuff GAT tracks in use with either X'F8' or X'FC'
               1136Ø ;
2F86 3EF8      1137Ø GPC     LD      A,ØF8H          ;3 gran/cyl
2F88 21Ø238    1138Ø         LD      HL,IOBUFF+2     ;HL => GAT + X'Ø2'
2F8B C1        1139Ø         POP     BC              ;B = # cylinders
2F8C Ø5        114ØØ         DEC     B               ;Subtract 2 to account
2F8D Ø5        1141Ø         DEC     B               ;For BOOT and DIR
               1142Ø ;
               1143Ø ;       Stuff open cylinder bytes into GAT
               1144Ø ;
2F8E 77        1145Ø FREETRK LD      (HL),A          ;Free track
2F8F 23        1146Ø         INC     HL              ;Next GAT byte
2F9Ø 1ØFC      1147Ø         DJNZ    FREETRK         ;Do it B times
               1148Ø ;
               1149Ø ;       Put 2 free Cyl bytes in lockout - BOOT & DIR
               115ØØ ;
2F92 2E6Ø      1151Ø         LD      L,6ØH           ;HL => Lockout
2F94 77        1152Ø         LD      (HL),A
2F95 2C        1153Ø         INC     L
2F96 77        1154Ø         LD      (HL),A
               1155Ø ;
               1156Ø ;       GAT + X'62' - GAT + X'BF'
               1157Ø ;
2F97 2EØ2      1158Ø         LD      L,2             ;HL => GAT + X'Ø2'
2F99 54        1159Ø         LD      D,H             ;Xfer to DE
2F9A 5D        116ØØ         LD      E,L
2F9B ØE6Ø      1161Ø         LD      C,6ØH           ;Of X'6Ø' for the
2F9D Ø9        1162Ø         ADD     HL,BC           ;  duplicate of top
2F9E ØD        1163Ø         DEC     C               ;Only duplicate X'5E'
2F9F ØD        1164Ø         DEC     C               ;  bytes
2FAØ EB        1165Ø         EX      DE,HL           ;Prepare for LDIR
2FA1 EDBØ      1166Ø         LDIR                    ;HL => GAT, DE => Lockout
               1167Ø ;
2FA3 11F438    1168Ø         LD      DE,IOBUFF+255-11        ;6.2 Media Data Block
2FA6 21BA2F    1169Ø         LD      HL,LSIID        ;Point to header
```

MEMDISKA - Installation

```
2FA9 Ø1Ø4ØØ          LD      BC,Ø4          ;Set length
2FAC EDBØ            LDIR                   ;Move it
2FAE 2ABA32          LD      HL,(SAVEDCT)   ;The data to move
2FB1 23              INC     HL
2FB2 23              INC     HL
2FB3 23              INC     HL
2FB4 ØEØ7            LD      C,7            ;Bytes to move
2FB6 EDBØ            LDIR                   ;Move it in
2FB8 18Ø4            JR      WRGAT1         ;Skip around string
2FBA Ø3      LSIID   DB      Ø3,'LSI'
     4C 53 49
             ;
2FBE 11ØØØ1  WRGAT1  LD      DE,1ØØH        ;D = Cyl 1, E = Sector Ø
             ;
             ;       WRSEC - Write A sector to MemDISK drive
             ;
2FC1 21ØØ38  WRSEC   LD      HL,IOBUFF      ;I/O buffer
2FC4 ØEØØ    DRIVE   LD      C,$-$          ;P/u drive #
2FC6                 @@WRSEC                ;Write Sector
2FC6 3E35            LD      A,53
2FC8 EF              RST     4Ø
2FC9 C9              RET                    ;  and RETurn
             ;
             ;       RDSEC - Read A sector of MemDISK drive
             ;
2FCA 21ØØ38  RDSEC   LD      HL,IOBUFF      ;HL => I/O Buffer
2FCD 3AC52F          LD      A,(DRIVE+1)    ;P/u drive #
2FDØ 4F              LD      C,A            ;Xfer to C
2FD1                 @@RDSEC                ;Read sector
2FD1 3E31            LD      A,49
2FD3 EF              RST     4Ø
2FD4 C9              RET                    ;  and RETurn
             ;
             ;       WRHIT - Write HIT sector in directory
             ;
2FD5 AF      WRHIT   XOR     A              ;Set A = Ø
2FD6 77      ZEROHIT LD      (HL),A         ;Zero HIT position
2FD7 2C              INC     L              ;Bump HIT pointer
2FD8 2ØFC            JR      NZ,ZEROHIT     ;256 positions
2FDA 36A2            LD      (HL),ØA2H      ;Hash for BOOT/SYS
2FDC 2C              INC     L              ;HL => HIT + X'Ø1'
2FDD 36C4            LD      (HL),ØC4H      ;Hash for DIR/SYS
2FDF 1C              INC     E              ;D = Cyl 1, Sector 1
2FEØ 18DF            JR      WRSEC          ;Write Sector & RETurn
             ;
             ;       WRENT - Write DIR/SYS & BOOT/SYS entries
             ;
2FE2 11FF2F  WRENT   LD      DE,BOOT        ;BOOT/SYS byte field
2FE5 EB              EX      DE,HL          ;Swap for LDIR
2FE6 Ø12ØØØ          LD      BC,32          ;32 bytes in entry
2FE9 EDBØ            LDIR                   ;Block move
2FEB 11Ø2Ø1          LD      DE,1Ø2H        ;D = Cyl 1, E = Sector 2
2FEE CDC12F          CALL    WRSEC          ;Write Sector
             ;
2FF1 Ø12ØØØ          LD      BC,32
2FF4 EB              EX      DE,HL          ;Xfer buffer ptr to DE
2FF5 211F3Ø          LD      HL,DIR         ;HL => DIR/SYS bytes
2FF8 EDBØ            LDIR                   ;Xfer to MemDISK
2FFA 11Ø3Ø1          LD      DE,1Ø3H        ;D = Cyl 1, E = Sector 3
```

MEMDISKA - Installation

```
2FFD 18C2                JR      WRSEC           ;Write sector & RETurn
                 ;
                 ;       BOOT/SYS directory entry data
                 ;
2FFF 5E          BOOT    DB      01011110B       ;No access,inv,sys,FPDE
3000 0000                DW      0               ;Date = 00/00/00
3002 0000                DW      0               ;EOF offset = 0, LRL=256
3004 42                  DB      'BOOT    '      ;Name field
     4F 4F 54 20 20 20 20
300C 53                  DB      'SYS'           ;Extension
     59 53
300F F637                DW      037F6H          ;Owner password hash
3011 F59C                DW      09CF5H          ;User password hash
3013 0600        BOOTERN DW      6               ;ERN = 6 or 5
3015 00                  DB      0               ;First extent = Cyl 0
3016 00          BOOTGRN DB      0               ;St gran = 0, 1 cont gran
3017 FFFF                DW      0FFFFH          ;No more extents
3019 FFFF                DW      0FFFFH
301B FFFF                DW      0FFFFH
301D FFFF                DW      0FFFFH
                 ;
                 ;       DIR/SYS directory entry data
                 ;
301F 5D          DIR     DB      01011101B       ;Read only,inv,sys,FPDE
3020 0000                DW      0               ;Date= 00/00/00
3022 0000                DW      0               ;EOF offset=0, LRL=256
3024 44                  DB      'DIR     '      ;Name field
     49 52 20 20 20 20 20
302C 53                  DB      'SYS'           ;Extension
     59 53
302F F637                DW      037F6H          ;Owner password hash
3031 9642                DW      04296H          ;User password hash
3033 1200        DIRERN  DW      18              ;ERN+1 = 10 or 18
3035 01                  DB      1               ;Starts on cylinder 1
3036 02          SDENI   DB      00000010B       ;St. gran=0, 3 cont grans
3037 FFFF                DW      0FFFFH          ;No Second Extent
3039 FFFF                DW      0FFFFH          ;No Third Extent
303B FFFF                DW      0FFFFH          ;No Fourth Extent
303D FF                  DB      0FFH            ;No further records
303E FF                  DB      0FFH
                 ;
                 ;       DOMEM - Issue Prompts & take inputs for type
                 ;
303F 21E732      DOMEM   LD      HL,HELLO$       ;Display message
3042                     @@DSPLY
                         IFEQ    00H,1
                         LD      HL,
                         ENDIF
3042 3E0A                LD      A,10
3044 EF                  RST     40
                 ;
                 ;       Check if entry from SYSTEM (DRIVER= command
                 ;
3045                     @@FLAGS
3045 3E65                LD      A,101
3047 EF                  RST     40
3048 FDCB025E            BIT     3,(IY+'C'-'A')  ;System request?
304C CAC632              JP      Z,VIASET        ;Quit if not
                 ;
```

MEMDISKA - Installation

```
                 ;        Input MemDISK type - A,B,C,D or E to disable
                 ;
304F 216D33      GETYPE   LD      HL,BANKS          ;Display prompt
3052                      @@DSPLY
                          IFEQ    00H,1
                          LD      HL,
                          ENDIF
3052 3E0A                 LD      A,10
3054 EF                   RST     40
3055 0601                 LD      B,1               ;# of chars to input
3057 CDD62C               CALL    INPUT             ;Input byte
305A 28F3                 JR      Z,GETYPE          ;<ENTER> ? - re-input
                 ;
                 ;        Convert input A-E to 0-4
                 ;
305C 7E                   LD      A,(HL)            ;P/u first character
305D CBAF                 RES     5,A               ;Convert to U/C
305F D641                 SUB     'A'               ;<A> - Bank 0 ?
3061 32292C               LD      (SETBANK+1),A     ;Save type of MemDISK
3064 4F                   LD      C,A               ;Xfer to C for @BANK
                 ;
                 ;        If input is illegal then re-input
                 ;
3065 38E8                 JR      C,GETYPE          ;Less - re-input
3067 FE04                 CP      4                 ;<E> - Disable MemDISK
3069 CA8A31               JP      Z,DISMEM          ;Yes - take it out
306C 30E1                 JR      NC,GETYPE         ;>4 - Re-input
                 ;
                 ;        Check if MemDISK is already active
                 ;
306E FDCB0366             BIT     4,(IY+DFLAG$)     ;MemDISK already active ?
3072 C2CA32               JP      NZ,MEMIN          ;Yes - abort
                 ;
                 ;        If Type A,B,C - Check Bk, D - Check bks 1&2
                 ;
3075 C5                   PUSH    BC                ;Save Bank #
3076 FE03                 CP      3                 ;Type "D" ?
3078 2006                 JR      NZ,A_B_C          ;No - "A", "B", or "C"
                 ;
                 ;        Type "D" - See if both banks 1 & 2 are avail
                 ;
307A 0E01        TYPED    LD      C,1               ;Bank #1 active ?
307C CDCB2C               CALL    CKBANK
307F 0C                   INC     C                 ;Bank #2 active ?
3080 CDCB2C      A_B_C    CALL    CKBANK
3083 C1                   POP     BC                ;C = Bank # (0,1,2,3)
                 ;
                 ;        Stuff Default Bank # and offset into driver
                 ;
3084 79                   LD      A,C               ;P/u bank #
3085 3D                   DEC     A                 ;If bank 0 requested,
3086 FA9830               JP      M,WAS0            ;  then keep as -1
3089 3C                   INC     A                 ;  for driver bank test
308A 32C82D               LD      (BANKIM),A        ;Save bank # in driver
308D FE02                 CP      2                 ;Instruction if
308F 2005                 JR      NZ,NOT2           ;Just bank #2 active
3091 21662E               LD      HL,OFFSET+1       ;Stuff X'80' in ADD
3094 3680                 LD      (HL),80H
3096 3E01        NOT2     LD      A,1               ;Always init to bank 1
```

MEMDISKA - Installation

```
                                                    ;  if type B, C or D
3Ø98 326B2E      WASØ     LD       (DEFBANK+1),A    ;Stuff in driver
                 ;
                 ;        Input Density (Single or Double)
                 ;
3Ø9B 215234      INPDENS  LD       HL,DENSITY       ;"Density"
3Ø9E                      @@DSPLY
                          IFEQ     ØØH,1
                          LD       HL,
                          ENDIF
3Ø9E 3EØA                 LD       A,1Ø
3ØAØ EF                   RST      4Ø
3ØA1 Ø6Ø1                 LD       B,1              ;Input an "S" or "D"
3ØA3 CDD62C               CALL     INPUT
3ØA6 2856                 JR       Z,DEFAULT        ;<ENTER> - use default
                 ;
                 ;        <D>ouble Density input ?
                 ;
3ØA8 7E                   LD       A,(HL)           ;P/u first char
3ØA9 CBAF                 RES      5,A              ;Convert to U/C
3ØAB FE44                 CP       'D'              ;<D>ouble Density ?
3ØAD 284F                 JR       Z,DEFAULT        ;Yes - use 6 sectors/gran
                 ;
                 ;        <S>ingle Density input ?
                 ;
3ØAF FE53                 CP       'S'              ;<S>ingle Density ?
3ØB1 2ØE8                 JR       NZ,INPDENS       ;No - input density again
                 ;
                 ;        Single Density - Change driver math
                 ;
3ØB3 3E82                 LD       A,82H            ;ADD A,D instruction
3ØB5 32622E               LD       (SDENB),A
3ØB8 3E87                 LD       A,87H            ;ADD A,A instruction
3ØBA 32632E               LD       (SDENC),A
3ØBD 3EØ9                 LD       A,9
3ØBF 32B42D               LD       (SDENF+3),A      ;DCT + 7
3ØC2 326A31               LD       (SPC+1),A        ;Save in CALCSIZ routine
3ØC5 3C                   INC      A                ;SDEN BOOT ERN = 1Ø
3ØC6 32333Ø               LD       (DIRERN),A       ;SDEN DIR/SYS ERN = 1Ø
3ØC9 3E24                 LD       A,24H
3ØCB 32B82D               LD       (SDENG+3),A      ;DCT + 8
3ØCE 3E32                 LD       A,'2'            ;Change size to 2.5ØK
3ØDØ 322Ø34               LD       (FRTRK1),A       ;Space per cylinder
3ØD3 3EFD                 LD       A,ØFDH           ;1 Gran Free
3ØD5 325E2F               LD       (GATØ+1),A       ;Stuff in WRGAT routine
3ØD8 3D                   DEC      A                ;2 Grans/Cyl - X'FC'
3ØD9 32872F               LD       (GPC+1),A
3ØDC AF                   XOR      A                ;NOP instruction
3ØDD 325E2E               LD       (SDENA),A
3ØEØ 32A52D               LD       (SDEND+3),A      ;DCT + 3
3ØE3 3C                   INC      A                ;Set A = 1
3ØE4 32722F               LD       (GATCD+1),A      ;Stuff in WRGAT routine
3ØE7 32363Ø               LD       (SDENI),A        ;2 contiguous granules
3ØEA 3EØ5                 LD       A,5              ;Set Boot ERN = 5
3ØEC 32133Ø               LD       (BOOTERN),A
3ØEF 3E1Ø                 LD       A,1ØH            ;Alien Disk Controller
3ØF1 32A92D               LD       (SDENE+3),A
3ØF4 213B2F               LD       HL,BTSECS+1      ;HL => # BOOT sectors
3ØF7 35                   DEC      (HL)             ;Use 5 instead of 6
```

MEMDISKA - Installation

```
3ØF8 21ØØØA                 LD      HL,SDBPC          ;Change GETCYL routine
3ØFB 22E52C                 LD      (BPC+1),HL
                   ;
                   ;        Calculate # of possible cylinders
                   ;
3ØFE 3A292C         DEFAULT LD      A,(SETBANK+1)     ;P/u type of memdisk
31Ø1 4F                     LD      C,A               ;Save in C
31Ø2 B7                     OR      A                 ;Bank Ø ?
31Ø3 28ØA                   JR      Z,PIKUPHI         ;Yes - use HIGH$
                   ;
                   ;        Bank #1, #2, or #1 & #2
                   ;
31Ø5 21FF7F                 LD      HL,7FFFH          ;HL = # bytes in 1 bank
31Ø8 FEØ3                   CP      3                 ;Bank 1 & 2 ?
31ØA 2Ø1F                   JR      NZ,CALCYL         ;No - use X'7FFF'
31ØC 65                     LD      H,L               ;Set HL = X'FFFF'
31ØD 181C                   JR      CALCYL
                   ;
                   ;        Bank Zero request - calculate free mem avail
                   ;
31ØF AF             PIKUPHI XOR     A                 ;Set A = Ø
311Ø ED62                   SBC     HL,HL             ;HL = Ø
3112 47                     LD      B,A               ;B = Ø
3113                        @@HIGH$                   ;P/u HIGH$
3113 3E64                   LD      A,1ØØ
3115 EF                     RST     4Ø
3116 22C634                 LD      (MDDATA+2),HL     ;Save HIGH$
3119 22C62D                 LD      (OLD_HI),HL       ;Save HIGH$ in driver
311C 23                     INC     HL                ;Set HL = last page
311D 25                     DEC     H
311E 6F                     LD      L,A
311F 226F31                 LD      (SAVPAGE+1),HL    ;Save page boundary
3122 11ØØ8Ø                 LD      DE,LOWEST         ;DE = lowest
3125 AF                     XOR     A
3126 ED52                   SBC     HL,DE             ;HL = amount free
3128 DAD232                 JP      C,NOMEM           ;Carry - not enough mem
                   ;
                   ;        Calculate # of cylinders available
                   ;
312B CDE22C         CALCYL  CALL    GETCYL            ;Get # of poss cyls
312E C2D232                 JP      NZ,NOMEM          ;NZ - Not enough mem
                   ;
                   ;        Convert A to ASCII & stuff into string
                   ;
3131 3C                     INC     A                 ;Bump one
3132 325F31                 LD      (MAXCYL+1),A      ;Save max # of cyls
3135 3D                     DEC     A
3136 326A2F                 LD      (CYLS+1),A        ;Stuff in WRGAT routine
3139 F5                     PUSH    AF                ;Save Max # of cyls
313A CD632C                 CALL    DECASC            ;Convert to ASCII in HL
313D F1                     POP     AF                ;A = # cyls
313E EB                     EX      DE,HL             ;DE = #
313F 214C34                 LD      HL,FRTRK2         ;HL => Destination
3142 72                     LD      (HL),D            ;Msb
3143 23                     INC     HL
3144 73                     LD      (HL),E            ;Lsb
                   ;
                   ;        A = # of Cyls poss, put in string if bank Ø
                   ;
```

MEMDISKA - Installation

```
3145 ØC         1437Ø          INC     C                 ;Bank Zero request ?
3146 ØD         1438Ø          DEC     C
3147 CØ         1439Ø          RET     NZ                ;No - done prompting
                144ØØ ;
                1441Ø ;        Display Cylinders string & input # of cyls
                1442Ø ;
3148 21Ø534     1443Ø REDO     LD      HL,FRTRACK        ;How many cylinders
314B            1444Ø          @@DSPLY
                ØØØ66          IFEQ    ØØH,1
                ØØØ67          LD      HL,
                ØØØ68          ENDIF
314B 3EØA       ØØØ69          LD      A,1Ø
314D EF         ØØØ7Ø          RST     4Ø
314E Ø6Ø2       1445Ø          LD      B,2               ;Input # of cyls
315Ø CDD62C     1446Ø          CALL    INPUT
3153 28F3       1447Ø          JR      Z,REDO            ;Reinput it
                1448Ø ;
                1449Ø ;        Check if input legal
                145ØØ ;
3155 CD6E2C     1451Ø          CALL    DECHEX            ;Convert # to Hex
3158 2ØEE       1452Ø          JR      NZ,REDO           ;Illegal - Re-input
315A FEØ3       1453Ø          CP      MINCYL            ;Less than minimum?
315C 38EA       1454Ø          JR      C,REDO
315E FEØØ       1455Ø MAXCYL   CP      $-$               ;P/u max # of cyls
316Ø 3ØE6       1456Ø          JR      NC,REDO           ;Too many - reinput
3162 326A2F     1457Ø          LD      (CYLS+1),A        ;New # of cylinders
                1458Ø ;
                1459Ø ;        CALCSIZ - Calculate Size of Cyl request
                146ØØ ;
3165 CDAE2C     1461Ø CALCSIZ  CALL    SAVEREG           ;Save Registers
3168 4F         1462Ø          LD      C,A               ;Xfer # cyls to C
3169 Ø611       1463Ø SPC      LD      B,17              ;P/u Sectors/Cyl
                1464Ø ;
                1465Ø ;        Multiply Sectors per Cylinder x # Cylinders
                1466Ø ;
316B 81         1467Ø MLOOP    ADD     A,C               ;Multiply B x C
316C 1ØFD       1468Ø          DJNZ    MLOOP
                1469Ø ;
                147ØØ ;        Set HL = New HIGH$
                1471Ø ;
316E 21ØØØØ     1472Ø SAVPAGE  LD      HL,$-$            ;P/u page boundary
3171 ED44       1473Ø          NEG                       ;Set H = H - A
3173 84         1474Ø          ADD     A,H
3174 67         1475Ø          LD      H,A               ;HL = New HIGH$, B = Ø
3175 32662E     1476Ø          LD      (OFFSET+1),A      ;Stuff into driver
                1477Ø ;
                1478Ø ;        Stuff a Memory Header on front of MemDISK
                1479Ø ;
3178 2B         148ØØ          DEC     HL                ;Pt 1 byte before
3179 EB         1481Ø          EX      DE,HL             ;  Memdisk himem area
317A 21D434     1482Ø          LD      HL,MDDATA+16      ;Pt to header block
317D Ø111ØØ     1483Ø          LD      BC,17
318Ø EDB8       1484Ø          LDDR                      ;  and move it to himem
3182 EB         1485Ø          EX      DE,HL
3183 22CB2D     1486Ø          LD      (MEMHIGH),HL
3186            1487Ø          @@HIGH$                   ;Install new HIGH$
3186 3E64       ØØØ71          LD      A,1ØØ
3188 EF         ØØØ72          RST     4Ø
3189 C9         1488Ø          RET                       ;Restore Regs & RETurn
```

MEMDISKA - Installation

```
                14890 ;
                14900 ;         DISMEM - Disable MemDISK if in memory
                14910 ;
318A FDCB0366   14920 DISMEM  BIT     4,(IY+DFLAG$)    ;MemDISK active ?
318E CAD632     14930         JP      Z,NOTPRS         ;No - display error mess
                14940 ;
                14950 ;         Pick up Driver address of drive
                14960 ;
3191 2ABA32     14970         LD      HL,(SAVEDCT)     ;P/u DCT address
3194 E5         14980         PUSH    HL               ;Save DCT ptr
3195 23         14990         INC     HL               ;P/u driver address
3196 5E         15000         LD      E,(HL)           ;Lsb
3197 23         15010         INC     HL
3198 56         15020         LD      D,(HL)           ;Msb
3199 D5         15030         PUSH    DE               ;Save Driver Address
                15040 ;
                15050 ;         Calculate end of driver & Posn to ID
                15060 ;
319A EB         15070         EX      DE,HL            ;Pt HL to driver
319B E5         15080         PUSH    HL               ;Save driver start
319C 01DC00     15090         LD      BC,LENGTH        ;Add length of driver
319F 09         15100         ADD     HL,BC            ;  to start of driver.
31A0 22F831     15110         LD      (DREND+1),HL     ;Save next available
31A3 E1         15120         POP     HL               ;HL => driver add start
31A4 23         15130         INC     HL               ;Pos'n to length byte
31A5 23         15140         INC     HL
31A6 23         15150         INC     HL
31A7 23         15160         INC     HL
                15170 ;
                15180 ;         P/u length byte & pt to driver name
                15190 ;
31A8 46         15200         LD      B,(HL)           ;P/u length byte
31A9 23         15210         INC     HL               ;HL => Driver Name
31AA 11C034     15220         LD      DE,MD$           ;DE => MEMDISK
                15230 ;
                15240 ;         Is this REALLY a certified MemDISK ??
                15250 ;
31AD 1A         15260 MEMLP   LD      A,(DE)           ;P/u MemDISK byte
31AE BE         15270         CP      (HL)             ;Match ?
31AF 23         15280         INC     HL               ;Bump driver ptr
31B0 13         15290         INC     DE               ;Bump string ptr
31B1 C2CE32     15300         JP      NZ,NOTMEM        ;No - isn't a MemDISK
31B4 10F7       15310         DJNZ    MEMLP            ;Yes - check all posns
                15320 ;
                15330 ;         Pick up Old HIGH$ address & stuff for later
                15340 ;
31B6 5E         15350         LD      E,(HL)           ;P/u old HIGH$
31B7 23         15360         INC     HL
31B8 56         15370         LD      D,(HL)
31B9 ED53EC31   15380         LD      (SAVEOLD+1),DE   ;Stuff into LD HL inst
                15390 ;
                15400 ;         P/u BANK information
                15410 ;
31BD FDCB03A6   15420         RES     4,(IY+DFLAG$)    ;Reset MemDISK bit
31C1 23         15430         INC     HL               ;HL => Bank image
31C2 7E         15440         LD      A,(HL)           ;P/u bank image
31C3 4F         15450         LD      C,A              ;Xfer to C
31C4 FE03       15460         CP      3                ;Both banks 1 & 2 ?
31C6 3805       15470         JR      C,FRBANK         ;No - free up bank
```

MEMDISKA - Installation

```
31C8 0D                      DEC     C               ;Set C = 2
31C9 CD3C2C                  CALL    FREBANK         ;Free bank #2
31CC 0D                      DEC     C               ;Set C = 1
31CD CD3C2C         FRBANK   CALL    FREBANK         ;Free Bank in C
                    ;
                    ;        Is this a Bank Zero MemDISK ?
                    ;
31D0 FD215E37                LD      IY,TYPEDIS      ;IY => Disable Type
31D4 0C                      INC     C               ;Is C = 0 ?
31D5 0D                      DEC     C
31D6 201C                    JR      NZ,GTDRV2       ;No - check out driver
                    ;
                    ;        Bank 0 - p/u last HIGH$ from Driver storage
                    ;
31D8 FD3500                  DEC     (IY)            ;Change type
31DB 23                      INC     HL              ;Pos to HI$ val after
31DC 23                      INC     HL              ;  MemDISK installation.
31DD 23                      INC     HL
31DE 5E                      LD      E,(HL)          ;P/u address
31DF 23                      INC     HL
31E0 56                      LD      D,(HL)
                    ;
                    ;        Pick up Current HIGH$ & compare with other
                    ;
31E1 60                      LD      H,B             ;Set HL = 0
31E2 68                      LD      L,B
31E3                         @@HIGH$                 ;(B=0), p/u HIGH$
31E3 3E64                    LD      A,100
31E5 EF                      RST     40
31E6 B7                      OR      A               ;Same ?
31E7 ED52                    SBC     HL,DE
31E9 2009                    JR      NZ,GTDRV2       ;NZ - Can't do it
                    ;
                    ;        Reset HIGH$ = original HIGH$
                    ;
31EB 210000         SAVEOLD  LD      HL,$-$          ;P/u old HIGH$
31EE                         @@HIGH$                 ;Re-allocate space
31EE 3E64                    LD      A,100
31F0 EF                      RST     40
31F1 FD3400                  INC     (IY)            ;Change Type
                    ;
                    ;        Can the Driver area be re-allocated ?
                    ;
31F4 CD352D         GTDRV2   CALL    GTDRV           ;Get driver area
31F7 210000         DREND    LD      HL,$-$          ;P/u driver address
31FA B7                      OR      A
31FB ED52                    SBC     HL,DE           ;Same ?
31FD E1                      POP     HL              ;HL => Driver Address
31FE 2016                    JR      NZ,NORECLM      ;No - can't Reclaim
                    ;
                    ;        Stuff original Address into low driver ptr
                    ;
3200 DD7400                  LD      (IX),H          ;Msb
3203 DD75FF                  LD      (IX-1),L        ;Lsb
3206 FD3400                  INC     (IY)            ;Change type
3209 FD3400                  INC     (IY)
                    ;
                    ;        Clear out Driver
                    ;
```

MEMDISKA - Installation

```
320C 01DB00            LD      BC,LENGTH-1      ;BC = # of bytes clr
320F 3600              LD      (HL),0           ;Null byte
3211 54                LD      D,H              ;Set DE = HL+1
3212 5D                LD      E,L
3213 13                INC     DE
3214 EDB0              LDIR                     ;Clear area
             ;
             ;         Disable DCT slot
             ;
3216 E1      NORECLM   POP     HL               ;HL => DCT + 0
3217 36C9              LD      (HL),0C9H        ;Disable it
             ;
             ;         Calculate Start of Disable string
             ;
3219 FDE5              PUSH    IY               ;Xfer to HL
321B E1                POP     HL
321C 4E                LD      C,(HL)           ;P/u type
321D CB21              SLA     C                ;Multiply by 2
321F 0600              LD      B,0              ;BC = offset in table
3221 23                INC     HL               ;HL => Address Table
3222 09                ADD     HL,BC            ;HL => Add of mess string
3223 5E                LD      E,(HL)           ;P/u Address
3224 23                INC     HL
3225 56                LD      D,(HL)
3226 EB                EX      DE,HL            ;HL => Disable message
3227                   @@LOGOT                  ;Log message
                       IFEQ    00H,1
                       LD      HL,
                       ENDIF
3227 3E0C              LD      A,12
3229 EF                RST     40
322A C3212C            JP      EXIT             ;Go to exit routine
             ;
             ;         FORMAT - Format Memory
             ;
322D 21B036  FORMAT    LD      HL,VERIFY        ;"Verifying RAM ..."
3230                   @@DSPLY                  ;Display it
                       IFEQ    00H,1
                       LD      HL,
                       ENDIF
3230 3E0A              LD      A,10
3232 EF                RST     40
3233 1600              LD      D,00             ;Track counter
             ;
             ;         Display Current Cylinder Formatting
             ;
3235 7A      WIPELP    LD      A,D              ;Get track counter
3236 CD442C            CALL    DECASC2          ;Display Dec ASCII equiv.
             ;
             ;         Run 4 different bit tests on each cylinder
             ;
3239 3EFF              LD      A,11111111B      ;All bits on
323B CD5B32            CALL    VERCYL           ;Verify track w/ bits on
323E 3E55              LD      A,01010101B      ;Next pattern
3240 CD5B32            CALL    VERCYL
3243 3EAA              LD      A,10101010B      ;Last pattern
3245 CD5B32            CALL    VERCYL
3248 3E00              LD      A,00000000B      ;All bits off
324A CD5B32            CALL    VERCYL           ;Verify track w/ bits off
```

MEMDISKA - Installation

```
                 ;
                 ;       Finished Formatting yet ?
                 ;
324D 14                  INC     D               ;Bump cylinder #
324E 7A                  LD      A,D
324F DDBEØ6              CP      (IX+6)          ;Finished ?
3252 2ØE1                JR      NZ,WIPELP       ;No - stop when max cyl
                 ;
                 ;       Finished Formatting - Display message
                 ;
3254 21CA36              LD      HL,FORMCOM      ;"Formatting Complete"
3257                     @@DSPLY                 ;Print it
                         IFEQ    ØØH,1
                         LD      HL,
                         ENDIF
3257 3EØA                LD      A,1Ø
3259 EF                  RST     4Ø
325A C9                  RET                     ;Done formatting
                 ;
                 ;       VERCYL - Verify a cylinder of RAM
                 ;
325B 21ØØ38      VERCYL  LD      HL,IOBUFF       ;HL => I/O buffer
325E 1EØØ                LD      E,Ø             ;Init to sector Ø
                 ;
                 ;       Fill buffer with specified byte
                 ;
326Ø 77          STUFLP  LD      (HL),A          ;Stuff into buffer
3261 2C                  INC     L               ;Bump
3262 2ØFC                JR      NZ,STUFLP       ;256 bytes to fill
                 ;
                 ;       Write the sector & read it back
                 ;
3264 F5          CYLP    PUSH    AF              ;Save fill byte
3265 CDC12F              CALL    WRSEC           ;Write Sector
3268 CDCA2F              CALL    RDSEC           ;Read into other buff
326B F1                  POP     AF              ;A = Fill byte
                 ;
                 ;       Check if sector read back has correct byte
                 ;
326C BE          CKLP    CP      (HL)            ;Match ?
326D C28D2C              JP      NZ,ERROR        ;No  - error
327Ø 2C                  INC     L               ;Done with sector ?
3271 2ØF9                JR      NZ,CKLP         ;256 bytes to check
                 ;
                 ;       Advance to next sector
                 ;
3273 7B                  LD      A,E             ;P/u sector #
3274 DDBEØ7              CP      (IX+7)          ;Finished ?
3277 7E                  LD      A,(HL)          ;P/u cylinder byte
3278 13                  INC     DE              ;Bump E
3279 2ØE9                JR      NZ,CYLP         ;DCT+8 sectors to check
327B C9                  RET                     ;Done - RETurn
                 ;
                 ;       FORMTIT - Check if MemDISK has data on it
                 ;
327C 11ØØØ1      FORMTIT LD      DE,1ØØH         ;D = Cyl 1, Sec Ø (GAT)
327F CDCA2F              CALL    RDSEC           ;Read BOOT sector
                 ;
                 ;       Check GAT ID
```

MEMDISKA - Installation

```
                ;
3282 2ED0               LD      L,0D0H          ;MemDISK pack name
3284 11B834             LD      DE,MEMDISK      ;What it should be
3287 0608               LD      B,8             ;# of characters
                ;
3289 1A         CKMLP   LD      A,(DE)          ;P/u should be char
328A BE                 CP      (HL)            ;Match ?
328B 23                 INC     HL              ;Bump
328C 13                 INC     DE
328D 200C               JR      NZ,NOMTCH       ;No - must format
328F 10F8               DJNZ    CKMLP           ;Yes - loop for more
                ;
                ;       Already a MemDISK - Sure about formatting ?
                ;
3291 217434             LD      HL,DOFORM       ;Destination ...
3294 3E01               LD      A,1             ;Set MemDISK in flag
3296 32EA2E             LD      (MEMIN1+1),A
3299 1803               JR      DISMES          ;Display it
                ;
                ;       Not a MemDISK - Do normal Prompt
                ;
329B 219634     NOMTCH  LD      HL,STILLFM      ;Do you wish to format ?
329E            DISMES  @@DSPLY                 ;Display message
                        IFEQ    00H,1
                        LD      HL,
                        ENDIF
329E 3E0A               LD      A,10
32A0 EF                 RST     40
                ;
                ;       Input Response
                ;
32A1 0601               LD      B,1             ;Input 1 character
32A3 E5                 PUSH    HL              ;Save message start
32A4 CDD62C             CALL    INPUT
32A7 7E                 LD      A,(HL)          ;P/u character
32A8 E1                 POP     HL              ;Recover message start
32A9 05                 DEC     B               ;Anything entered ?
32AA C0                 RET     NZ              ;No - RETurn NZ
                ;
                ;       Set Z flag if "Y" & Reset Z if "N" entered
                ;
32AB CBAF               RES     5,A             ;Cvt to U/C
32AD FE4E               CP      'N'             ;<N>o ?
32AF 2805               JR      Z,RESZF         ;RETurn NZ
32B1 FE59               CP      'Y'             ;<Y>es ?
32B3 C8                 RET     Z               ;RETurn Z set
32B4 18E8               JR      DISMES          ;No - reprompt
32B6 B7         RESZF   OR      A               ;Reset Z flag
32B7 C9                 RET                     ;  and RETurn
                ;
                ;       Variables used
32B8 0000       SAVEDE  DW      0
32BA 0000       SAVEDCT DW      0
32BC 0000       DRADD   DW      0
                ;
                ;       Informative Error Display & Abort Routine
                ;
32BE 21D534     NODRV   LD      HL,NODRV$
32C1 DD                 DB      0DDH
```

MEMDISKA - Installation

```
32C2 21F334     17600 BADDRV  LD      HL,BADDRV$
32C5 DD         17610         DB      0DDH
32C6 211037     17620 VIASET  LD      HL,VIASET$      ;Not via SYSTEM
32C9 DD         17630         DB      0DDH
32CA 219936     17640 MEMIN   LD      HL,MEMIN$       ;Already installed
32CD DD         17650         DB      0DDH
32CE 213235     17660 NOTMEM  LD      HL,NOTMEM$      ;Not a MemDISK
32D1 DD         17670         DB      0DDH
32D2 214D35     17680 NOMEM   LD      HL,NOMEM$       ;Insufficient Memory
32D5 DD         17690         DB      0DDH
32D6 216235     17700 NOTPRS  LD      HL,NOTPRS$      ;Not Present
32D9 DD         17710         DB      0DDH
32DA 216736     17720 BNKUSE  LD      HL,BNKUSE$      ;Bank in use
32DD DD         17730         DB      0DDH
32DE 217635     17740 NOTACT  LD      HL,NOTACT$      ;Cant Install
                17750 ;
                17760 ;       Log Error Message & Abort
                17770 ;
32E1            17780         @@LOGOT                 ;Log error message
                00097         IFEQ    00H,1
                00098         LD      HL,
                00099         ENDIF
32E1 3E0C       00100         LD      A,12
32E3 EF         00101         RST     40
32E4 C31B2C     17790         JP      ABORT           ;Go to exit routine
                17800 ;
32E7 4D         17810 HELLO$  DB      'MEMDISK'
     45 4D 44 49 53 4B
32EE            17820 *GET    CLIENT:3
                17830 ;CLIENTS/ASM - File to establish sign-on headers
                17840 ;
32EE 20         17850         DB      ' - 6.2.0 - Copyright 1982/83/84 by Logical'
     2D 20 36 2E 32 2E 30 20
     2D 20 43 6F 70 79 72 69
     67 68 74 20 31 39 38 32
     2F 38 33 2F 38 34 20 62
     79 20 4C 6F 67 69 63 61
     6C
3318 20         17860         DB      ' Systems, Inc.      ',10
     53 79 73 74 65 6D 73 2C
     20 49 6E 63 2E 20 20 20
     20 20 20 0A
                17870 ;
332D 41         17880         DB      'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 20 52 69 67 68 74
     73 20 52 65 73 65 72 76
     65 64 2E 20 4C 69 63 65
     6E 73 65 64 20 31 39 38
     32 2F 38 33 2F 38 34
3355 20         17890         DB      ' to xxxxxxxxxxxxxxxxxx',10,13
     74 6F 20 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 0A 0D
                17900 ;
336D 0A         17910 BANKS   DB      LF,'<A>  Bank 0 (Primary Memory)',LF
     3C 41 3E 20 20 42 61 6E
     6B 20 30 20 28 50 72 69
     6D 61 72 79 20 4D 65 6D
     6F 72 79 29 0A
```

MEMDISKA - Installation

```
338B 3C          1792Ø          DB       '<B>  Bank 1',LF
     42 3E 2Ø 2Ø 42 61 6E 6B
     2Ø 31 ØA
3397 3C          1793Ø          DB       '<C>  Bank 2',LF
     43 3E 2Ø 2Ø 42 61 6E 6B
     2Ø 32 ØA
33A3 3C          1794Ø          DB       '<D>  Banks 1 and 2',LF
     44 3E 2Ø 2Ø 42 61 6E 6B
     73 2Ø 31 2Ø 61 6E 64 2Ø
     32 ØA
33B6 3C          1795Ø          DB       '<E>  Disable MemDISK',LF,LF
     45 3E 2Ø 2Ø 44 69 73 61
     62 6C 65 2Ø 4D 65 6D 44
     49 53 4B ØA ØA
33CC 57          1796Ø          DB       'Which type of allocation - '
     68 69 63 68 2Ø 74 79 7Ø
     65 2Ø 6F 66 2Ø 61 6C 6C
     6F 63 61 74 69 6F 6E 2Ø
     2D 2Ø
33E7 3C          1797Ø          DB       '<A>, <B>, <C>, <D>, or <E> ? ',ETX
     41 3E 2C 2Ø 3C 42 3E 2C
     2Ø 3C 43 3E 2C 2Ø 3C 44
     3E 2C 2Ø 6F 72 2Ø 3C 45
     3E 2Ø 3F 2Ø Ø3
                 1798Ø ;
34Ø5 4E          1799Ø FRTRACK DB       'Note: Each Cylinder equals '
     6F 74 65 3A 2Ø 45 61 63
     68 2Ø 43 79 6C 69 6E 64
     65 72 2Ø 65 71 75 61 6C
     73 2Ø
342Ø 34          18ØØØ FRTRK1  DB       '4.5ØK of space.',LF
     2E 35 3Ø 4B 2Ø 6F 66 2Ø
     73 7Ø 61 63 65 2E ØA
343Ø 4E          18Ø1Ø          DB       'Number of free Cylinders: ',MINCYL+'Ø'&ØFFH,'-'
     75 6D 62 65 72 2Ø 6F 66
     2Ø 66 72 65 65 2Ø 43 79
     6C 69 6E 64 65 72 73 3A
     2Ø 33 2D
344C 3Ø          18Ø2Ø FRTRK2  DB       'ØØ ? ',ETX
     3Ø 2Ø 3F 2Ø Ø3
                 18Ø3Ø ;
3452 53          18Ø4Ø DENSITY DB       'Single or Double Density <S,D> ? ',ETX
     69 6E 67 6C 65 2Ø 6F 72
     2Ø 44 6F 75 62 6C 65 2Ø
     44 65 6E 73 69 74 79 2Ø
     3C 53 2C 44 3E 2Ø 3F 2Ø
     Ø3
                 18Ø5Ø ;
3474 44          18Ø6Ø DOFORM  DB       'Destination MemDISK contains Data',LF
     65 73 74 69 6E 61 74 69
     6F 6E 2Ø 4D 65 6D 44 49
     53 4B 2Ø 63 6F 6E 74 61
     69 6E 73 2Ø 44 61 74 61
     ØA
                 18Ø7Ø ;
3496 44          18Ø8Ø STILLFM DB       'Do you wish to Format it <Y/N> ? ',ETX
     6F 2Ø 79 6F 75 2Ø 77 69
     73 68 2Ø 74 6F 2Ø 46 6F
     72 6D 61 74 2Ø 69 74 2Ø
```

MEMDISKA - Installation

```
     3C 59 2F 4E 3E 2Ø 3F 2Ø
     Ø3
               18Ø9Ø ;
34B8 4D        181ØØ MEMDISK DB        'MEMDISK '
     45 4D 44 49 53 4B 2Ø
34CØ 24        1811Ø MD$     DB        '$MD',ETX
     4D 44 Ø3
34C4 18        1812Ø MDDATA  DB        18H,17,Ø,Ø,8,'MemDISKD',Ø,Ø,Ø,Ø
     11 ØØ ØØ Ø8 4D 65 6D 44
     49 53 4B 44 ØØ ØØ ØØ ØØ
               1813Ø ;
34D5 4C        1814Ø NODRV$  DB        'Logical drive number required',CR
     6F 67 69 63 61 6C 2Ø 64
     72 69 76 65 2Ø 6E 75 6D
     62 65 72 2Ø 72 65 71 75
     69 72 65 64 ØD
34F3 43        1815Ø BADDRV$ DB        'Can''t specify SYSTEM drive slot',CR
     61 6E 27 74 2Ø 73 7Ø 65
     63 69 66 79 2Ø 53 59 53
     54 45 4D 2Ø 64 72 69 76
     65 2Ø 73 6C 6F 74 ØD
3513 4D        1816Ø INSTALD DB        'MemDISK Successfully Installed',CR
     65 6D 44 49 53 4B 2Ø 53
     75 63 63 65 73 73 66 75
     6C 6C 79 2Ø 49 6E 73 74
     61 6C 6C 65 64 ØD
               1817Ø ;
3532 54        1818Ø NOTMEM$ DB        'Target Drive not a MemDISK',CR
     61 72 67 65 74 2Ø 44 72
     69 76 65 2Ø 6E 6F 74 2Ø
     61 2Ø 4D 65 6D 44 49 53
     4B ØD
               1819Ø ;
354D 49        182ØØ NOMEM$  DB        'Insufficient Memory ',CR
     6E 73 75 66 66 69 63 69
     65 6E 74 2Ø 4D 65 6D 6F
     72 79 2Ø ØD
               1821Ø ;
3562 4D        1822Ø NOTPRS$ DB        'MemDISK not present',CR
     65 6D 44 49 53 4B 2Ø 6E
     6F 74 2Ø 7Ø 72 65 73 65
     6E 74 ØD
               1823Ø ;
3576 4D        1824Ø NOTACT$ DB        'MemDISK not present, installation '
     65 6D 44 49 53 4B 2Ø 6E
     6F 74 2Ø 7Ø 72 65 73 65
     6E 74 2C 2Ø 69 6E 73 74
     61 6C 6C 61 74 69 6F 6E
     2Ø
3598 61        1825Ø         DB        'aborted',CR
     62 6F 72 74 65 64 ØD
               1826Ø ;
35AØ 4D        1827Ø DISABE1 DB        'MemDISK disabled, memory now avail'
     65 6D 44 49 53 4B 2Ø 64
     69 73 61 62 6C 65 64 2C
     2Ø 6D 65 6D 6F 72 79 2Ø
     6E 6F 77 2Ø 61 76 61 69
     6C
35C2 61        1828Ø         DB        'able',CR
```

MEMDISKA - Installation

```
     62 6C 65 ØD
                   1829Ø ;
35C7 4D            183ØØ DISABE2 DB        'MemDISK disabled, Unable to reclaim '
     65 6D 44 49 53 4B 2Ø 64
     69 73 61 62 6C 65 64 2C
     2Ø 55 6E 61 62 6C 65 2Ø
     74 6F 2Ø 72 65 63 6C 61
     69 6D 2Ø
35EB 68            1831Ø         DB        'high memory',CR
     69 67 68 2Ø 6D 65 6D 6F
     72 79 ØD
                   1832Ø ;
35F7 4D            1833Ø DISABE3 DB        'MemDISK disabled, Unable to reclaim '
     65 6D 44 49 53 4B 2Ø 64
     69 73 61 62 6C 65 64 2C
     2Ø 55 6E 61 62 6C 65 2Ø
     74 6F 2Ø 72 65 63 6C 61
     69 6D 2Ø
361B 64            1834Ø         DB        'driver area',CR
     72 69 76 65 72 2Ø 61 72
     65 61 ØD
                   1835Ø ;
3627 4D            1836Ø DISABE4 DB        'MemDISK disabled, Unable to reclaim '
     65 6D 44 49 53 4B 2Ø 64
     69 73 61 62 6C 65 64 2C
     2Ø 55 6E 61 62 6C 65 2Ø
     74 6F 2Ø 72 65 63 6C 61
     69 6D 2Ø
364B 68            1837Ø         DB        'high memory and driver area',CR
     69 67 68 2Ø 6D 65 6D 6F
     72 79 2Ø 61 6E 64 2Ø 64
     72 69 76 65 72 2Ø 61 72
     65 61 ØD
                   1838Ø ;
3667 55            1839Ø BNKUSE$ DB        'Unable to install MemDISK, '
     6E 61 62 6C 65 2Ø 74 6F
     2Ø 69 6E 73 74 61 6C 6C
     2Ø 4D 65 6D 44 49 53 4B
     2C 2Ø
3682 72            184ØØ         DB        'requested bank in use.',CR
     65 71 75 65 73 74 65 64
     2Ø 62 61 6E 6B 2Ø 69 6E
     2Ø 75 73 65 2E ØD
                   1841Ø ;
3699 4D            1842Ø MEMIN$  DB        'MemDISK already Active',CR
     65 6D 44 49 53 4B 2Ø 61
     6C 72 65 61 64 79 2Ø 41
     63 74 69 76 65 ØD
                   1843Ø ;
36BØ 56            1844Ø VERIFY  DB        'Verifying RAM cylinder ØØ',ETX
     65 72 69 66 79 69 6E 67
     2Ø 52 41 4D 2Ø 63 79 6C
     69 6E 64 65 72 2Ø 3Ø 3Ø
     Ø3
                   1845Ø ;
36CA ØA            1846Ø FORMCOM DB        LF,'Verifying Complete, RAM good',LF
     56 65 72 69 66 79 69 6E
     67 2Ø 43 6F 6D 7Ø 6C 65
     74 65 2C 2Ø 52 41 4D 2Ø
```

MEMDISKA - Installation

```
     67 6F 6F 64 ØA
36E8 44          1847Ø          DB      'Directory has been placed on Cylinder 1',CR
     69 72 65 63 74 6F 72 79
     2Ø 68 61 73 2Ø 62 65 65
     6E 2Ø 7Ø 6C 61 63 65 64
     2Ø 6F 6E 2Ø 43 79 6C 69
     6E 64 65 72 2Ø 31 ØD
                 1848Ø ;
371Ø 4D          1849Ø VIASET$ DB      'Must install via SYSTEM (DRIVER=',CR
     75 73 74 2Ø 69 6E 73 74
     61 6C 6C 2Ø 76 69 61 2Ø
     53 59 53 54 45 4D 2Ø 28
     44 52 49 56 45 52 3D ØD
                 185ØØ ;
3731 ØA          1851Ø BADRAM  DB      LF,'Verify Error in Bank '
     56 65 72 69 66 79 2Ø 45
     72 72 6F 72 2Ø 69 6E 2Ø
     42 61 6E 6B 2Ø
3747 6E          1852Ø VBANK   DB      'n at location X',AP
     2Ø 61 74 2Ø 6C 6F 63 61
     74 69 6F 6E 2Ø 58 27
3757 6E          1853Ø VLOC    DB      'nnnn',AP,LF,CR
     6E 6E 6E 27 ØA ØD
                 1854Ø ;
375E Ø1          1855Ø TYPEDIS DB      1               ;Type of disable
375F 2736        1856Ø DISTAB  DW      DISABE4,DISABE3,DISABE2,DISABE1
     F735 C735 AØ35
3767 ØØ          1857Ø RE_USE  DB      Ø               ;Re-use trapped driver area.
                 1858Ø ;
                 1859Ø ;       Buffers Used
                 186ØØ ;
38ØØ             1861Ø         ORG     $<-8+1<+8
                 1862Ø ;
Ø1ØØ             1863Ø IOBUFF  DS      256
Ø1ØØ             1864Ø BUFFER  DS      256
ØØØA             1865Ø DUPDCT  DS      1Ø
                 1866Ø ;
                 ØØ57Ø ;
3AØA             ØØ58Ø         SUBTTL  <>
2CØØ             ØØ59Ø         END     START
```

```
$NOT           2F1Ø @@1          ØØØØ @@2          ØØØØ
@@3            ØØØØ @@4          ØØØØ @MOD2        ØØØØ
@MOD4          FFFF ABB          ØØ1Ø ABORT        2C1B
AP             ØØ27 A_B_C        3Ø8Ø B1Ø          2E22
B13            2E29 B14          2E4B B14A         2E57
B9             2DF7 BADDRV       32C2 BADDRV$      34F3
BADRAM         3731 BANKIM       2DC8 BANKS        336D
BNKUSE         32DA BNKUSE$      3667 BOOT         2FFF
BOOTERN        3Ø13 BOOTGRN      3Ø16 BPC          2CE4
BREAK          ØØ8Ø BS           ØØØ8 BTLP         2F3C
BTSECS         2F3A BUFF         2E8B BUFFER       39ØØ
BUFFER$        23ØØ CALCDRV      2CF6 CALCSIZ      3165
CALCYL         312B CFLAG$       ØØØ2 CHKDIR       2E1A
CHKDIR2        2E19 CKBANK       2CCB CKLP         326C
CKMLP          3289 CR           ØØØD CYLP         3264
CYLS           2F69 DDBPC        12ØØ DECASC       2C63
DECASC2        2C44 DECHEX       2C6E DEFAULT      3ØFE
DEFBANK        2E6A DENSITY      3452 DFLAG$       ØØØ3
DIR            3Ø1F DIRERN       3Ø33 DISABE1      35AØ
DISABE2        35C7 DISABE3      35F7 DISABE4      3627
DISMEM         318A DISMES       329E DISTAB       375F
DIVLP          2CE9 DIVLP1       2D13 DOFORM       3474
DOFORM1        2F13 DOMEM        3Ø3F DONE1        2C8Ø
DONTRES        2EFA DOXFER       2EØC DOXFER1      2D26
DO_INST        2EDC DRADD        32BC DREND        31F7
DRIVE          2FC4 DRIVER       2DBE DRVLOW       2DC9
DSP            2C59 DUPDCT       3AØØ ERROR        2C8D
ETX            ØØØ3 EX1          2E5B EXIT         2C21
FILBUF         2F34 FLAG         ØØ4Ø FORMAT       322D
FORMCOM        36CA FORMTIT      327C FRBANK       31CD
FREBANK        2C3C FREETRK      2F8E FRTRACK      34Ø5
FRTRK1         342Ø FRTRK2       344C GATØ         2F5D
GATCD          2F71 GETADR       2E5D GETBUF       2E8A
GETCYL         2CE2 GETDIG       2C82 GETDUP       2D2C
GETOLD         2E83 GETYPE       3Ø4F GOTBANK      2E7Ø
GPC            2F86 GTDRV        2D35 GTDRV2       31F4
HELLO$         32E7 HIDRVR       13ØØ ILLEGAL      2C8A
INIT           2DDD INPDENS      3Ø9B INPUT        2CD6
INSTALD        3513 INSTDRV      2D48 INSTMEM      2E9A
IOBUFF         38ØØ IOERR        2C5D KFLAG$       ØØØA
KIDCB$         2EF7 LENGTH       ØØDC LF           ØØØA
LOCKOUT        2F62 LOWEST       8ØØØ LPADD        2C65
LSIID          2FBA MAXCYL       315E MD$          34CØ
MDDATA         34C4 MEMDISK      34B8 MEMDRIV      2DF6
MEMHIGH        2DCB MEMIN        32CA MEMIN$       3699
MEMIN1         2EE9 MEMLP        31AD MINCYL       ØØØ3
MLOOP          316B MYSTACK      2DDD NODRV        32BE
NODRV$         34D5 NOMEM        32D2 NOMEM$       354D
NOMTCH         329B NORECLM      3216 NORMEX       2C16
NOT2           3Ø96 NOTACT       32DE NOTACT$      3576
NOTDIR         2E2Ø NOTMEM       32CE NOTMEM$      3532
NOTPRS         32D6 NOTPRS$      3562 NOT__IN      2EB5
NUM            ØØ8Ø OFFSET       2E65 OKTOGO       2ED6
OLDHIGH        2DCØ OLDRVR       2EEE OLD_HI       2DC6
PAR_ERR        ØØ2C PIKUPHI      31ØF RDSEC        2FCA
RECVDE         2E3F REDO         3148 REL1         2DFF
REL2           2EØF REL2A        2EØ6 REL3         2E4Ø
REL4           2E46 REL5         2E79 REL6         2DEØ
```

```
REL7            2DE5 REL8            2DEB REL8A           2E35
REL8B           2E7C REL9            2DE8 RELDUN          2D8A
RELTBL          2D7Ø RESTREG         2CC6 RESZF           32B6
RETADDR         2CC3 RE_USE          3767 RLOOP           2D57
SAVDCT          2D2Ø SAVEDCT         32BA SAVEDE          32B8
SAVEOLD         31EB SAVEREG         2CAE SAVESP          2DEE
SAVPAGE         316E SDBPC           ØAØØ SDENA           2E5E
SDENB           2E62 SDENC           2E63 SDEND           2DA2
SDENE           2DA6 SDENF           2DB1 SDENG           2DB5
SDENI           3Ø36 SETBANK         2C28 SETDCT          2D94
SFLAG$          ØØ12 SHOWINU         2F22 SPC             3169
START           2CØØ STARTA          2CØ9 STBANK          2C34
STFRET          2E72 STILLFM         3496 STR             ØØ2Ø
STUFLP          326Ø TAB             ØØØ9 TYPED           3Ø7A
TYPEDIS         375E VBANK           3747 VERCYL          325B
VERIFY          36BØ VFLAG$          ØØ15 VIASET          32C6
VIASET$         371Ø VLOC            3757 WASØ            3Ø98
WIPELP          3235 WP              ØØØF WRBOOT          2F3Ø
WRENT           2FE2 WRGAT           2F5A WRGAT1          2FBE
WRHIT           2FD5 WRITES          2E2D WRSEC           2FC1
ZEROHIT         2FD6 @@ABORT         7Ø59 @@ADTSK         7ØEC
@@BANK          76Ø4 @@BKSP          72E4 @@BREAK         761A
@@CHNIO         7Ø44 @@CKBRKC        7668 @@CKDRV         714Ø
@@CKEOF         72F9 @@CKTSK         7ØD7 @@CLOSE         72CF
@@CLS           7652 @@CMNDI         7Ø83 @@CMNDR         7Ø98
@@CTL           6EA8 @@DATE          7Ø1A @@DCSTAT        717F
@@DEBUG         7ØC2 @@DECHEX        7584 @@DIRRD         74F1
@@DIRWR         75Ø6 @@DIV16         756F @@DIV8          755A
@@DODIR         7155 @@DSP           6E6C @@DSPLY         6FØC
@@ERROR         7ØAD @@EXIT          7Ø6E @@FEXT          745E
@@FLAGS         75EE @@FNAME         7473 @@FSPEC         7449
@@GATRD         74DC @@GATWR         751B @@GET           6E8Ø
@@GTDCB         749D @@GTDCT         7488 @@GTMOD         74B2
@@HDFMT         7227 @@HEX16         75C3 @@HEX8          75AE
@@HEXDEC        7599 @@HIGH$         75D8 @@INIT          72A5
@@KBD           6EE4 @@KEY           6E58 @@KEYIN         6EF8
@@KLTSK         712B @@LOAD          741F @@LOC           73ØE
@@LOF           7323 @@LOGER         6F43 @@LOGOT         6F58
@@MSG           6F8F @@MUL16         7545 @@MUL8          753Ø
@@OPEN          72BA @@PARAM         7ØØ5 @@PAUSE         6FFØ
@@PEOF          7338 @@POSN          734D @@PRINT         6FA4
@@PRT           6EBC @@PUT           6E94 @@RAMDIR        716A
@@RDSEC         71FD @@RDSSC         74C7 @@READ          7362
@@REMOV         729Ø @@RENAM         727B @@REW           7377
@@RMTSK         71Ø1 @@RPTSK         7116 @@RREAD         738C
@@RSLCT         71E8 @@RSTOR         71A9 @@RUN           7434
@@RWRIT         73A1 @@SEEK          71D3 @@SEEKSC        73B6
@@SKIP          73CB @@SLCT          7194 @@STEPI         71BE
@@TIME          7Ø2F @@VDCTL         6FDB @@VER           73EØ
@@VRSEC         7212 @@WEOF          73F5 @@WHERE         6EDØ
@@WRITE         74ØA @@WRSEC         723C @@WRSSC         7251
@@WRTRK         7266
2CØØ is the transfer address
ØØØØØ Total errors
```

NOTES:

NOTES:

PATCH/CMD - Disk file patch utility
Patch allows changing bytes in any type of disk file, be it a load module format file or standard data file. Patch code may be typed in on the command line or read from an ASCII disk file.

```
                ;PATCH/ASM
0000                    TITLE   <PATCH - LS-DOS 6.2>
                ;
0003            ETX     EQU     3
000A            LF      EQU     10
000D            CR      EQU     13
0040            FLAG    EQU     01000000B
0010            ABB     EQU     00010000B
                ;
0000            *GET    SVCMAC:3                ;SVC Macro equivalents
                ;SVCMAC/ASM - LS-DOS Version VI
                *LIST   OFF
                *LIST   ON
0000            *GET    COPYCOM:3               ;Copyright message
                ; COPYCOM - File for Copyright COMment block
                ;
0000                    COM     '<*(C) 1982,83,84 by LSI*>'
                ;
2600                    ORG     2600H
                ;
                BEGIN
2600                    @@CKBRKC                ;Check if Break hit
2600 3E6A               LD      A,106
2602 EF                 RST     40
2603 2804               JR      Z,BEGINA        ;Continue if no break
2605 21FFFF             LD      HL,-1           ;  else abort
2608 C9                 RET
                ;
                BEGINA
2609 ED73BF27           LD      (STACK),SP      ;Save original stack
260D E5                 PUSH    HL              ;Save ptr to CMD buffer
260E                    @@FLAGS                 ;Set up IY
260E 3E65               LD      A,101
2610 EF                 RST     40
2611 21C02D             LD      HL,HELLO$
2614 CD1F2D             CALL    $DSPLY          ;Display the signon msg
                ;
                ;       Get /CMD file off command line
                ;
2617 E1                 POP     HL              ;P/u cmd line ptr
2618 117F2D             LD      DE,PGMDCB       ;Set up for OPEN
261B                    @@FSPEC                 ;Fetch program filespec
261B 3E4E               LD      A,78
261D EF                 RST     40
261E C2512D             JP      NZ,PGMREQ       ;Quit if illegal name
2621 1A                 LD      A,(DE)
2622 FE2A               CP      '*'             ;Test for device spec
2624 CA512D             JP      Z,PGMREQ        ;Abort if not a filespec
2627 E5                 PUSH    HL              ;Save posn on command line
2628 21792D             LD      HL,CMDEXT
262B                    @@FEXT                  ;Default ext to /CMD
262B 3E4F               LD      A,79
262D EF                 RST     40
262E D5                 PUSH    DE              ;Save ptr to FCB
262F EB                 EX      DE,HL           ;Pt HL at current name
2630 113330             LD      DE,FNM$         ;Store the name away
2633                    @@FSPEC                 ;  in case of a later error
2633 3E4E               LD      A,78
2635 EF                 RST     40
2636 D1                 POP     DE              ;Recover FCB
2637 210033             LD      HL,PGMBUF       ;Buffer for /CMD file I/O
```

```
263A Ø6ØØ     ØØ55Ø          LD      B,Ø             ;Set lrl=256
263C CDEF2C   ØØ56Ø          CALL    $OPEN           ;Open the file to fix
              ØØ57Ø ;
              ØØ58Ø ;        Get /FIX file (if any)
              ØØ59Ø ;
263F E1       ØØ6ØØ          POP     HL              ;Get command line posn
264Ø 11AØ2D   ØØ61Ø          LD      DE,FIXDCB       ;FCB used for /FIX file
2643          ØØ62Ø          @@FSPEC                 ;See if a filespec is there
2643 3E4E     ØØØ11          LD      A,78
2645 EF       ØØØ12          RST     4Ø
2646 C27426   ØØ63Ø          JP      NZ,CKLIN        ;If error, ck for parms there
2649 E5       ØØ64Ø          PUSH    HL              ;Save command line posn
264A 217C2D   ØØ65Ø          LD      HL,FIXEXT
264D          ØØ66Ø          @@FEXT                  ;Use default ext of /FIX
264D 3E4F     ØØØ13          LD      A,79
264F EF       ØØØ14          RST     4Ø
265Ø 21AØ2D   ØØ67Ø          LD      HL,FIXDCB       ;Pt HL to start of fix filespec
2653 11Ø93Ø   ØØ68Ø          LD      DE,NAMFIX$      ;Buffer to hold filename only
2656 Ø6ØØ     ØØ69Ø          LD      B,Ø             ;Init char count to Ø
              ØØ7ØØ ;
              ØØ71Ø ;        Save patch file name for X header
              ØØ72Ø ;
2658 7E       ØØ73Ø FXNAM    LD      A,(HL)          ;P/u a char of the filespec
2659 23       ØØ74Ø          INC     HL
265A FE2F     ØØ75Ø          CP      '/'             ;Found the /FIX ext?
265C 2811     ØØ76Ø          JR      Z,FXNAM2        ;Quit if so
265E FE3A     ØØ77Ø          CP      ':'             ;Colon yet?
266Ø 38Ø8     ØØ78Ø          JR      C,FXNAM1        ;If less, must be number
2662 FE41     ØØ79Ø          CP      'A'             ;A-Z?
2664 38Ø9     ØØ8ØØ          JR      C,FXNAM2        ;If less, done
2666 FE5B     ØØ81Ø          CP      'Z'+1           ;If not alpha, done
2668 3ØØ5     ØØ82Ø          JR      NC,FXNAM2
266A 12       ØØ83Ø FXNAM1   LD      (DE),A          ;Store the name char
266B 13       ØØ84Ø          INC     DE              ;Inc storage ptr
266C Ø4       ØØ85Ø          INC     B               ;Inc count of name chars
266D 18E9     ØØ86Ø          JR      FXNAM           ;Loop for more
266F 78       ØØ87Ø FXNAM2   LD      A,B             ;Store the length of
267Ø 32Ø83Ø   ØØ88Ø          LD      (NAMLEN$),A     ;  the /FIX patch file
2673 E1       ØØ89Ø          POP     HL              ;Recover command line posn
2674 7E       ØØ9ØØ CKLIN    LD      A,(HL)          ;Test command line
2675 FEØD     ØØ91Ø          CP      CR              ;  for end
2677 2845     ØØ92Ø          JR      Z,RDFIX         ;Go if found
2679 23       ØØ93Ø          INC     HL
267A FE2Ø     ØØ94Ø          CP      2ØH
267C 28F6     ØØ95Ø          JR      Z,CKLIN         ;Ignore spaces
267E FE28     ØØ96Ø          CP      '('             ;Beginning of parm?
268Ø C2492D   ØØ97Ø          JP      NZ,PRMERR       ;Anything else is a parm error
              ØØ98Ø ;
              ØØ99Ø ;        Test for REMOVE or special Option parameters
              Ø1ØØØ ;        Ignore @@PARAM errors, as the parameters may actually
              Ø1Ø1Ø ;         be a command line patch.
              Ø1Ø2Ø ;
2683 11573Ø   Ø1Ø3Ø          LD      DE,PTBL$        ;Parameter table
2686 E5       Ø1Ø4Ø          PUSH    HL              ;Save command line ptr
2687 2B       Ø1Ø5Ø          DEC     HL              ;Back up to '('
2688          Ø1Ø6Ø          @@PARAM
2688 3E11     ØØØ15          LD      A,17
268A EF       ØØØ16          RST     4Ø
268B E1       Ø1Ø7Ø          POP     HL              ;Restore cmd line ptr
268C Ø1ØØØØ   Ø1Ø8Ø          LD      BC,$-$          ;"Remove" parm response
268D          Ø1Ø9Ø RPARM1   EQU     $-2
268F 79                       LD      A,C
269Ø 32472C                   LD      (RPARM),A         ;Set Remove parm
2693 Ø1FFFF                   LD      BC,-1             ;O parm - bypass need for
2694              OPARM1      EQU     $-2               ;  Frr,nn line if OFF
2696 79                       LD      A,C
2697 32412C                   LD      (OPARM),A         ;Set find flag
269A CABE26                   JP      Z,RDFIX           ;If @PARAM was good, there is
                                                        ;  no cmd line patch code
                  ;
                  ;           Check for command line patch code (CLP)
                  ;
269D Ø1ØØ34                   LD      BC,FIXDATA        ;Space allocated for /FIX data
26AØ 7E           CKLIN1      LD      A,(HL)            ;Get char from cmd line
26A1 FEØD                     CP      CR
26A3 CAB526                   JP      Z,CKLIN3          ;Show end of CLP
26A6 FE29                     CP      ')'
26A8 28ØB                     JR      Z,CKLIN3          ;End of CLP if so
26AA 23                       INC     HL                ;Bump buffer ptr
26AB FE3A                     CP      ':'               ;Separator between patches?
26AD 2ØØ2                     JR      NZ,CKLIN2         ;If not, store char
26AF 3EØD                     LD      A,CR              ;  else show end of this CLP
26B1 Ø2           CKLIN2      LD      (BC),A            ;Put byte into fix data buff
26B2 Ø3                       INC     BC                ;Bump buff ptr
26B3 18EB                     JR      CKLIN1            ;Loop til end of cmd line
                  ;
26B5 3EØD         CKLIN3      LD      A,CR              ;Put CR into
26B7 Ø2                       LD      (BC),A            ;  CLP buffer
26B8 Ø3                       INC     BC
26B9 3EØ3                     LD      A,ETX             ;End buffer with ETX
26BB Ø2                       LD      (BC),A
26BC 1839                     JR      DOFIX             ;Start patching...
                  ;
                  ;           P/u the fix info from the FIX file, rather than
                  ;            the command line.
                  ;
26BE 3AØ83Ø       RDFIX       LD      A,(NAMLEN$)       ;P/u len of /FIX filename
26C1 B7                       OR      A
26C2 CA512D                   JP      Z,PGMREQ          ;If none used, abort
26C5 FDCB12C6                 SET     Ø,(IY+'S'-'A')    ;Set open inhibit bit
26C9 11AØ2D                   LD      DE,FIXDCB         ;Set up & open /FIX file
26CC 21ØØ31                   LD      HL,FIXBUF
26CF Ø6ØØ                     LD      B,Ø
26D1 CDEF2C                   CALL    $OPEN
26D4 21ØØ48                   LD      HL,PGMDATA        ;Pt HL to highest byte avail
26D7 2B                       DEC     HL                ;  for fix data
26D8 Ø1ØØ34                   LD      BC,FIXDATA        ;Start of /FIX data storage
26DB CDØ72D       RDFIX1      CALL    $GET1             ;Get a char fm /FIX file
26DE 2ØØF                     JR      NZ,RDFIX2         ;Jump on error
26EØ E67F                     AND     7FH               ;Strip bit 7
26E2 281Ø                     JR      Z,RDFIX3          ;Take Ø as EOF also
26E4 Ø2                       LD      (BC),A            ;Save fix data char
26E5 Ø3                       INC     BC                ;Advance buffer
26E6 E5                       PUSH    HL                ;Save HL tempy
26E7 ED42                     SBC     HL,BC             ;Room in fixdata buffer?
26E9 E1                       POP     HL
26EA DA4D2D                   JP      C,TOOBIG          ;Abort if patch data too large
26ED 18EC                     JR      RDFIX1            ;  else loop til EOF
                  ;
26EF FE1C         RDFIX2      CP      1CH               ;End of file?
26F1 C2322D                   JP      NZ,IOERR          ;Abort if not
26F4 3EØ3         RDFIX3      LD      A,ETX             ;Mark the end of the fix data
```

```
26F6 Ø2         Ø171Ø          LD      (BC),A
                Ø172Ø ;
                Ø173Ø ;        Start patching the target file
                Ø174Ø ;
26F7 21ØØ34     Ø175Ø DOFIX    LD      HL,FIXDATA      ;Pt to start of fix data
                Ø176Ø ;
26FA E5         Ø177Ø DOFIX1   PUSH    HL
26FB 21882E     Ø178Ø          LD      HL,RDGINP$      ;"reading input...
26FE CD1F2D     Ø179Ø          CALL    $DSPLY
27Ø1 E1         Ø18ØØ          POP     HL
27Ø2 226B2D     Ø181Ø          LD      (SETMSG+1),HL   ;Used if error in line
27Ø5 3EØØ       Ø182Ø          LD      A,$-$
27Ø6            Ø183Ø PASS2    EQU     $-1             ;Zero if 1st pass thru data
27Ø7 B7         Ø184Ø          OR      A
27Ø8 7E         Ø185Ø          LD      A,(HL)          ;P/U a character
27Ø9 CA142C     Ø186Ø          JP      Z,PASS1         ;Go if 1st pass
27ØC 7E         Ø187Ø          LD      A,(HL)
27ØD FEØ3       Ø188Ø          CP      ETX             ;End of patch?
27ØF 285C       Ø189Ø          JR      Z,PCHDUN
2711 FE2E       Ø19ØØ          CP      '.'             ;Comment?
2713 CAC527     Ø191Ø          JP      Z,COMMENT
2716 CBAF       Ø192Ø          RES     5,A             ;Make upper case
2718 FE46       Ø193Ø          CP      'F'             ;FIND line?
271A CAC527     Ø194Ø          JP      Z,COMMENT       ;Skip on 2nd pass or if O=N
271D FE44       Ø195Ø          CP      'D'             ;Start of D line?
271F CAD727     Ø196Ø          JP      Z,DVERB
2722 FE59       Ø197Ø          CP      'Y'             ;Yank previous patch?
2724 CA4228     Ø198Ø          JP      Z,YANK
2727 FE4C       Ø199Ø          CP      'L'             ;Library overlay?
2729 CAØØ29     Ø2ØØØ          JP      Z,LVERB
272C FE52       Ø2Ø1Ø          CP      'R'             ;Remove parm ?
272E CA3A28     Ø2Ø2Ø          JP      Z,REMOVE
2731 FE4F       Ø2Ø3Ø          CP      'O'             ;O parm ?
2733 CAD128     Ø2Ø4Ø          JP      Z,OVERB
2736 FE58       Ø2Ø5Ø          CP      'X'             ;Start of X line?
2738 C2612D     Ø2Ø6Ø          JP      NZ,PCHERR       ;Error if none of above
                Ø2Ø7Ø ;
                Ø2Ø8Ø ;        Verb = 'X' -> patch by hex load address
                Ø2Ø9Ø ;
273B 117F2D     Ø21ØØ          LD      DE,PGMDCB       ;Rewind the program to Ø
273E Ø1ØØØØ     Ø211Ø          LD      BC,Ø            ;Use POSN so EOF
2741 CDF52C     Ø212Ø          CALL    $POSN           ;  is not changed
2744 CD4D29     Ø213Ø          CALL    POSFIL          ;Posn to end of prgfile
                Ø214Ø ;
2747 F5         Ø215Ø          PUSH    AF              ;Save regs fm display routine
2748 E5         Ø216Ø          PUSH    HL
2749 D5         Ø217Ø          PUSH    DE
274A 21AD2E     Ø218Ø          LD      HL,INSPCH$      ;"installing patch...
274D CD1F2D     Ø219Ø          CALL    $DSPLY
275Ø D1         Ø22ØØ          POP     DE
2751 E1         Ø221Ø          POP     HL
2752 F1         Ø222Ø          POP     AF
                Ø223Ø ;
2753 FEØ2       Ø224Ø          CP      2               ;Be sure type byte = 2
2755 C2452D     Ø225Ø          JP      NZ,FILERR       ;Load file format error
2758 3EØ1       Ø226Ø          LD      A,1             ;Tempy set LRL to 1
275A 32882D     Ø227Ø          LD      (PGMDCB+9),A    ;  & backspace the file
275D CDFB2C     Ø228Ø          CALL    $BKSP           ;  to overwrite old xfer addr
276Ø AF         Ø229Ø          XOR     A               ;Reset LRL to 256
2761 32882D     Ø23ØØ          LD      (PGMDCB+9),A
                Ø231Ø ;
```

```
                 ;       Install the X patch at the end of the prgfile
                 ;
2764 CD8229              CALL    STUFNM          ;Generate the patch
2767 7E                  LD      A,(HL)          ;HL => ending posn in fix data
2768 FEØ3                CP      ETX             ;Did it go til the end?
276A C2612D              JP      NZ,PCHERR       ;"Patch format error...
                 ;
                 ;       Patch/operation complete - close the file
                 ;
276D 3EØD        PCHDUN  LD      A,CR            ;Move cursor to next line
276F CD2B2D              CALL    $DSP
2772 117F2D              LD      DE,PGMDCB       ;Close the program file
2775                     @@CLOSE
2775 3E3C                LD      A,6Ø
2777 EF                  RST     4Ø
2778 C2322D              JP      NZ,IOERR
277B 21EE2F              LD      HL,YANKMSG      ;Set up in case Yank was done
277E 3A732D              LD      A,(YNKFLG)      ;Was it a Yank?
2781 B7                  OR      A
2782 2Ø24                JR      NZ,EXLOG        ;Yes, log out
2784 21962F              LD      HL,SUCCES$      ;"function completed.."
2787                     @@LOGOT
                         IFEQ    ØØH,1
                         LD      HL,
                         ENDIF
2787 3EØC                LD      A,12
2789 EF                  RST     4Ø
278A 2A742D              LD      HL,(LINCNT)     ;P/u # of D & X lines
278D 7C                  LD      A,H
278E B5                  OR      L               ;Any?
278F 2814                JR      Z,NOCHG         ;No D or X verbs
2791 E5                  PUSH    HL              ;Save line count
2792 11Ø1ØØ              LD      DE,1            ;Exactly 1 line?
2795 ED52                SBC     HL,DE
2797 E1                  POP     HL
2798 2ØØ5                JR      NZ,NTONE        ;Go if more than 1
279A 3E2Ø                LD      A,' '           ;  else remove "s" from message
279C 32C12F              LD      (PLURAL),A
279F 11B12F      NTONE   LD      DE,LINMSG$      ;Put line count into message
27A2                     @@HEXDEC                ;  as decimal ASCII
27A2 3E61                LD      A,97
27A4 EF                  RST     4Ø
27A5 21B12F      NOCHG   LD      HL,LINMSG$
27A8             EXLOG   @@LOGOT                 ;Show how many lines done
                         IFEQ    ØØH,1
                         LD      HL,
                         ENDIF
27A8 3EØC                LD      A,12
27AA EF                  RST     4Ø
                 ;
27AB 21ØØØØ              LD      HL,Ø            ;Init no error
27AE E5          $QUIT   PUSH    HL
27AF 217F2D              LD      HL,PGMDCB
27B2 CB7E                BIT     7,(HL)          ;Was file left open?
27B4 EB                  EX      DE,HL           ;DE=>DCB possible close
27B5 C4D62C              CALL    NZ,FLOPN        ;Warn user
27B8 3EØE                LD      A,14            ;Cursor on
27BA CD2B2D              CALL    $DSP
27BD E1                  POP     HL
27BE 31ØØØØ              LD      SP,$-$          ;P/u original stack
27BF             STACK   EQU     $-2
```

```
27C1            Ø279Ø         @@CKBRKC                    ;Clear break
27C1 3E6A       ØØØ31         LD      A,1Ø6
27C3 EF         ØØØ32         RST     4Ø
27C4 C9         Ø28ØØ         RET                         ;Done with the patching
                Ø281Ø ;
                Ø282Ø ;       Verb = '.' => comment line
                Ø283Ø ;       HL = start of line in fix data
                Ø284Ø ;       Bypass all chars until a terminator is found
                Ø285Ø ;
27C5 7E         Ø286Ø COMMENT LD      A,(HL)              ;Look for some terminator
27C6 FEØ3       Ø287Ø         CP      ETX                 ;End of the fix data?
27C8 CAFA26     Ø288Ø         JP      Z,DOFIX1            ;Back if so
27CB 23         Ø289Ø         INC     HL                  ;  else bump buffer ptr
27CC FE3B       Ø29ØØ         CP      ';'                 ;Logical EOL?
27CE 28Ø4       Ø291Ø         JR      Z,EOL1              ;Back if so
27DØ FEØD       Ø292Ø         CP      CR                  ;Physical EOL?
27D2 2ØF1       Ø293Ø         JR      NZ,COMMENT          ;Do next char if not
27D4 C3FA26     Ø294Ø EOL1    JP      DOFIX1              ;Back to the caller
                Ø295Ø ;
                Ø296Ø ;       Verb = 'D' -> disk record patch
                Ø297Ø ;
27D7 CDCC2C     Ø298Ø DVERB   CALL    CNTLIN              ;Bump line counter
27DA CDE327     Ø299Ø         CALL    DPOSN               ;Posn prgfile to Drr,bb
27DD CDØA28     Ø3ØØØ         CALL    DLINE               ;Put or check the patch line
                Ø3Ø1Ø                                     ;  depending on which pass
27EØ C3FA26     Ø3Ø2Ø         JP      DOFIX1              ;Do next line
                Ø3Ø3Ø ;
27E3 23         Ø3Ø4Ø DPOSN   INC     HL                  ;Bump fix data buffer ptr
27E4 CD922A     Ø3Ø5Ø         CALL    PRSFIX              ;Get char or hex pair
27E7 Ø6ØØ       Ø3Ø6Ø         LD      B,Ø                 ;Put disk record #
27E9 4F         Ø3Ø7Ø         LD      C,A                 ;  into BC
27EA 7E         Ø3Ø8Ø         LD      A,(HL)              ;If no comma, then
27EB FE2C       Ø3Ø9Ø         CP      ','                 ; get 3rd & 4th digits
27ED 28Ø4       Ø31ØØ         JR      Z,DVERB1            ;  in case user put in
27EF CD922A     Ø311Ø         CALL    PRSFIX              ;  a 4 byte record #
27F2 4F         Ø312Ø         LD      C,A
27F3 117F2D     Ø313Ø DVERB1  LD      DE,PGMDCB           ;Position file to record
27F6 CDF52C     Ø314Ø         CALL    $POSN
27F9 7E         Ø315Ø         LD      A,(HL)              ;Check for ',' separator
27FA FE2C       Ø316Ø         CP      ','                 ;  between record and offset
27FC C2612D     Ø317Ø         JP      NZ,PCHERR           ;Abort if not found
27FF 23         Ø318Ø         INC     HL                  ;Pt to offset bytes
28ØØ CD252D     Ø319Ø         CALL    $READ               ;Read the sector
28Ø3 CD922A     Ø32ØØ         CALL    PRSFIX              ;Make offset binary in A
28Ø6 32842D     Ø321Ø         LD      (PGMDCB+5),A        ;Set byte offset in FCB
28Ø9 C9         Ø322Ø         RET
                Ø323Ø ;
                Ø324Ø ;       Dual purpose routine that checks a Drr,bb line
                Ø325Ø ;       or installs it into the program file
                Ø326Ø ;
28ØA 7E         Ø327Ø DLINE   LD      A,(HL)              ;Next byte in line must
28ØB FE3D       Ø328Ø         CP      '='                 ;  be '='
28ØD C2612D     Ø329Ø         JP      NZ,PCHERR           ;Abort if missing
281Ø 23         Ø33ØØ DVERB2  INC     HL                  ;Pt to start of patch data
2811 CD962A     Ø331Ø DVERB3  CALL    PRSFX1              ;Get patch byte as binary in A
2814 CDB82C     Ø332Ø         CALL    PUTORCHK            ;Either write it or check it
2817 7E         Ø333Ø         LD      A,(HL)              ;P/u next char
2818 FEØD       Ø334Ø         CP      CR                  ;Go on CR
281A 2811       Ø335Ø         JR      Z,DVERB4A
281C FE3B       Ø336Ø         CP      ';'                 ;End of logical line?
281E 28ØC       Ø337Ø         JR      Z,DVERB4
```

```
282Ø FE22      Ø338Ø          CP      '"'             ;Closing dbl-quote?
2822 28Ø8      Ø339Ø          JR      Z,DVERB4
2824 3AAB2A    Ø34ØØ          LD      A,(STRFLG+1)    ;If in quote string,
2827 B7        Ø341Ø          OR      A               ;  do not bump HL past
2828 28E6      Ø342Ø          JR      Z,DVERB2        ;  the non-existant space
282A 18E5      Ø343Ø          JR      DVERB3          ;No special, do next byte
               Ø344Ø ;
282C 7E        Ø345Ø DVERB4   LD      A,(HL)          ;Ignore rest of line
282D 23        Ø346Ø DVERB4A  INC     HL
282E FEØD      Ø347Ø          CP      CR
283Ø 2ØFA      Ø348Ø          JR      NZ,DVERB4       ;Loop til physical EOL
2832 3AØ627    Ø349Ø          LD      A,(PASS2)       ;Patching or checking?
2835 B7        Ø35ØØ          OR      A               ;If patching, need to
2836 C4Ø12D    Ø351Ø          CALL    NZ,$RWRIT       ;  re-write the sector
2839 C9        Ø352Ø          RET                     ;Done w/line
               Ø353Ø ;
               Ø354Ø ;        Verb = 'R' -> set flag to yank D patch
               Ø355Ø ;        This routine is needed to check the R parm
               Ø356Ø ;         when doing a CLP, in case the parm was entered
               Ø357Ø ;         after the fix data
               Ø358Ø ;
283A 3EFF      Ø359Ø REMOVE   LD      A,-1            ;Set Reomve parm true and
283C 32472C    Ø36ØØ          LD      (RPARM),A       ;  then ignore all until the
283F C3C527    Ø361Ø          JP      COMMENT         ;  next logical line
               Ø362Ø ;
               Ø363Ø ;        Verb = 'Y' -> yanks patch with same name
               Ø364Ø ;
2842 7E        Ø365Ø YANK     LD      A,(HL)          ;Ignore all chars until
2843 23        Ø366Ø          INC     HL              ;  the physical EOL
2844 FEØD      Ø367Ø          CP      CR
2846 2ØFA      Ø368Ø          JR      NZ,YANK
               Ø369Ø ;
2848 E5        Ø37ØØ          PUSH    HL              ;Save fix data posn
2849 21DC2E    Ø371Ø          LD      HL,YNKPCH$      ;"yanking patch...
284C CD1F2D    Ø372Ø          CALL    $DSPLY
284F Ø1ØØØØ    Ø373Ø          LD      BC,Ø            ;Rewind the file
2852 117F2D    Ø374Ø          LD      DE,PGMDCB
2855 CDF52C    Ø375Ø          CALL    $POSN
2858 CDØ72D    Ø376Ø YANK1    CALL    $GET1           ;Get a "type" byte
285B C2C628    Ø377Ø          JP      NZ,YANK9        ;If error, ck for EOF
285E FEØ7      Ø378Ø          CP      7               ;Found a patch?
286Ø 281B      Ø379Ø          JR      Z,YANK4         ;If so, check name
2862 326A28    Ø38ØØ          LD      (TYPCOD+1),A    ;Stuff type for testing
2865 CDØB2D    Ø381Ø          CALL    $GET            ;Get a block length
2868 47        Ø382Ø          LD      B,A             ;Set loop counter
2869 3EØØ      Ø383Ø TYPCOD   LD      A,Ø             ;Test type
286B 3D        Ø384Ø          DEC     A               ;Ck for type 1 (code block)
286C 2ØØ8      Ø385Ø          JR      NZ,YANK2        ;Length ok if not
               Ø386Ø ;
               Ø387Ø ;        Adjust length for 255 & 256 byte code blocks
               Ø388Ø ;
286E CDØB2D    Ø389Ø          CALL    $GET            ;Read 1st two bytes
2871 Ø5        Ø39ØØ          DEC     B               ;  in case the block was
2872 CDØB2D    Ø391Ø          CALL    $GET            ;  255+2 or 256+2
2875 Ø5        Ø392Ø          DEC     B
2876 CDØB2D    Ø393Ø YANK2    CALL    $GET            ;Read rest of block
2879 1ØFB      Ø394Ø YANK3    DJNZ    YANK2
287B 18DB      Ø395Ø          JR      YANK1
               Ø396Ø ;
               Ø397Ø ;        Found patch code area, is this the one?
               Ø398Ø ;
```

```
287D CDØB2D     Ø399Ø YANK4   CALL    $GET              ;Get name len fm file
288Ø 47         Ø4ØØØ         LD      B,A               ;Save len in B
2881 3AØ83Ø     Ø4Ø1Ø         LD      A,(NAMLEN$)       ;P/u fix file name length
2884 B8         Ø4Ø2Ø         CP      B                 ;If no match, not fix
2885 2ØEF       Ø4Ø3Ø         JR      NZ,YANK2          ;  to Yank
2887 21Ø93Ø     Ø4Ø4Ø         LD      HL,NAMFIX$        ;Pt to yank file name
288A CDØ72D     Ø4Ø5Ø YANK5   CALL    $GET1             ;Ck for match of yank
288D C27628     Ø4Ø6Ø         JP      NZ,YANK2          ;  file name with prog
289Ø BE         Ø4Ø7Ø         CP      (HL)              ;  patch name
2891 23         Ø4Ø8Ø         INC     HL
2892 2ØE5       Ø4Ø9Ø         JR      NZ,YANK3          ;Back if no match
2894 1ØF4       Ø41ØØ         DJNZ    YANK5
                Ø411Ø ;
                Ø412Ø ;       Found this fix patch - let's yank it
                Ø413Ø ;
2896 CDØB2D     Ø414Ø YANK6   CALL    $GET              ;Get type code
2899 FEØ1       Ø415Ø         CP      1                 ;Ignore block if
289B C2BD28     Ø416Ø         JP      NZ,YANK8          ;  type <> 1 (code block)
289E 3EØ1       Ø417Ø         LD      A,1               ;Set LRL=1 & backspace
28AØ 32882D     Ø418Ø         LD      (PGMDCB+9),A      ;  to overwrite the type byte
28A3 CDFB2C     Ø419Ø         CALL    $BKSP
28A6 AF         Ø42ØØ         XOR     A                 ;Set LRL back to 256
28A7 32882D     Ø421Ø         LD      (PGMDCB+9),A
28AA 3E1Ø       Ø422Ø         LD      A,1ØH             ;Change type=1 to =16
28AC CD112D     Ø423Ø         CALL    $PUT              ;  and write to prgfile
28AF CDØ12D     Ø424Ø         CALL    $RWRIT            ;Force re-write
28B2 CDØB2D     Ø425Ø         CALL    $GET              ;Get length byte
28B5 47         Ø426Ø         LD      B,A               ;  of patch code block
28B6 CDØB2D     Ø427Ø YANK7   CALL    $GET
28B9 1ØFB       Ø428Ø         DJNZ    YANK7             ;Posn past the code block
28BB 18D9       Ø429Ø         JR      YANK6             ;Loop through patch blocks
                Ø43ØØ ;
28BD E1         Ø431Ø YANK8   POP     HL                ;Not type 1, done with yank
28BE 3EFF       Ø432Ø         LD      A,ØFFH            ;Set Yank flag for
28CØ 32732D     Ø433Ø         LD      (YNKFLG),A        ;  exit message dsply
28C3 C36D27     Ø434Ø         JP      PCHDUN
                Ø435Ø ;
28C6 FE1C       Ø436Ø YANK9   CP      1CH               ;Got $GET error, was EOF?
28C8 C2322D     Ø437Ø         JP      NZ,IOERR          ;Abort if not, else
28CB 21F72E     Ø438Ø         LD      HL,NOYANK$        ;  "can't yank, not in file
28CE C3542D     Ø439Ø         JP      ERREXIT
                Ø44ØØ ;
                Ø441Ø ;       Verb = 'O' -> turn FIND on/off
                Ø442Ø ;       Check special O parameter, determine ON or OFF
                Ø443Ø ;
28D1 23         Ø444Ø OVERB   INC     HL                ;Move past O
28D2 7E         Ø445Ø         LD      A,(HL)
28D3 FE3D       Ø446Ø         CP      '='               ;Next char must be '='
28D5 2Ø1D       Ø447Ø         JR      NZ,WHATIS         ;  or is an error
28D7 23         Ø448Ø         INC     HL                ;Bypass the '='
28D8 7E         Ø449Ø         LD      A,(HL)
28D9 FEØD       Ø45ØØ         CP      CR                ;Was it CR or ')'?
28DB 281B       Ø451Ø         JR      Z,OISOFF          ;O=<enter> is OFF
28DD CBAF       Ø452Ø         RES     5,A               ;Make Upper case
28DF FE4E       Ø453Ø         CP      'N'
28E1 2815       Ø454Ø         JR      Z,OISOFF          ;O=N,NO etc.
28E3 FE59       Ø455Ø         CP      'Y'               ;Y=yes
28E5 281Ø       Ø456Ø         JR      Z,OISON
28E7 FE4F       Ø457Ø         CP      'O'
28E9 2ØØ9       Ø458Ø         JR      NZ,WHATIS         ;Not Y/N/ON/OFF!
28EB CDB32C     Ø459Ø         CALL    GETNXT            ;Get nxt, already UC
```

```
28EE FE46       Ø46ØØ           CP      'F'
28FØ 28Ø6       Ø461Ø           JR      Z,OISOFF        ;OFF
28F2 FE4E       Ø462Ø           CP      'N'
28F4 C2612D     Ø463Ø WHATIS    JP      NZ,PCHERR       ;Quit if no acceptable flag
                Ø464Ø ;
28F7 3E         Ø465Ø OISON     DB      3EH             ;LD A,ØAFH
28F8 AF         Ø466Ø OISOFF    XOR     A
28F9 32412C     Ø467Ø           LD      (OPARM),A       ;Set parm on or off
28FC 2B         Ø468Ø           DEC     HL
28FD C3C527     Ø469Ø           JP      COMMENT         ;Ignore rest til logical EOL
                Ø47ØØ ;
                Ø471Ø ;         Verb = 'L' -> indicate patch to library file
                Ø472Ø ;
29ØØ 23         Ø473Ø LVERB     INC     HL              ;Bypass the 'L'
29Ø1 CD922A     Ø474Ø           CALL    PRSFIX          ;Get a hex digit pair
29Ø4 4F         Ø475Ø           LD      C,A             ;Stuff for later
29Ø5 328F2B     Ø476Ø           LD      (OVRLY+1),A
29Ø8 7E         Ø477Ø           LD      A,(HL)          ;Ck for end of line
29Ø9 23         Ø478Ø           INC     HL
29ØA FEØD       Ø479Ø           CP      CR
29ØC C2612D     Ø48ØØ           JP      NZ,PCHERR       ;Error if not
29ØF CDE92A     Ø481Ø           CALL    FISAM           ;Get isam overlay ptrs
2912 F5         Ø482Ø           PUSH    AF              ;Save byte offset
2913 3A8Ø2D     Ø483Ø           LD      A,(PGMDCB+1)
2916 CBBF       Ø484Ø           RES     7,A             ;Sector operations only
2918 328Ø2D     Ø485Ø           LD      (PGMDCB+1),A
291B 117F2D     Ø486Ø           LD      DE,PGMDCB       ;Position the file to
291E CDF52C     Ø487Ø           CALL    $POSN           ;Overlay requested
2921 CD252D     Ø488Ø           CALL    $READ           ;Read in the sector
2924 F1         Ø489Ø           POP     AF
2925 32842D     Ø49ØØ           LD      (PGMDCB+5),A    ;Stuff byte offset in FCB
2928 CD4D29     Ø491Ø           CALL    POSFIL          ;Adv "positioning...
292B FEØ4       Ø492Ø           CP      4               ;End of ISAM overlay?
292D C2452D     Ø493Ø           JP      NZ,FILERR       ;If not, "load format er.
293Ø 3EØ1       Ø494Ø           LD      A,1             ;Set LRL=1
2932 32882D     Ø495Ø           LD      (PGMDCB+9),A
2935 CDFB2C     Ø496Ø           CALL    $BKSP           ;Backspace over the 4
2938 AF         Ø497Ø           XOR     A               ;Now set LRL back to 256
2939 32882D     Ø498Ø           LD      (PGMDCB+9),A
293C CD8229     Ø499Ø           CALL    STUFNM          ;Do the patch
293F E5         Ø5ØØØ           PUSH    HL
294Ø 21C12E     Ø5Ø1Ø           LD      HL,BLDMAP$      ;"rebuilding library map.
2943 CD1F2D     Ø5Ø2Ø           CALL    $DSPLY
2946 CD3A2B     Ø5Ø3Ø           CALL    RPRMAP          ;Rebuild the map
2949 E1         Ø5Ø4Ø           POP     HL
294A C3FA26     Ø5Ø5Ø           JP      DOFIX1          ;Loop
                Ø5Ø6Ø ;
                Ø5Ø7Ø ;         Include the rest of Patch/Cmd
                Ø5Ø8Ø ;
294D            Ø5Ø9Ø *GET      PATCHA:3
                Ø395Ø ;PATCHA/ASM - Continuation of Patch Program
                Ø396Ø ;
                Ø397Ø ;         Routine to position to file's end
                Ø398Ø ;
294D E5         Ø399Ø POSFIL    PUSH    HL              ;Save fm display call
294E D5         Ø4ØØØ           PUSH    DE
294F 216F2E     Ø4Ø1Ø           LD      HL,POSLD$       ;"positioning ...
2952 CD1F2D     Ø4Ø2Ø           CALL    $DSPLY
2955 D1         Ø4Ø3Ø           POP     DE
2956 E1         Ø4Ø4Ø           POP     HL
                Ø4Ø5Ø ;
```

```
2957 CDØB2D   POSFIL1 CALL   $GET            ;Get a type byte
295A FE2Ø             CP     2ØH             ;X'2Ø' & up are illegal
295C D2452D           JP     NC,FILERR
295F FEØ2             CP     2               ;Transfer address?
2961 C8               RET    Z
2962 FEØ3             CP     3               ;Not really used in
2964 C8               RET    Z               ;  a file, yet...
2965 FEØ4             CP     4               ;End of ISAM member?
2967 C8               RET    Z
2968 FEØA             CP     ØAH             ;End of ISAM directory?
296A C8               RET    Z
296B 4F               LD     C,A             ;Save type byte
296C CDØB2D           CALL   $GET            ;Get block length
296F 47               LD     B,A             ;Save it for countdown
297Ø ØD               DEC    C               ;Was type = 1 ?
2971 2ØØ8             JR     NZ,POSFIL2      ;Jump if not
2973 CDØB2D           CALL   $GET            ;Read off the load addr
2976 Ø5               DEC    B               ;Adjust length for each
2977 CDØB2D           CALL   $GET
297A Ø5               DEC    B
297B CDØB2D   POSFIL2 CALL   $GET            ;Read the block
297E 1ØFB             DJNZ   POSFIL2
298Ø 18D5             JR     POSFIL1         ;Loop to next type code
              ;
              ;       Routine to put the patch name header block into the
              ;        prg data buffer and then position to the next X'' line
              ;
2982 E5       STUFNM  PUSH   HL              ;Save posn in fix data
2983 21992E           LD     HL,GENPCH$      ;"generating patch...
2986 CD1F2D           CALL   $DSPLY
2989 11ØØ48           LD     DE,PGMDATA
298C 21Ø83Ø           LD     HL,NAMLEN$      ;Pt to fix name field
298F 7E               LD     A,(HL)
299Ø B7               OR     A
2991 28ØC             JR     Z,STUFNM2       ;Go if no name len
2993 3EØ7             LD     A,7             ;Set fix patch type
2995 12               LD     (DE),A
2996 13               INC    DE
2997 46               LD     B,(HL)          ;Set header length
2998 Ø4               INC    B               ;Bump to write length
2999 7E       STUFNM1 LD     A,(HL)          ;P/u name byte
299A 23               INC    HL
299B 12               LD     (DE),A          ;Put in output buffer
299C 13               INC    DE
299D 1ØFA             DJNZ   STUFNM1         ;Loop for namelen
              ;
299F E1       STUFNM2 POP    HL              ;Recover posn in fix data
29AØ 226B2D   STUFNM3 LD     (SETMSG+1),HL   ;Start of this line
29A3 7E               LD     A,(HL)
29A4 FEØ3             CP     ETX             ;End of fix data?
29A6 CA2F2A           JP     Z,RIPPLE
29A9 23               INC    HL
29AA FE2E             CP     '.'             ;Comment?
29AC 28Ø9             JR     Z,STUFNM4
29AE CBAF             RES    5,A             ;In case lower case
29BØ FE58             CP     'X'             ;Start of code line?
29B2 281Ø             JR     Z,DOXVB         ;Go if so
29B4 C3612D           JP     PCHERR          ;"patch input format err
              ;
29B7 7E       STUFNM4 LD     A,(HL)          ;In a comment, loop until
29B8 23               INC    HL              ;  end of line
```

```
29B9 FE03                   CP      ETX             ;End of patch code?
29BB CA612D                 JP      Z,PCHERR        ;Abort if so
29BE FE0D                   CP      CR              ;EOL?
29C0 20F5                   JR      NZ,STUFNM4      ;Loop if not
29C2 18DC                   JR      STUFNM3
                  ;
                  ;         Do the 'X' verb patch
                  ;         HL => Fix data buffer
                  ;         DE => Program data buffer
                  ;
29C4 CDCC2C         DOXVB   CALL    CNTLIN          ;Count installed lines
29C7 3E01                   LD      A,1             ;Show type 1 (code block)
29C9 12                     LD      (DE),A          ;Put in output buffer
29CA 13                     INC     DE
29CB D5                     PUSH    DE              ;Save ptr to length
29CC 13                     INC     DE
29CD 7E                     LD      A,(HL)          ;Should be "'"
29CE 23                     INC     HL              ;  around address (X'nnnn')
29CF FE27                   CP      27H
29D1 C2612D                 JP      NZ,PCHERR       ;Error if not
29D4 CD922A                 CALL    PRSFIX          ;P/u hex digit pair
29D7 47                     LD      B,A             ;Save hi-order address
29D8 CD922A                 CALL    PRSFIX          ;P/u hex digit pair
29DB 12                     LD      (DE),A          ;Stuff lo-order address
29DC 13                     INC     DE
29DD 78                     LD      A,B
29DE 12                     LD      (DE),A          ;Stuff hi-order address
29DF 13                     INC     DE
29E0 7E                     LD      A,(HL)          ;Syntax requires "=" or
29E1 FE3D                   CP      '='             ;  "'" next
29E3 2806                   JR      Z,DOXVB1
29E5 FE27                   CP      27H             ;Bypass optional clsng '
29E7 C2612D                 JP      NZ,PCHERR       ;Error if not ',=
29EA 23                     INC     HL
29EB 23             DOXVB1  INC     HL              ;Bypass the '='
29EC 0602                   LD      B,2             ;Len of bytes already stuffed
29EE 7E             DOXVB2  LD      A,(HL)          ;Get char of fix data
29EF FE22                   CP      '"'             ;ASCII string?
29F1 281F                   JR      Z,DOXVB5        ;Go process if so
29F3 7E             DOXVB3  LD      A,(HL)          ;P/u line byte
29F4 23                     INC     HL
29F5 FE3B                   CP      ';'             ;Logical end?
29F7 2811                   JR      Z,DOXVB4        ;Ignore trailing
29F9 FE0D                   CP      CR              ;End of line?
29FB 282C                   JR      Z,DOXVB6
29FD FE20                   CP      20H
29FF 28ED                   JR      Z,DOXVB2        ;Ignore spaces
2A01 2B                     DEC     HL              ;Back up, its a byte
2A02 CD962A                 CALL    PRSFX1          ;Get the hex digit pair
2A05 12                     LD      (DE),A          ;Stuff into code buffer
2A06 13                     INC     DE
2A07 04                     INC     B               ;Bump block length
2A08 18E9                   JR      DOXVB3
                  ;
                  ;         Bypass until end of line
                  ;
2A0A 7E             DOXVB4  LD      A,(HL)          ;P/u the character
2A0B 23                     INC     HL
2A0C FE0D                   CP      CR              ;End of line?
2A0E 20FA                   JR      NZ,DOXVB4
2A10 1817                   JR      DOXVB6
```

```
                ;
                ;         Fix has double quote string
                ;
2A12 23           DOXVB5  INC     HL
2A13 7E                   LD      A,(HL)          ;Get next char
2A14 FEØ3                 CP      ETX             ;End of fix data?
2A16 CA612D               JP      Z,PCHERR        ;Can't end w/o some EOL
2A19 23                   INC     HL
2A1A FEØD                 CP      CR              ;End of line?
2A1C CA292A               JP      Z,DOXVB6        ;Valid end
2A1F FE22                 CP      '"'             ;Closing quote?
2A21 28DØ                 JR      Z,DOXVB3        ;Go for more
2A23 2B                   DEC     HL
2A24 12                   LD      (DE),A          ;Stuff the char
2A25 13                   INC     DE
2A26 Ø4                   INC     B               ;Bump counter
2A27 18E9                 JR      DOXVB5          ;Loop until end or "
                ;
                ;         Found valid end - update length
                ;
2A29 E3           DOXVB6  EX      (SP),HL         ;Grab length pointer
2A2A 7Ø                   LD      (HL),B          ;Stuff the length
2A2B E1                   POP     HL
2A2C C3AØ29               JP      STUFNM3         ;Go for more lines
                ;
                ;         Got to the end of the fix input
                ;
2A2F E5           RIPPLE  PUSH    HL
2A3Ø EB                   EX      DE,HL           ;Last patch byte to HL
2A31 11ØØ48               LD      DE,PGMDATA      ;Pt to patch code buffer
2A34 AF                   XOR     A
2A35 ED52                 SBC     HL,DE           ;Calc length of fixup
2A37 22C62B               LD      (RPRMAP9+1),HL  ;Stuff for later
2A3A 21AD2E               LD      HL,INSPCH$      ;"installing patch
2A3D CD1F2D               CALL    $DSPLY
2A4Ø 217F2D               LD      HL,PGMDCB       ;Move prog into fix
2A43 11AØ2D               LD      DE,FIXDCB       ;  file control block
2A46 Ø12ØØØ               LD      BC,32           ;  for output use
2A49 EDBØ                 LDIR
2A4B 21ØØ32               LD      HL,LIBBUF       ;Set the i/o buffer
2A4E 22A32D               LD      (FIXDCB+3),HL
2A51 11AØ2D               LD      DE,FIXDCB       ;Reread the last program
2A54                      @@RREAD                 ;  sector
2A54 3E45                 LD      A,69
2A56 EF                   RST     4Ø
2A57 C2322D               JP      NZ,IOERR        ;Quit on read error
                ;
                ;         Now ripple the file down while stuffing bytes
                ;
2A5A 21ØØ48               LD      HL,PGMDATA      ;Beginning of "fixed" code
2A5D 11AØ2D       RIPPL1  LD      DE,FIXDCB       ;Get prog byte
2A6Ø CDØ72D               CALL    $GET1
2A63 C27A2A               JP      NZ,RIPPL2
2A66 E5                   PUSH    HL              ;Save buffer ptr & byte
2A67 F5                   PUSH    AF
2A68 117F2D               LD      DE,PGMDCB       ;Use the output fcb
2A6B 7E                   LD      A,(HL)          ;P/u byte from fixbuf
2A6C CD112D               CALL    $PUT            ;Put to disk
2A6F ED4BC62B             LD      BC,(RPRMAP9+1)  ;Pt to patch length
2A73 Ø9                   ADD     HL,BC           ;Pt past patch code
2A74 F1                   POP     AF              ;Recover prog byte
```

```
2A75 77                    LD      (HL),A            ;  & stuff after fix code
2A76 E1                    POP     HL                ;Rcvr buf ptr
2A77 23                    INC     HL                ;Bump & loop
2A78 18E3                  JR      RIPPL1
                 ;
2A7A FE1C        RIPPL2    CP      1CH               ;Got to end of file?
2A7C C2452D                JP      NZ,FILERR         ;Quit on any other error
2A7F 117F2D                LD      DE,PGMDCB
2A82 ED4BC62B              LD      BC,(RPRMAP9+1)    ;Get length of patch
2A86 7E          RIPPL3    LD      A,(HL)            ;Put rest of program
2A87 23                    INC     HL                ;  (ie the bytes = to
2A88 CD112D                CALL    $PUT              ;  length of patch code)
2A8B ØB                    DEC     BC                ;Do until len left = Ø
2A8C 78                    LD      A,B
2A8D B1                    OR      C
2A8E 2ØF6                  JR      NZ,RIPPL3
2A9Ø E1                    POP     HL
2A91 C9                    RET
                 ;
                 ;         Routine to read & convert fix code values
                 ;
2A92 AF          PRSFIX    XOR     A                 ;Entry to clear
2A93 32AB2A                LD      (STRFLG+1),A      ;  STRING check
2A96 7E          PRSFX1    LD      A,(HL)            ;P/u patch char
2A97 FEØ3                  CP      ETX               ;End of text?
2A99 CA612D                JP      Z,PCHERR          ;Error if so
2A9C FE22                  CP      '"'               ;String?
2A9E 2ØØA                  JR      NZ,STRFLG
2AAØ 32AB2A                LD      (STRFLG+1),A      ;Stuff string indicator
2AA3 23                    INC     HL
2AA4 7E                    LD      A,(HL)            ;P/u char
2AA5 FEØ3                  CP      ETX               ;End again?
2AA7 CA612D                JP      Z,PCHERR
2AAA 3EØØ        STRFLG    LD      A,Ø               ;Test string flag
2AAC B7                    OR      A
2AAD 7E                    LD      A,(HL)            ;P/u char again
2AAE 23                    INC     HL                ;Bump pointer
2AAF CØ                    RET     NZ                ;Ret if '"' was prev char
2ABØ CDD72A                CALL    CVTBIN            ;Convert hex digit to bin
2AB3 4F                    LD      C,A               ;Save value
2AB4 7E                    LD      A,(HL)            ;P/u next digit
2AB5 23                    INC     HL
2AB6 FEØ3                  CP      ETX               ;Backup pointer and ret
2AB8 CA612D                JP      Z,PCHERR          ;  if next char is not hex
2ABB FE3Ø                  CP      'Ø'               ;  else pack it into regC
2ABD 3815                  JR      C,PRSFX3          ;  & place in reg A
2ABF FE3A                  CP      '9'+1
2AC1 38Ø4                  JR      C,PRSFX2
2AC3 FE41                  CP      'A'
2AC5 38ØD                  JR      C,PRSFX3
2AC7 CBØ1        PRSFX2    RLC     C                 ;Assume digit, move
2AC9 CBØ1                  RLC     C                 ;  over a nybble
2ACB CBØ1                  RLC     C
2ACD CBØ1                  RLC     C
2ACF CDD72A                CALL    CVTBIN            ;Get hex digit
2AD2 B1                    OR      C                 ;Merge hi-order nybble
2AD3 C9                    RET
2AD4 79          PRSFX3    LD      A,C               ;Non-hex char,
2AD5 2B                    DEC     HL                ;  rcvr & exit
2AD6 C9                    RET
                 ;
```

```
              ;       Routine to convert hex digit to binary
              ;
2AD7 D63Ø     CVTBIN  SUB     3ØH            ;1st adjustment to binary
2AD9 DA5D2D           JP      C,NONHEX       ;Quit if too low
2ADC FEØA             CP      1Ø             ;Ø-9 range?
2ADE D8               RET     C              ;Back if so
2ADF CBAF             RES     5,A            ;In case lower case
2AE1 D6Ø7             SUB     7
2AE3 FE1Ø             CP      16             ;Less than F+1?
2AE5 D8               RET     C              ;Ok if so
2AE6 C35D2D           JP      NONHEX         ;  else abort
              ;
              ;       Routine to find ISAM member pointer in map table
              ;
2AE9 117F2D   FISAM   LD      DE,PGMDCB
2AEC CDØ72D   FISAM1  CALL    $GET1          ;Get a type byte
2AEF 28Ø8             JR      Z,FISAM1A      ;Go on no error
2AF1 FE1C             CP      1CH            ;EOF?
2AF3 CA412D           JP      Z,LIBERR       ;Invalid library format
2AF6 C3322D           JP      IOERR          ;  else I/O error
2AF9 FEØ8     FISAM1A CP      8              ;Start of map table?
2AFB 282Ø             JR      Z,FISAM3
2AFD FEØA             CP      ØAH            ;End of map table?
2AFF CA3D2D           JP      Z,NOVRLY       ;Should not be end
2BØ2 C5               PUSH    BC
2BØ3 4F               LD      C,A            ;Save TYPE
2BØ4 CDØB2D           CALL    $GET           ;Get block length
2BØ7 47               LD      B,A            ;Set counter & read
2BØ8 ØD               DEC     C
2BØ9 2ØØ8             JR      NZ,FISAM1B     ;Go if not load record
2BØB CDØB2D           CALL    $GET           ;  else read 1st two
2BØE Ø5               DEC     B              ;  bytes & then fall thru
2BØF CDØB2D           CALL    $GET           ;  in case len=Ø1 or Ø2
2B12 Ø5               DEC     B
2B13 78       FISAM1B LD      A,B
2B14 C1               POP     BC
2B15 47               LD      B,A
2B16 CDØB2D   FISAM2  CALL    $GET           ;Through the block
2B19 1ØFB             DJNZ    FISAM2
2B1B 18CF             JR      FISAM1         ;Go back for more
              ;
              ;       Found a map field
              ;
2B1D CDØB2D   FISAM3  CALL    $GET           ;Get field length
2B2Ø 47               LD      B,A            ;Set counter
2B21 CDØB2D           CALL    $GET           ;Get overlay #
2B24 Ø5               DEC     B              ;Reduce count
2B25 B9               CP      C              ;Is this the one?
2B26 2ØEE             JR      NZ,FISAM2      ;Loop to next field
2B28 CDØB2D           CALL    $GET           ;Get lo-order traadr
2B2B CDØB2D           CALL    $GET           ;Get hi-order transfer
2B2E CDØB2D           CALL    $GET           ;Get lo-order NRN
2B31 4F               LD      C,A            ;Save in C
2B32 CDØB2D           CALL    $GET           ;Get hi-order NRN
2B35 47               LD      B,A            ;Save in B
2B36 CDØB2D           CALL    $GET           ;Get byte offset
2B39 C9               RET
              ;
              ;       Routine to repair the library map
              ;
2B3A 117F2D   RPRMAP  LD      DE,PGMDCB      ;Rewind the file
```

```
2B3D Ø1ØØØØ     Ø7Ø9Ø          LD      BC,Ø
2B4Ø CDF52C     Ø71ØØ          CALL    $POSN
2B43 21ØØ48     Ø711Ø          LD      HL,PGMDATA      ;Pt to buffer area
2B46 CDØB2D     Ø712Ø RPRMAP1  CALL    $GET            ;Read the map into buf
2B49 FEØA       Ø713Ø          CP      ØAH             ;End of table?
2B4B 2821       Ø714Ø          JR      Z,RPRMAP3
2B4D 77         Ø715Ø          LD      (HL),A          ;Save type code
2B4E CDØB2D     Ø716Ø          CALL    $GET            ;Get length
2B51 47         Ø717Ø          LD      B,A             ;Set counter
2B52 7E         Ø718Ø          LD      A,(HL)          ;Reget the TYPE
2B53 23         Ø719Ø          INC     HL              ;Bump where to stuf len
2B54 3D         Ø72ØØ          DEC     A               ;Is this a load record?
2B55 7Ø         Ø721Ø          LD      (HL),B          ;Put length in too
2B56 23         Ø722Ø          INC     HL
2B57 2ØØC       Ø723Ø          JR      NZ,RPRMAP2      ;Go if other type
2B59 CDØB2D     Ø724Ø          CALL    $GET            ;  else get two extra
2B5C Ø5         Ø725Ø          DEC     B               ;  & adjust length in
2B5D 77         Ø726Ø          LD      (HL),A          ;  case len = Ø1 or Ø2
2B5E 23         Ø727Ø          INC     HL
2B5F CDØB2D     Ø728Ø          CALL    $GET
2B62 Ø5         Ø729Ø          DEC     B
2B63 23         Ø73ØØ          INC     HL
2B64 77         Ø731Ø          LD      (HL),A
2B65 CDØB2D     Ø732Ø RPRMAP2  CALL    $GET            ;Save member # & rest of
2B68 77         Ø733Ø          LD      (HL),A          ;  data entries
2B69 23         Ø734Ø          INC     HL
2B6A 1ØF9       Ø735Ø          DJNZ    RPRMAP2
2B6C 18D8       Ø736Ø          JR      RPRMAP1
                Ø737Ø ;
                Ø738Ø ;        Found end of table
                Ø739Ø ;
2B6E 77         Ø74ØØ RPRMAP3  LD      (HL),A          ;Show map end
2B6F 21ØØ48     Ø741Ø          LD      HL,PGMDATA      ;Pt to beginning
2B72 7E         Ø742Ø RPRMAP4  LD      A,(HL)          ;P/u type code
2B73 23         Ø743Ø          INC     HL
2B74 46         Ø744Ø          LD      B,(HL)          ;P/u length
2B75 23         Ø745Ø          INC     HL
2B76 FEØ8       Ø746Ø          CP      8               ;Map is type 8
2B78 2811       Ø747Ø          JR      Z,RPRMAP6
2B7A FEØA       Ø748Ø          CP      ØAH             ;End of map?
2B7C CA3D2D     Ø749Ø          JP      Z,NOVRLY        ;Should not have gotten
2B7F 3D         Ø75ØØ          DEC     A
2B8Ø 2ØØ4       Ø751Ø          JR      NZ,RPRMAP5
2B82 23         Ø752Ø          INC     HL              ;You should know what
2B83 Ø5         Ø753Ø          DEC     B               ;  this is for by now
2B84 23         Ø754Ø          INC     HL
2B85 Ø5         Ø755Ø          DEC     B
2B86 23         Ø756Ø RPRMAP5  INC     HL              ;Bypass this field
2B87 1ØFD       Ø757Ø          DJNZ    RPRMAP5
2B89 18E7       Ø758Ø          JR      RPRMAP4
                Ø759Ø ;
                Ø76ØØ ;        Found a type 8, check if ISAM # matches
                Ø761Ø ;
2B8B 7E         Ø762Ø RPRMAP6  LD      A,(HL)          ;P/u member #
2B8C 23         Ø763Ø          INC     HL
2B8D Ø5         Ø764Ø          DEC     B               ;Count down
2B8E FEØØ       Ø765Ø OVRLY    CP      Ø               ;Compare to patched one
2B9Ø 2ØF4       Ø766Ø          JR      NZ,RPRMAP5      ;Keep reading until found
2B92 23         Ø767Ø          INC     HL              ;Bypass transfer address
2B93 23         Ø768Ø          INC     HL
2B94 5E         Ø769Ø          LD      E,(HL)          ;P/u the position lo
```

```
2B95 23        Ø77ØØ          INC     HL
2B96 56        Ø771Ø          LD      D,(HL)          ;  & the pos hi
2B97 23        Ø772Ø          INC     HL
2B98 4E        Ø773Ø          LD      C,(HL)          ;  & the byte offset
2B99 78        Ø774Ø          LD      A,B             ;Calc ptr to next field
2B9A D6Ø4      Ø775Ø          SUB     4
2B9C 47        Ø776Ø          LD      B,A
2B9D 23        Ø777Ø          INC     HL
2B9E 1ØFD      Ø778Ø          DJNZ    $-1             ;Loop to next field
2BAØ 7E        Ø779Ø RPRMAP7  LD      A,(HL)          ;End of table?
2BA1 FEØA      Ø78ØØ          CP      ØAH             ;If end, write the
2BA3 2836      Ø781Ø          JR      Z,RWRMAP        ;  map back to disk
2BA5 23        Ø782Ø          INC     HL              ;Pt to field length
2BA6 46        Ø783Ø          LD      B,(HL)
2BA7 23        Ø784Ø          INC     HL              ;Pt to member #
2BA8 23        Ø785Ø          INC     HL              ;Transfer Low
2BA9 23        Ø786Ø          INC     HL              ;Transfer High
2BAA 23        Ø787Ø          INC     HL              ;NRN Low
2BAB 78        Ø788Ø          LD      A,B             ;Adjust count for
2BAC D6Ø4      Ø789Ø          SUB     4               ;  4 INC HLs
2BAE 47        Ø79ØØ          LD      B,A
2BAF 7E        Ø791Ø          LD      A,(HL)          ;If position is the same
2BBØ 23        Ø792Ø          INC     HL              ;  as that of patched
2BB1 BB        Ø793Ø          CP      E               ;  one, its posn has not
2BB2 2ØØF      Ø794Ø          JR      NZ,RPRMAP8      ;  changed, so don't
2BB4 7E        Ø795Ø          LD      A,(HL)          ;  change it
2BB5 23        Ø796Ø          INC     HL
2BB6 Ø5        Ø797Ø          DEC     B
2BB7 BA        Ø798Ø          CP      D               ;Cp the hi order
2BB8 2ØØB      Ø799Ø          JR      NZ,RPRMAP9
2BBA 7E        Ø8ØØØ          LD      A,(HL)
2BBB B9        Ø8Ø1Ø          CP      C               ;  and the offset
2BBC 2ØØ7      Ø8Ø2Ø          JR      NZ,RPRMAP9
2BBE 23        Ø8Ø3Ø LPFLD    INC     HL
2BBF 1ØFD      Ø8Ø4Ø          DJNZ    $-1             ;Loop to end of field
2BC1 18DD      Ø8Ø5Ø          JR      RPRMAP7
               Ø8Ø6Ø ;
               Ø8Ø7Ø ;        Add the patch length to each position vector
               Ø8Ø8Ø ;
2BC3 23        Ø8Ø9Ø RPRMAP8  INC     HL              ;Bump to offset byte
2BC4 Ø5        Ø81ØØ          DEC     B
2BC5 11ØØØØ    Ø811Ø RPRMAP9  LD      DE,Ø            ;P/u patch length
2BC8 7E        Ø812Ø          LD      A,(HL)          ;P/u offset & add
2BC9 83        Ø813Ø          ADD     A,E             ;Lo-order patch length
2BCA 77        Ø814Ø          LD      (HL),A
2BCB 2B        Ø815Ø          DEC     HL              ;Pt to NRN
2BCC 2B        Ø816Ø          DEC     HL
2BCD 7E        Ø817Ø          LD      A,(HL)          ;P/u NRN lo-order
2BCE 8A        Ø818Ø          ADC     A,D             ;Add to it
2BCF 77        Ø819Ø          LD      (HL),A
2BDØ 23        Ø82ØØ          INC     HL              ;Pt to pos hi order
2BD1 7E        Ø821Ø          LD      A,(HL)          ;P/u the hi
2BD2 CEØØ      Ø822Ø          ADC     A,Ø             ;Add in any carry
2BD4 77        Ø823Ø          LD      (HL),A
2BD5 23        Ø824Ø          INC     HL              ;Pt to next map field
2BD6 11ØØØØ    Ø825Ø          LD      DE,Ø
2BD9 18E3      Ø826Ø          JR      LPFLD           ;Loop
               Ø827Ø ;
               Ø828Ø ;        Routine to re-write the library map table
               Ø829Ø ;
2BDB 117F2D    Ø83ØØ RWRMAP   LD      DE,PGMDCB       ;Rewind the program file
```

```
2BDE Ø1ØØØØ                    LD      BC,Ø
2BE1 CDF52C                    CALL    $POSN
2BE4 21ØØ48                    LD      HL,PGMDATA      ;Pt to mapbuf start
2BE7 7E               RWRMAP1  LD      A,(HL)          ;Ret when we get to
2BE8 FEØA                      CP      ØAH             ;  the map end type
2BEA C8                        RET     Z
2BEB 4F                        LD      C,A             ;Save the type
2BEC 23                        INC     HL
2BED CD112D                    CALL    $PUT            ;Put the type
2BFØ 7E                        LD      A,(HL)          ;P/u length
2BF1 23                        INC     HL
2BF2 47                        LD      B,A             ;Save as counter
2BF3 CD112D                    CALL    $PUT            ;Put out the length
2BF6 ØD                        DEC     C               ;Again, by now...
2BF7 2ØØC                      JR      NZ,RWRMAP2
2BF9 7E                        LD      A,(HL)
2BFA 23                        INC     HL
2BFB CD112D                    CALL    $PUT
2BFE Ø5                        DEC     B
2BFF 7E                        LD      A,(HL)
2CØØ 23                        INC     HL
2CØ1 CD112D                    CALL    $PUT
2CØ4 Ø5                        DEC     B
2CØ5 7E               RWRMAP2  LD      A,(HL)          ;Put block of code
2CØ6 23                        INC     HL
2CØ7 CD112D                    CALL    $PUT
2CØA 1ØF9                      DJNZ    RWRMAP2
2CØC 18D9                      JR      RWRMAP1         ;Loop for more
                      ;
                      ;        This routine enters at PASS1. It does the first pass
                      ;         thru the fix data, and checks for parms as well
                      ;         as checking the Drr,bb and Frr,bb matches.
                      ;
2CØE 32Ø627           SPASS2   LD      (PASS2),A       ;Flag pass 2
2C11 C3F726                    JP      DOFIX           ;Start over
                      ;
2C14 FE2E             PASS1    CP      '.'             ;Comment line?
2C16 2825                      JR      Z,OK
2C18 FEØ3                      CP      ETX             ;End of fix data?
2C1A 28F2                      JR      Z,SPASS2        ;End of pass1
2C1C CBAF                      RES     5,A             ;Make Upper case
2C1E FE44                      CP      'D'             ;D line patch?
2C2Ø 281E                      JR      Z,FCHK
2C22 FE52                      CP      'R'             ;Remove parm?
2C24 CA3A28                    JP      Z,REMOVE
2C27 FE4F                      CP      'O'             ;Special O parm?
2C29 CAD128                    JP      Z,OVERB
2C2C FE46                      CP      'F'             ;Find line data?
2C2E 28ØD                      JR      Z,OK
2C3Ø FE59                      CP      'Y'             ;Yank parm?
2C32 28Ø9                      JR      Z,OK
2C34 FE4C                      CP      'L'             ;Library ISAM number?
2C36 28Ø5                      JR      Z,OK
2C38 FE58                      CP      'X'             ;X line patch?
2C3A C2612D                    JP      NZ,PCHERR       ;If not one of these, abort
2C3D C3C527           OK       JP      COMMENT
                      ;
                      ;        Check the Drr,bb (if Remove) or Frr,bb line
                      ;
2C4Ø 3EFF             FCHK     LD      A,ØFFH          ;If O parm = OFF, then
2C41                  OPARM    EQU     $-1             ;  don't do the check
```

```
2C42 B7                   OR      A
2C43 CAC527               JP      Z,COMMENT       ;Skip check if O=OFF
2C46 3EØØ                 LD      A,$-$           ;Remove parm used?
2C47            RPARM     EQU     $-1
2C48 B7                   OR      A
2C49 C2862C               JP      NZ,YANKD        ;Reverse D & F lines if so
2C4C 22772D               LD      (DL),HL         ;Save D pointer
2C4F CDAØ2C               CALL    SKPLN           ;Move to F line
2C52 CD582C               CALL    DOCHK           ;Cp F line bytes w/file
2C55 C3FA26               JP      DOFIX1
                ;
                ;
                ;         Checks Drr,bb and Frr,bb addresses for a match
                ;         Checks Frr,bb against program file if patching, or
                ;          Drr,bb if removing
                ;
2C58 226B2D     DOCHK     LD      (SETMSG+1),HL   ;Set line error msg
2C5B E5                   PUSH    HL              ;Save posn
2C5C ED5B772D             LD      DE,(DL)         ;Get D or F line
2C6Ø Ø6Ø3                 LD      B,3             ;Init check count
2C62 23         CP3       INC     HL
2C63 13                   INC     DE
2C64 1A                   LD      A,(DE)
2C65 BE                   CP      (HL)
2C66 C2C62C               JP      NZ,FERROR       ;'FIND' error
2C69 1ØF7                 DJNZ    CP3             ;Check first 3 bytes
                ;
2C6B Ø6Ø3                 LD      B,3             ;Assume was 2 digit rec #
2C6D 3E2C                 LD      A,','           ;Comma?
2C6F BE                   CP      (HL)
2C7Ø 28Ø2                 JR      Z,CP5           ;Yes, continue
2C72 Ø6Ø5                 LD      B,5             ;Adjust, assume 4 dig rec #
2C74 23         CP5       INC     HL              ;Check rest of 'rr,bb' string
2C75 13                   INC     DE
2C76 1A                   LD      A,(DE)
2C77 BE                   CP      (HL)
2C78 C2C62C               JP      NZ,FERROR       ;'FIND' error
2C7B 1ØF7                 DJNZ    CP5
                ;
2C7D E3                   EX      (SP),HL         ;Pointer to '=' in fix line
2C7E CDE327               CALL    DPOSN           ;Posn file
2C81 E1                   POP     HL
2C82 CDØA28               CALL    DLINE           ;Check line for match
2C85 C9                   RET
                ;
                ;         Remove used. Check Drr,bb lines instead of Frr,bb lines
                ;
2C86 E5         YANKD     PUSH    HL              ;Save D line pointer
2C87 CDAØ2C               CALL    SKPLN           ;Move to F line
2C8A 22772D               LD      (DL),HL         ;Save pointer
2C8D E1                   POP     HL              ;=>D line
2C8E E5                   PUSH    HL              ;Save D line again
2C8F CD582C               CALL    DOCHK           ;Test D line
2C92 E1                   POP     HL              ;=>'D'
2C93 362E                 LD      (HL),'.'        ;Make comment for pass2
2C95 2A772D               LD      HL,(DL)
2C98 3644                 LD      (HL),'D'        ;Make 'F' line into D line
2C9A CDAØ2C               CALL    SKPLN           ;=>next line
2C9D C3FA26               JP      DOFIX1
                ;
                ;         Skip past the current line, posn to start of next
```

```
               Ø953Ø ;
2CAØ CDA92C    Ø954Ø SKPLN   CALL    SKPLN1          ;Move past current line
2CA3 7E        Ø955Ø         LD      A,(HL)          ;Check 1st char next line
2CA4 FE2E      Ø956Ø         CP      '.'             ;Is it comment?
2CA6 28F8      Ø957Ø         JR      Z,SKPLN         ;Then skip it too
2CA8 C9        Ø958Ø         RET
               Ø959Ø ;
2CA9 7E        Ø96ØØ SKPLN1  LD      A,(HL)          ;P/u line char
2CAA 23        Ø961Ø         INC     HL
2CAB FEØD      Ø962Ø         CP      CR              ;Physical EOL?
2CAD C8        Ø963Ø         RET     Z
2CAE FE3B      Ø964Ø         CP      ';'             ;Logical EOL?
2CBØ C8        Ø965Ø         RET     Z
2CB1 18F6      Ø966Ø         JR      SKPLN1          ;Loop until EOL
               Ø967Ø ;
               Ø968Ø ;       Get the next char, convert to UC
               Ø969Ø ;
2CB3 7E        Ø97ØØ GETNXT  LD      A,(HL)          ;P/u the char
2CB4 23        Ø971Ø         INC     HL              ;Bump the buffer ptr
2CB5 CBAF      Ø972Ø         RES     5,A             ;Convert to upper
2CB7 C9        Ø973Ø         RET
               Ø974Ø ;
               Ø975Ø ;       Either write a char or check for a match
               Ø976Ø ;
2CB8 4F        Ø977Ø PUTORCHK        LD      C,A     ;Char in question
2CB9 3AØ627    Ø978Ø         LD      A,(PASS2)       ;Write pass?
2CBC B7        Ø979Ø         OR      A
2CBD 79        Ø98ØØ         LD      A,C             ;Char back in A
2CBE C2112D    Ø981Ø         JP      NZ,$PUT         ;Writing patch..
2CC1 CDØB2D    Ø982Ø         CALL    $GET            ;Get next char fm file
2CC4 B9        Ø983Ø         CP      C               ;Match w/patch?
2CC5 C8        Ø984Ø         RET     Z               ;OK if match
2CC6 21113Ø    Ø985Ø FERROR  LD      HL,LOCERR$      ;Init "Find mismatch
2CC9 C3642D    Ø986Ø         JP      ERRDSP          ;Dsply and quit
               Ø987Ø ;
               Ø988Ø ;       Count patch lines
               Ø989Ø ;
2CCC E5        Ø99ØØ CNTLIN  PUSH    HL
2CCD 2A742D    Ø991Ø         LD      HL,(LINCNT)     ;Get current count,
2CDØ 23        Ø992Ø         INC     HL              ; += 1
2CD1 22742D    Ø993Ø         LD      (LINCNT),HL     ;  and put it back
2CD4 E1        Ø994Ø         POP     HL
2CD5 C9        Ø995Ø         RET
               Ø996Ø ;
               Ø997Ø ;       After an error, show file not closed if needed
               Ø998Ø ;
2CD6 3A762D    Ø999Ø FLOPN   LD      A,(WRFLAG)      ;Did we modify file?
2CD9 B7        1ØØØØ         OR      A
2CDA 2ØØ7      1ØØ1Ø         JR      NZ,MESS         ;Yes, don't close it
2CDC           1ØØ2Ø         @@CLOSE                 ;No changes
2CDC 3E3C      ØØØ35         LD      A,6Ø
2CDE EF        ØØØ36         RST     4Ø
2CDF C2322D    1ØØ3Ø         JP      NZ,IOERR
2CE2 C9        1ØØ4Ø         RET
2CE3 21243Ø    1ØØ5Ø MESS    LD      HL,WARN1$       ;File is modified but
2CE6 CD1F2D    1ØØ6Ø         CALL    $DSPLY          ;PATCH did not complete
2CE9 214B3Ø    1ØØ7Ø         LD      HL,WARN2$       ; "oops...
2CEC C31F2D    1ØØ8Ø         JP      $DSPLY          ;Then return to caller
               1ØØ9Ø ;
2CEF           1Ø1ØØ $OPEN   @@OPEN
2CEF 3E3B      ØØØ37         LD      A,59
```

```
2CF1 EF         ØØØ38           RST     4Ø
2CF2 2Ø3E       1Ø11Ø           JR      NZ,IOERR
2CF4 C9         1Ø12Ø           RET
2CF5            1Ø13Ø $POSN     @@POSN
2CF5 3E42       ØØØ39           LD      A,66
2CF7 EF         ØØØ4Ø           RST     4Ø
2CF8 2Ø38       1Ø14Ø           JR      NZ,IOERR
2CFA C9         1Ø15Ø           RET
2CFB            1Ø16Ø $BKSP     @@BKSP
2CFB 3E3D       ØØØ41           LD      A,61
2CFD EF         ØØØ42           RST     4Ø
2CFE 2Ø32       1Ø17Ø           JR      NZ,IOERR
2DØØ C9         1Ø18Ø           RET
2DØ1            1Ø19Ø $RWRIT    @@RWRIT
2DØ1 3E46       ØØØ43           LD      A,7Ø
2DØ3 EF         ØØØ44           RST     4Ø
2DØ4 2Ø2C       1Ø2ØØ           JR      NZ,IOERR
2DØ6 C9         1Ø21Ø           RET
2DØ7            1Ø22Ø $GET1     @@GET                   ;Use this one if prog might get EOF
2DØ7 3EØ3       ØØØ45           LD      A,3
2DØ9 EF         ØØØ46           RST     4Ø
2DØA C9         1Ø23Ø           RET
2DØB            1Ø24Ø $GET      @@GET                   ;This one if EOF is also error
2DØB 3EØ3       ØØØ47           LD      A,3
2DØD EF         ØØØ48           RST     4Ø
2DØE 2Ø22       1Ø25Ø           JR      NZ,IOERR
2D1Ø C9         1Ø26Ø           RET
2D11 C5         1Ø27Ø $PUT      PUSH    BC
2D12 4F         1Ø28Ø           LD      C,A
2D13 3EFF       1Ø29Ø           LD      A,ØFFH          ;Flag..
2D15 32762D     1Ø3ØØ           LD      (WRFLAG),A      ;That file is modified
2D18            1Ø31Ø           @@PUT
2D18 3EØ4       ØØØ49           LD      A,4
2D1A EF         ØØØ5Ø           RST     4Ø
2D1B C1         1Ø32Ø           POP     BC
2D1C 2Ø14       1Ø33Ø           JR      NZ,IOERR
2D1E C9         1Ø34Ø           RET
2D1F            1Ø35Ø $DSPLY    @@DSPLY
                ØØØ51           IFEQ    ØØH,1
                ØØØ52           LD      HL,
                ØØØ53           ENDIF
2D1F 3EØA       ØØØ54           LD      A,1Ø
2D21 EF         ØØØ55           RST     4Ø
2D22 2ØØE       1Ø36Ø           JR      NZ,IOERR
2D24 C9         1Ø37Ø           RET
2D25            1Ø38Ø $READ     @@READ
2D25 3E43       ØØØ56           LD      A,67
2D27 EF         ØØØ57           RST     4Ø
2D28 2ØØ8       1Ø39Ø           JR      NZ,IOERR
2D2A C9         1Ø4ØØ           RET
2D2B C5         1Ø41Ø $DSP      PUSH    BC
2D2C 4F         1Ø42Ø           LD      C,A
2D2D            1Ø43Ø           @@DSP
2D2D 3EØ2       ØØØ58           LD      A,2
2D2F EF         ØØØ59           RST     4Ø
2D3Ø C1         1Ø44Ø           POP     BC
2D31 C8         1Ø45Ø           RET     Z               ;If OK else fall error
                1Ø46Ø ;
                1Ø47Ø ;         Error handling
                1Ø48Ø ;
2D32 6F         1Ø49Ø IOERR     LD      L,A             ;HL also gets error #
```

```
2D33 26ØØ       1Ø5ØØ           LD      H,Ø
2D35 F6CØ       1Ø51Ø           OR      ØCØH            ;Abbrev, return
2D37 4F         1Ø52Ø           LD      C,A
2D38            1Ø53Ø           @@ERROR                 ;Display the error
2D38 3E1A       ØØØ6Ø           LD      A,26
2D3A EF         ØØØ61           RST     4Ø
2D3B 181D       1Ø54Ø           JR      QUIT1
                1Ø55Ø ;
                1Ø56Ø ;         Internal error routine
                1Ø57Ø ;
2D3D 211B2F     1Ø58Ø NOVRLY    LD      HL,NOVRLY$      ;"Library not found
2D4Ø DD         1Ø59Ø           DB      ØDDH
2D41 21352F     1Ø6ØØ LIBERR    LD      HL,LIBERR$      ;"Invalid library
2D44 DD         1Ø61Ø           DB      ØDDH
2D45 21652F     1Ø62Ø FILERR    LD      HL,FILERR$      ;"Not load file format
2D48 DD         1Ø63Ø           DB      ØDDH
2D49 215F2E     1Ø64Ø PRMERR    LD      HL,PRMERR$      ;"Parm error
2D4C DD         1Ø65Ø           DB      ØDDH
2D4D 21CE2F     1Ø66Ø TOOBIG    LD      HL,TOOBIG$      ;"Fix file too big
2D5Ø DD         1Ø67Ø           DB      ØDDH
2D51 21442E     1Ø68Ø PGMREQ    LD      HL,PGMREQ$      ;"Patch what file?
2D54            1Ø69Ø ERREXIT   @@LOGOT                 ;Display the error
                ØØØ62           IFEQ    ØØH,1
                ØØØ63           LD      HL,
                ØØØ64           ENDIF
2D54 3EØC       ØØØ65           LD      A,12
2D56 EF         ØØØ66           RST     4Ø
2D57 21FFFF     1Ø7ØØ           LD      HL,-1           ;Set abort code
2D5A C3AE27     1Ø71Ø QUIT1     JP      $QUIT
                1Ø72Ø ;
2D5D 217C2F     1Ø73Ø NONHEX    LD      HL,NONHEX$      ;"Non hex digit
2D6Ø DD         1Ø74Ø           DB      ØDDH
2D61 214C2F     1Ø75Ø PCHERR    LD      HL,PCHERR$      ;"Patch format error
2D64 E5         1Ø76Ø ERRDSP    PUSH    HL
2D65 3EØD       1Ø77Ø           LD      A,CR            ;Move the cursor down
2D67 CD2B2D     1Ø78Ø           CALL    $DSP
2D6A 21ØØØØ     1Ø79Ø SETMSG    LD      HL,Ø
2D6D            1Ø8ØØ           @@LOGOT
                ØØØ67           IFEQ    ØØH,1
                ØØØ68           LD      HL,
                ØØØ69           ENDIF
2D6D 3EØC       ØØØ7Ø           LD      A,12
2D6F EF         ØØØ71           RST     4Ø
2D7Ø E1         1Ø81Ø           POP     HL
2D71 18E1       1Ø82Ø           JR      ERREXIT
                1Ø83Ø ;
2D73 ØØ         1Ø84Ø YNKFLG    DB      Ø               ;Was function YANK?
2D74 ØØØØ       1Ø85Ø LINCNT    DW      Ø               ;Count lines installed
2D76 ØØ         1Ø86Ø WRFLAG    DB      Ø               ;Did pgm write to file?
2D77 ØØØØ       1Ø87Ø DL        DW      Ø               ;Save pointer to line
2D79 43         1Ø88Ø CMDEXT    DB      'CMD'
     4D 44
2D7C 46         1Ø89Ø FIXEXT    DB      'FIX'
     49 58
2D7F ØØ         1Ø9ØØ PGMDCB    DB      Ø
ØØ2Ø            1Ø91Ø           DS      32
ØØ2Ø            1Ø92Ø FIXDCB    DS      32
2DCØ 5Ø         1Ø93Ø HELLO$    DB      'PATCH'
     41 54 43 48
2DC5            1Ø94Ø *GET      CLIENT:3
                1Ø95Ø ;CLIENTS/ASM - File to establish sign-on headers
```

```
                   ;
2DC5 2Ø                          DB       ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
2DEF 2Ø                          DB       ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
                   ;
2EØ4 41                          DB       'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
2E2C 2Ø                          DB       ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
2E44 5Ø            PGMREQ$ DB       'PROGRAM file name required',CR
     52 4F 47 52 41 4D 2Ø 66
     69 6C 65 2Ø 6E 61 6D 65
     2Ø 72 65 71 75 69 72 65
     64 ØD
2E5F 5Ø            PRMERR$ DB       'Parameter error',CR
     61 72 61 6D 65 74 65 72
     2Ø 65 72 72 6F 72 ØD
2E6F 1D            POSLD$  DB       29,'Positioning load file',3Ø,32,3
     5Ø 6F 73 69 74 69 6F 6E
     69 6E 67 2Ø 6C 6F 61 64
     2Ø 66 69 6C 65 1E 2Ø Ø3
2E88 1D            RDGINP$ DB       29,'Reading input',3Ø,32,3
     52 65 61 64 69 6E 67 2Ø
     69 6E 7Ø 75 74 1E 2Ø Ø3
2E99 1D            GENPCH$ DB       29,'Generating patch',3Ø,32,3
     47 65 6E 65 72 61 74 69
     6E 67 2Ø 7Ø 61 74 63 68
     1E 2Ø Ø3
2EAD 1D            INSPCH$ DB       29,'Installing patch',3Ø,32,3
     49 6E 73 74 61 6C 6C 69
     6E 67 2Ø 7Ø 61 74 63 68
     1E 2Ø Ø3
2EC1 1D            BLDMAP$ DB       29,'Re-building library map',3Ø,32,3
     52 65 2D 62 75 69 6C 64
     69 6E 67 2Ø 6C 69 62 72
     61 72 79 2Ø 6D 61 7Ø 1E
     2Ø Ø3
2EDC 1D            YNKPCH$ DB       29,'Yanking patch from file',3Ø,32,3
     59 61 6E 6B 69 6E 67 2Ø
     7Ø 61 74 63 68 2Ø 66 72
     6F 6D 2Ø 66 69 6C 65 1E
     2Ø Ø3
2EF7 ØA            NOYANK$ DB       LF,'Can''t yank, '
     43 61 6E 27 74 2Ø 79 61
     6E 6B 2C 2Ø
2FØ4 7Ø                          DB       'patch not in load file',CR
     61 74 63 68 2Ø 6E 6F 74
     2Ø 69 6E 2Ø 6C 6F 61 64
     2Ø 66 69 6C 65 ØD
2F1B 4C        1112Ø NOVRLY$ DB      'Library overlay not found',CR
     69 62 72 61 72 79 2Ø 6F
     76 65 72 6C 61 79 2Ø 6E
     6F 74 2Ø 66 6F 75 6E 64
     ØD
2F35 49        1113Ø LIBERR$ DB      'Invalid library format',CR
     6E 76 61 6C 69 64 2Ø 6C
     69 62 72 61 72 79 2Ø 66
     6F 72 6D 61 74 ØD
2F4C 5Ø        1114Ø PCHERR$ DB      'Patch input format error',CR
     61 74 63 68 2Ø 69 6E 7Ø
     75 74 2Ø 66 6F 72 6D 61
     74 2Ø 65 72 72 6F 72 ØD
2F65 4C        1115Ø FILERR$ DB      'Load file format error',CR
     6F 61 64 2Ø 66 69 6C 65
     2Ø 66 6F 72 6D 61 74 2Ø
     65 72 72 6F 72 ØD
2F7C 4E        1116Ø NONHEX$ DB      'Non-hex digit encountered',CR
     6F 6E 2D 68 65 78 2Ø 64
     69 67 69 74 2Ø 65 6E 63
     6F 75 6E 74 65 72 65 64
     ØD
2F96 ØA        1117Ø SUCCES$ DB      LF,'Patch function completed.',CR
     5Ø 61 74 63 68 2Ø 66 75
     6E 63 74 69 6F 6E 2Ø 63
     6F 6D 7Ø 6C 65 74 65 64
     2E ØD
2FB1 2Ø        1118Ø LINMSG$ DB      '   No patch line'
     2Ø 2Ø 4E 6F 2Ø 7Ø 61 74
     63 68 2Ø 6C 69 6E 65
2FC1 73        1119Ø PLURAL  DB      's installed.',CR
     2Ø 69 6E 73 74 61 6C 6C
     65 64 2E ØD
2FCE 46        112ØØ TOOBIG$ DB      'Fix file too big - partition it',CR
     69 78 2Ø 66 69 6C 65 2Ø
     74 6F 6F 2Ø 62 69 67 2Ø
     2D 2Ø 7Ø 61 72 74 69 74
     69 6F 6E 2Ø 69 74 ØD
2FEE 5Ø        1121Ø YANKMSG DB      'Patch successfully yanked',CR
     61 74 63 68 2Ø 73 75 63
     63 65 73 73 66 75 6C 6C
     79 2Ø 79 61 6E 6B 65 64
     ØD
3ØØ8 Ø3        1122Ø NAMLEN$ DB      3               ;Length of fix file name
3ØØ9 43        1123Ø NAMFIX$ DB      'CLP     '      ;Fix file name
     4C 5Ø 2Ø 2Ø 2Ø 2Ø 2Ø
3Ø11 46        1124Ø LOCERR$ DB      'FIND line mismatch',CR
     49 4E 44 2Ø 6C 69 6E 65
     2Ø 6D 69 73 6D 61 74 63
     68 ØD
3Ø24 57        1125Ø WARN1$  DB      'WARNING - File '
     41 52 4E 49 4E 47 2Ø 2D
     2Ø 46 69 6C 65 2Ø
3Ø33 2Ø        1126Ø FNM$    DB      '                       '
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø 2Ø 2Ø 2Ø 2Ø
3Ø4B 2Ø        1127Ø WARN2$  DB      ' Not Closed',CR
     4E 6F 74 2Ø 43 6C 6F 73
     65 64 ØD
               1128Ø ;
3Ø57 8Ø        1129Ø PTBL$   DB      8ØH
3Ø58 56        113ØØ         DB      FLAG!ABB!6
3Ø59 52        1131Ø         DB      'REMOVE',Ø
     45 4D 4F 56 45 ØØ
3Ø6Ø 8D26      1132Ø         DW      RPARM1
3Ø62 41        1133Ø         DB      FLAG!1
3Ø63 4F        1134Ø         DB      'O',Ø
     ØØ
3Ø65 9426      1135Ø         DW      OPARM1
3Ø67 ØØ        1136Ø         NOP
               1137Ø ;
31ØØ           1138Ø         ORG     $<-8+1<+8
Ø1ØØ           1139Ø FIXBUF  DS      256             ;I/O buffer for /FIX
Ø1ØØ           114ØØ LIBBUF  DS      256             ;I/O buffer for ISAM
Ø1ØØ           1141Ø PGMBUF  DS      256             ;I/O buffer for PGM
14ØØ           1142Ø FIXDATA DS      14ØØH           ;5k alloted for fix data
48ØØ           1143Ø PGMDATA EQU     $               ;Takes the rest of core
               Ø51ØØ ;
26ØØ           Ø511Ø         END     BEGIN
```

```
$BKSP       2CFB $DSP        2D2B $DSPLY       2D1F
$GET        2DØB $GET1       2DØ7 $OPEN        2CEF
$POSN       2CF5 $PUT        2D11 $QUIT        27AE
$READ       2D25 $RWRIT      2DØ1 @@1          ØØØØ
@@2         ØØØØ @@3         ØØØØ @@4          ØØØØ
@MOD2       ØØØØ @MOD4       FFFF ABB          ØØ1Ø
BEGIN       26ØØ BEGINA      26Ø9 BLDMAP$      2EC1
CKLIN       2674 CKLIN1      26AØ CKLIN2       26B1
CKLIN3      26B5 CMDEXT      2D79 CNTLIN       2CCC
COMMENT     27C5 CP3         2C62 CP5          2C74
CR          ØØØD CVTBIN      2AD7 DL           2D77
DLINE       28ØA DOCHK       2C58 DOFIX        26F7
DOFIX1      26FA DOXVB       29C4 DOXVB1       29EB
DOXVB2      29EE DOXVB3      29F3 DOXVB4       2AØA
DOXVB5      2A12 DOXVB6      2A29 DPOSN        27E3
DVERB       27D7 DVERB1      27F3 DVERB2       281Ø
DVERB3      2811 DVERB4      282C DVERB4A      282D
EOL1        27D4 ERRDSP      2D64 ERREXIT      2D54
ETX         ØØØ3 EXLOG       27A8 FCHK         2C4Ø
FERROR      2CC6 FILERR      2D45 FILERR$      2F65
FISAM       2AE9 FISAM1      2AEC FISAM1A      2AF9
FISAM1B     2B13 FISAM2      2B16 FISAM3       2B1D
FIXBUF      31ØØ FIXDATA     34ØØ FIXDCB       2DAØ
FIXEXT      2D7C FLAG        ØØ4Ø FLOPN        2CD6
FNM$        3Ø33 FXNAM       2658 FXNAM1       266A
FXNAM2      266F GENPCH$     2E99 GETNXT       2CB3
HELLO$      2DCØ INSPCH$     2EAD IOERR        2D32
LF          ØØØA LIBBUF      32ØØ LIBERR       2D41
LIBERR$     2F35 LINCNT      2D74 LINMSG$      2FB1
LOCERR$     3Ø11 LPFLD       2BBE LVERB        29ØØ
MESS        2CE3 NAMFIX$     3ØØ9 NAMLEN$      3ØØ8
NOCHG       27A5 NONHEX      2D5D NONHEX$      2F7C
NOVRLY      2D3D NOVRLY$     2F1B NOYANK$      2EF7
NTONE       279F OISOFF      28F8 OISON        28F7
OK          2C3D OPARM       2C41 OPARM1       2694
OVERB       28D1 OVRLY       2B8E PASS1        2C14
PASS2       27Ø6 PCHDUN      276D PCHERR       2D61
PCHERR$     2F4C PGMBUF      33ØØ PGMDATA      48ØØ
PGMDCB      2D7F PGMREQ      2D51 PGMREQ$      2E44
PLURAL      2FC1 POSFIL      294D POSFIL1      2957
POSFIL2     297B POSLD$      2E6F PRMERR       2D49
PRMERR$     2E5F PRSFIX      2A92 PRSFX1       2A96
PRSFX2      2AC7 PRSFX3      2AD4 PTBL$        3Ø57
PUTORCHK    2CB8 QUIT1       2D5A RDFIX        26BE
RDFIX1      26DB RDFIX2      26EF RDFIX3       26F4
RDGINP$     2E88 REMOVE      283A RIPPL1       2A5D
RIPPL2      2A7A RIPPL3      2A86 RIPPLE       2A2F
RPARM       2C47 RPARM1      268D RPRMAP       2B3A
RPRMAP1     2B46 RPRMAP2     2B65 RPRMAP3      2B6E
RPRMAP4     2B72 RPRMAP5     2B86 RPRMAP6      2B8B
RPRMAP7     2BAØ RPRMAP8     2BC3 RPRMAP9      2BC5
RWRMAP      2BDB RWRMAP1     2BE7 RWRMAP2      2CØ5
SETMSG      2D6A SKPLN       2CAØ SKPLN1       2CA9
SPASS2      2CØE STACK       27BF STRFLG       2AAA
STUFNM      2982 STUFNM1     2999 STUFNM2      299F
STUFNM3     29AØ STUFNM4     29B7 SUCCES$      2F96
TOOBIG      2D4D TOOBIG$     2FCE TYPCOD       2869
WARN1$      3Ø24 WARN2$      3Ø4B WHATIS       28F4
WRFLAG      2D76 YANK        2842 YANK1        2858
YANK2       2876 YANK3       2879 YANK4        287D
```

```
YANK5           288A YANK6          2896 YANK7          28B6
YANK8           28BD YANK9          28C6 YANKD          2C86
YANKMSG         2FEE YNKFLG         2D73 YNKPCH$        2EDC
@@ABORT         AØ88 @@ADTSK        A11B @@BANK         A633
@@BKSP          A313 @@BREAK        A649 @@CHNIO        AØ73
@@CKBRKC        A697 @@CKDRV        A16F @@CKEOF        A328
@@CKTSK         A1Ø6 @@CLOSE        A2FE @@CLS          A681
@@CMNDI         AØB2 @@CMNDR        AØC7 @@CTL          9ED7
@@DATE          AØ49 @@DCSTAT       A1AE @@DEBUG        AØF1
@@DECHEX        A5B3 @@DIRRD        A52Ø @@DIRWR        A535
@@DIV16         A59E @@DIV8         A589 @@DODIR        A184
@@DSP           9E9B @@DSPLY        9F3B @@ERROR        AØDC
@@EXIT          AØ9D @@FEXT         A48D @@FLAGS        A61D
@@FNAME         A4A2 @@FSPEC        A478 @@GATRD        A5ØB
@@GATWR         A54A @@GET          9EAF @@GTDCB        A4CC
@@GTDCT         A4B7 @@GTMOD        A4E1 @@HDFMT        A256
@@HEX16         A5F2 @@HEX8         A5DD @@HEXDEC       A5C8
@@HIGH$         A6Ø7 @@INIT         A2D4 @@KBD          9F13
@@KEY           9E87 @@KEYIN        9F27 @@KLTSK        A15A
@@LOAD          A44E @@LOC          A33D @@LOF          A352
@@LOGER         9F72 @@LOGOT        9F87 @@MSG          9FBE
@@MUL16         A574 @@MUL8         A55F @@OPEN         A2E9
@@PARAM         AØ34 @@PAUSE        AØ1F @@PEOF         A367
@@POSN          A37C @@PRINT        9FD3 @@PRT          9EEB
@@PUT           9EC3 @@RAMDIR       A199 @@RDSEC        A22C
@@RDSSC         A4F6 @@READ         A391 @@REMOV        A2BF
@@RENAM         A2AA @@REW          A3A6 @@RMTSK        A13Ø
@@RPTSK         A145 @@RREAD        A3BB @@RSLCT        A217
@@RSTOR         A1D8 @@RUN          A463 @@RWRIT        A3DØ
@@SEEK          A2Ø2 @@SEEKSC       A3E5 @@SKIP         A3FA
@@SLCT          A1C3 @@STEPI        A1ED @@TIME         AØ5E
@@VDCTL         AØØA @@VER          A4ØF @@VRSEC        A241
@@WEOF          A424 @@WHERE        9EFF @@WRITE        A439
@@WRSEC         A26B @@WRSSC        A28Ø @@WRTRK        A295

26ØØ is the transfer address
ØØØØØ Total errors
```

NOTES:

REPAIR/CMD - Repair a disk directory cylinder

The Repair utility will write the directory cylinder with the proper data address mark, and update certain information in the GAT that is needed by LS-DOS. Its main use is to make Model I TRSDOS disks readable by LS-DOS/TRSDOS 6.

```
                ØØ1ØØ ;REPAIR/ASM - Directory Track Repair Program
ØØØØ            ØØ11Ø          TITLE   <REPAIR - LS-DOS 6.2>
                ØØ12Ø ;
ØØØA            ØØ13Ø LF       EQU     1Ø
ØØØD            ØØ14Ø CR       EQU     13
4296            ØØ15Ø BLNKMPW  EQU     4296H
ØØ4Ø            ØØ16Ø FLAG     EQU     Ø1ØØØØØØB
ØØ1Ø            ØØ17Ø ABB      EQU     ØØØ1ØØØØB
                ØØ18Ø ;
ØØØØ            ØØ19Ø *GET     SVCMAC:3                ;SVC Macro equivalents
                ØØØ1Ø ;SVCMAC/ASM - LS-DOS Version VI
                ØØØ2Ø *LIST    OFF
                Ø39ØØ *LIST    ON
ØØØØ            ØØ2ØØ *GET     COPYCOM:3               ;Copyright message
                Ø392Ø ; COPYCOM - File for Copyright COMment block
                Ø393Ø ;
ØØØØ            Ø394Ø          COM     '<*(C) 1982,83,84 by LSI*>'
                ØØ21Ø ;
26ØØ            ØØ22Ø          ORG     26ØØH
                ØØ23Ø BEGIN
26ØØ            ØØ24Ø          @@CKBRKC                ;Check for break
26ØØ 3E6A       ØØØØ1          LD      A,1Ø6
26Ø2 EF         ØØØØ2          RST     4Ø
26Ø3 28Ø4       ØØ25Ø          JR      Z,BEGINA        ;Continue if not
26Ø5 21FFFF     ØØ26Ø          LD      HL,-1           ;  else abort
26Ø8 C9         ØØ27Ø          RET
                ØØ28Ø ;
                ØØ29Ø BEGINA
26Ø9 ED731C26   ØØ3ØØ          LD      (STACK),SP      ;Save entry stack
26ØD E5         ØØ31Ø          PUSH    HL              ;Save ptr to CMD buffer
26ØE 214A28     ØØ32Ø          LD      HL,HELLO$       ;Display the signon
2611 CD9F27     ØØ33Ø          CALL    $DSPLY
2614 E1         ØØ34Ø          POP     HL
2615 CD2226     ØØ35Ø          CALL    PGRM            ;Normal exit is via RET
                ØØ36Ø ;
                ØØ37Ø ;        Set exit condition..
                ØØ38Ø ;
2618 21ØØØØ     ØØ39Ø $EXIT    LD      HL,Ø            ;Init for no error
261B 31ØØØØ     ØØ4ØØ QUIT$    LD      SP,$-$          ;P/u original stack
261C            ØØ41Ø STACK    EQU     $-2
261E            ØØ42Ø          @@CKBRKC                ;Clear break before exit
261E 3E6A       ØØØØ3          LD      A,1Ø6
262Ø EF         ØØØØ4          RST     4Ø
2621 C9         ØØ43Ø          RET
                ØØ44Ø ;
2622 7E         ØØ45Ø PGRM     LD      A,(HL)          ;Ck for drive entered
2623 FE3A       ØØ46Ø          CP      ':'             ;Colon indicator?
2625 C2E127     ØØ47Ø          JP      NZ,PRMERR       ;Quit if not
2628 23         ØØ48Ø          INC     HL              ;Point to drive #
2629 7E         ØØ49Ø          LD      A,(HL)          ;P/u drive
262A D63Ø       ØØ5ØØ          SUB     'Ø'             ;Cvrt to binary
262C FEØ8       ØØ51Ø          CP      8               ;Bigger than 7?
262E D24528     ØØ52Ø          JP      NC,ILLEG        ;Quit if so
                ØØ53Ø ;
2631 B7         ØØ54Ø          OR      A               ;Can't be drive Ø
2632 CADD27     ØØ55Ø          JP      Z,NOTØ
2635 321C27     ØØ56Ø          LD      (DRIVE),A       ;Stuff for later
2638 23         ØØ57Ø          INC     HL              ;Bump past the drive
2639 4F         ØØ58Ø          LD      C,A
263A            ØØ59Ø          @@GTDCT                 ;What's its DCT$
263A 3E51       ØØØØ5          LD      A,81
```

```
263C EF                      RST     4Ø
                     ;
                     ;       Get any parameters
                     ;
263D 114E29                  LD      DE,PRMTBL$        ;Pt to parm table
264Ø                         @@PARAM
264Ø 3E11                    LD      A,17
2642 EF                      RST     4Ø
2643 C2E127                  JP      NZ,PRMERR         ;Exit on parm error
2646 3A5329                  LD      A,(MRSP)          ;MPW parameter entered?
2649 B7                      OR      A
264A C2Ø627                  JP      NZ,MPARM          ;Go if so
264D FDCBØ35E                BIT     3,(IY+3)          ;Can't "repair" a hard drive
2651 C2D927                  JP      NZ,NIXHARD        ;  except for MPW parm
2654 FDCBØ466                BIT     4,(IY+4)          ;If not alien controller
2658 CC1128                  CALL    Z,CKDRV           ;  make sure disk present
265B 11ØØØØ                  LD      DE,Ø              ;Read BOOT to get dir cyl
265E CDB827                  CALL    RDSEC
2661 AF                      XOR     A
2662 32ØØ2A                  LD      (BUF1),A          ;Set 1st byte to zero
2665 3AØ22A                  LD      A,(BUF1+2)        ;P/u the dir cyl
2668 E67F                    AND     7FH               ;Strip bit 7
266A 32Ø22A                  LD      (BUF1+2),A        ;Put it back
266D F5                      PUSH    AF                ;Save dir cyl
266E CDB227                  CALL    WRSEC             ;Rewrite the BOOT
2671 1C                      INC     E
2672 CDB827                  CALL    RDSEC             ;Get sect 1 also
2675 F1                      POP     AF
2676 32Ø22A                  LD      (BUF1+2),A        ;Update dir cyl
2679 F5                      PUSH    AF
267A CDB227                  CALL    WRSEC             ;Write back
267D F1                      POP     AF                ;Dir cyl again
                     ;
267E 57                      LD      D,A
267F 1EØØ                    LD      E,Ø
2681 FD77Ø9                  LD      (IY+9),A          ;Set as dir cyl
2684 CDB827                  CALL    RDSEC             ;Read the GAT
                     ;
2687 FDCBØ4AE                RES     5,(IY+4)          ;Show single sided
268B 2ECB                    LD      L,ØCBH            ;Pt to version # byte
268D 7E                      LD      A,(HL)            ;Pick it up
268E FE4Ø                    CP      4ØH               ;Earlier than a 4.Ø?
269Ø 38ØE                    JR      C,LC              ;Bypass 2 sided ck if so
2692 FE7Ø                    CP      7ØH               ;"Later" than 6.x?
2694 3ØØA                    JR      NC,LC             ;Again, no sides ck
2696 2ECD                    LD      L,ØCDH            ;Point to CONFIG byte
2698 CB6E                    BIT     5,(HL)            ;Check 2-sided
269A 28Ø4                    JR      Z,LC              ;Go if not
269C FDCBØ4EE                SET     5,(IY+4)          ;  else update DCT
                     ;
26AØ 2EBF            LC      LD      L,ØBFH            ;Pt to end of lockout
26A2 Ø66Ø                    LD      B,96              ;Max cylinder count
26A4 7E              ALIEN1  LD      A,(HL)            ;P/u a lockout byte
26A5 3C                      INC     A                 ;Locked out?
26A6 2ØØ3                    JR      NZ,ALIEN2         ;Exit when in use
26A8 2D                      DEC     L                 ;Backup by 1
26A9 1ØF9                    DJNZ    ALIEN1
26AB 3EDD            ALIEN2  LD      A,-35             ;What's in use?
26AD 8Ø                      ADD     A,B               ;Convert to excess
26AE 2ECC                    LD      L,ØCCH
26BØ 77                      LD      (HL),A            ;Stuff into GAT
```

```
               ;
               ;        Construct config byte
               ;
26B1 FD7EØ4             LD      A,(IY+4)        ;P/u # sides
26B4 E6AØ               AND     8ØH!2ØH
26B6 47                 LD      B,A             ;Save tempy
26B7 FD7EØ3             LD      A,(IY+3)        ;P/u density
26BA E64Ø               AND     4ØH
26BC BØ                 OR      B               ;Merge with previous
26BD 47                 LD      B,A
26BE FD7EØ8             LD      A,(IY+8)        ;P/u # grans/track
26C1 Ø7                 RLCA
26C2 Ø7                 RLCA                    ;  to bits Ø-2
26C3 Ø7                 RLCA
26C4 E6Ø7               AND     7               ;Mask off the rest
26C6 BØ                 OR      B               ;Merge with previous
26C7 2C                 INC     L               ;Pt to config byte in GAT
26C8 47                 LD      B,A             ;Save for a moment
26C9 7E                 LD      A,(HL)          ;P/u present config byte
26CA E68Ø               AND     8ØH             ;Keep only bit 7
26CC BØ                 OR      B               ;Pick up the rest
26CD 77                 LD      (HL),A          ;  & stuff
26CE 2EØØ               LD      L,Ø
26DØ CDA527             CALL    WRSYS           ;Write the GAT
               ;
               ;        Operate on the HIT
               ;
26D3 1C                 INC     E               ;Bump sector ptr to 1
26D4 CDB827             CALL    RDSEC           ;Read the HIT
26D7 2C                 INC     L               ;Pt to DIR/SYS dec
26D8 36C4               LD      (HL),ØC4H       ;"correct" DEC code
26DA 2D                 DEC     L
26DB CDA527             CALL    WRSYS           ;Write out the HIT
26DE Ø6Ø8               LD      B,8             ;Init for 8 sectors
26EØ 1C        ALIEN3   INC     E               ;Bump to next sector
26E1 CDB827             CALL    RDSEC           ;Get the sector
26E4 CD8F27             CALL    UNOPEN          ;Reset file open bit
26E7 7B                 LD      A,E             ;If DIR/SYS sector,
26E8 FEØ3               CP      3               ;  then update count & it
26EA 2ØØE               JR      NZ,ALIEN4
26EC E5                 PUSH    HL
26ED 219642             LD      HL,BLNKMPW      ;Set DIR/SYS password
26FØ 22122A             LD      (BUF1+12H),HL   ;To blanks
26F3 3A142A             LD      A,(BUF1+2Ø)     ;P/u ERN of DIR/SYS
26F6 D6Ø3               SUB     3               ;Account for 1st 3 done
26F8 47                 LD      B,A             ;Update loop counter
26F9 E1                 POP     HL
26FA CDA527    ALIEN4   CALL    WRSYS           ;Write back the sector
26FD 1ØE1               DJNZ    ALIEN3
               ;
26FF                    @@LOGOT ALCAO$          ;Advise complete - now readable
                        IFEQ    Ø1H,1
26FF 21CF28             LD      HL,ALCAO$
                        ENDIF
27Ø2 3EØC               LD      A,12
27Ø4 EF                 RST     4Ø
27Ø5 C9                 RET                     ;Done
               ;
               ;        MPW parameter to change disk password on hard drive
               ;
27Ø6 11ØØØØ    MPARM    LD      DE,Ø            ;P/u MPW string address
```

```
27Ø9 CB6F                 BIT     5,A               ;If not string, then error
27ØB CAE127               JP      Z,PRMERR
27ØE FDCBØ35E             BIT     3,(IY+3)          ;Can't do if not hard
2712 CAE127               JP      Z,PRMERR
2715 CD2D27               CALL    GETMPW            ;Get and hash the entry
2718 C2C227               JP      NZ,IOERR
271B ØEØØ                 LD      C,Ø               ;Init to drive requested
271C            DRIVE     EQU     $-1
271D CDEE27               CALL    GATRD             ;Read GAT into BUF1
272Ø C2C227               JP      NZ,IOERR          ;Back on error
2723 22CE2A               LD      (BUF1+ØCEH),HL    ;Stuff PW
2726 CDEF27               CALL    GATWR             ;Write sector Ø from buf
2729 C2C227               JP      NZ,IOERR          ;Jump on write error
272C C9                   RET                       ;Finished with Repair
                ;
                ;         Enter SYS2 & hash the password
                ;
272D CD3427     GETMPW    CALL    GMPW1             ;Get MPW into buffer
273Ø CØ                   RET     NZ
2731 3EE4                 LD      A,ØE4H            ;Hash password (DE) to HL
2733 EF                   RST     28H               ;Ret to what called
                ;
                ;         Place entered password into buffer
                ;
2734 215729     GMPW1     LD      HL,PSWDBUF        ;Point to buffer
2737 E5                   PUSH    HL
2738 Ø6Ø8                 LD      B,8               ;Init for 8 chars
273A 1A         GMPW2     LD      A,(DE)            ;P/u a char
273B FEØD                 CP      CR                ;End of line?
273D 28ØF                 JR      Z,GMPW4
273F FE2C                 CP      ','               ;Comma separator?
2741 28ØB                 JR      Z,GMPW4
2743 FE22                 CP      '"'               ;Closing quote?
2745 28Ø7                 JR      Z,GMPW4
2747 13                   INC     DE                ;Bump input pointer
2748 77                   LD      (HL),A            ;Transfer character
2749 23                   INC     HL                ;Bump output pointer
274A 1ØEE                 DJNZ    GMPW2             ;Loop until done
274C 18Ø5                 JR      CKMPW
274E 362Ø       GMPW4     LD      (HL),' '          ;Buffer with
275Ø 23                   INC     HL                ;  trailing spaces
2751 1ØFB                 DJNZ    GMPW4
                ;
                ;         Convert to upper case and check validity
                ;
2753 E1         CKMPW     POP     HL                ;Recover buffer start
2754 E5                   PUSH    HL
2755 Ø6Ø8                 LD      B,8
2757 7E                   LD      A,(HL)            ;P/u 1st char
2758 18ØE                 JR      CKMPW2            ;  & check <A-Z>
275A 23         CKMPW1    INC     HL
275B 7E                   LD      A,(HL)
275C FE2Ø                 CP      ' '               ;Got to a space?
275E 2823                 JR      Z,CKMPW7
276Ø FE3Ø                 CP      'Ø'               ;Less than 'Ø' is error
2762 3823                 JR      C,INVMPW
2764 FE3A                 CP      '9'+1             ;<Ø-9> is okay for 2-n
2766 3812                 JR      C,CKMPW3
2768 FE41       CKMPW2    CP      'A'               ;Less than "A" is error
276A 381B                 JR      C,INVMPW
276C FE5B                 CP      'Z'+1             ;<A-Z> is okay
```

```
276E 38ØA       Ø235Ø          JR      C,CKMPW3
277Ø FE61       Ø236Ø          CP      'a'             ;<a-z> convert to
2772 3813       Ø237Ø          JR      C,INVMPW
2774 FE7B       Ø238Ø          CP      'z'+1
2776 3ØØF       Ø239Ø          JR      NC,INVMPW
2778 CBAE       Ø24ØØ          RES     5,(HL)          ;  upper case
277A 1ØDE       Ø241Ø CKMPW3   DJNZ    CKMPW1
277C D1         Ø242Ø CKMPW4   POP     DE              ;Point to buffer start
277D AF         Ø243Ø          XOR     A
277E C9         Ø244Ø          RET
277F 23         Ø245Ø CKMPW5   INC     HL
278Ø BE         Ø246Ø          CP      (HL)            ;No imbedded spaces
2781 2ØØ4       Ø247Ø          JR      NZ,INVMPW
2783 1ØFA       Ø248Ø CKMPW7   DJNZ    CKMPW5
2785 18F5       Ø249Ø          JR      CKMPW4
2787 211C29     Ø25ØØ INVMPW   LD      HL,BADMPW$      ;Init "Invalid PW
278A 3E3F       Ø251Ø          LD      A,63            ;Set extended error
278C B7         Ø252Ø          OR      A               ;Set NZ condition
278D D1         Ø253Ø          POP     DE              ;Clean up stack
278E C9         Ø254Ø          RET
                Ø255Ø ;
                Ø256Ø ;        Reset any file open bits
                Ø257Ø ;
278F E5         Ø258Ø UNOPEN   PUSH    HL              ;Save buffer posn
279Ø C5         Ø259Ø          PUSH    BC
2791 Ø6Ø8       Ø26ØØ          LD      B,8             ;8 entries
2793 2C         Ø261Ø          INC     L               ;Dir + 1
2794 CBAE       Ø262Ø ZAP      RES     5,(HL)          ;Clear file open bit
2796 3E2Ø       Ø263Ø          LD      A,32
2798 85         Ø264Ø          ADD     A,L             ;Pt to next Dir+1
2799 6F         Ø265Ø          LD      L,A
279A 1ØF8       Ø266Ø          DJNZ    ZAP             ;Do 8 entries per direc
279C C1         Ø267Ø          POP     BC
279D E1         Ø268Ø          POP     HL
279E C9         Ø269Ø          RET
                Ø27ØØ ;
279F            Ø271Ø $DSPLY   @@DSPLY                 ;Display a line
                ØØØ14          IFEQ    ØØH,1
                ØØØ15          LD      HL,
                ØØØ16          ENDIF
279F 3EØA       ØØØ17          LD      A,1Ø
27A1 EF         ØØØ18          RST     4Ø
27A2 C8         Ø272Ø          RET     Z
27A3 181D       Ø273Ø          JR      IOERR
                Ø274Ø ;
27A5            Ø275Ø WRSYS    @@WRSSC                 ;Write the sector
27A5 3E36       ØØØ19          LD      A,54
27A7 EF         ØØØ2Ø          RST     4Ø
27A8 2Ø18       Ø276Ø          JR      NZ,IOERR
27AA            Ø277Ø          @@VRSEC                 ;Verify it
27AA 3E32       ØØØ21          LD      A,5Ø
27AC EF         ØØØ22          RST     4Ø
27AD FEØ6       Ø278Ø          CP      6               ;Must be SYSTEM sector
27AF C8         Ø279Ø          RET     Z
27BØ 181Ø       Ø28ØØ          JR      IOERR
                Ø281Ø ;
27B2            Ø282Ø WRSEC    @@WRSEC                 ;Write normal sector
27B2 3E35       ØØØ23          LD      A,53
27B4 EF         ØØØ24          RST     4Ø
27B5 C8         Ø283Ø          RET     Z
27B6 18ØA       Ø284Ø          JR      IOERR
```

```
                ;
                ;       Sector read routine
                ;
27B8 21ØØ2A     RDSEC   LD      HL,BUF1         ;Read sector
27BB                    @@RDSEC
27BB 3E31               LD      A,49
27BD EF                 RST     4Ø
27BE C8                 RET     Z
27BF FEØ6               CP      6
27C1 C8                 RET     Z               ;Fall thru to error?
                ;
                ;       Error exits
                ;
27C2 FE3F       IOERR   CP      63              ;Extended error?
27C4 281F               JR      Z,EXTERR        ;Log it and quit
27C6 26ØØ               LD      H,Ø             ;Error to HL
27C8 6F                 LD      L,A
27C9 E5                 PUSH    HL              ;Save error code
27CA F6CØ               OR      ØCØH            ;Set short, return
27CC 4F                 LD      C,A             ;Error to C for
27CD                    @@ERROR                 ;  display
27CD 3E1A               LD      A,26
27CF EF                 RST     4Ø
                ;
27DØ 21E828             LD      HL,ABTJOB$      ;Init"Job aborted
                ;
27D3                    @@LOGOT                 ;Log the msg
                        IFEQ    ØØH,1
                        LD      HL,
                        ENDIF
27D3 3EØC               LD      A,12
27D5 EF                 RST     4Ø
27D6 E1                 POP     HL              ;Recover error code
27D7 1812               JR      QUIT$$
                ;
                ;       Internal error handler
                ;
27D9 213429     NIXHARD LD      HL,NIXHARD$     ;"Can't to hard drive
27DC DD                 DB      ØDDH
27DD 21F728     NOTØ    LD      HL,NOTØ$        ;"Can't do drive Ø
27EØ DD                 DB      ØDDH
27E1 21ØC29     PRMERR  LD      HL,PRMERR$      ;"Parm error
27E4 DD                 DB      ØDDH
27E5            EXTERR  @@LOGOT                 ;Display the error
                        IFEQ    ØØH,1
                        LD      HL,
                        ENDIF
27E5 3EØC               LD      A,12
27E7 EF                 RST     4Ø
27E8 21FFFF             LD      HL,-1           ;Set abort code
27EB C31B26     QUIT$$  JP      QUIT$
                ;
                ;       Read the granule allocation table
                ;
27EE F6         GATRD   DB      ØF6H            ;Set NZ for test
27EF AF         GATWR   XOR     A               ;Set Z for test
27FØ E5                 PUSH    HL
27F1 F5                 PUSH    AF
27F2 FD56Ø9             LD      D,(IY+9)        ;Dir cylinder
27F5 21ØØ2A             LD      HL,BUF1
27F8 5D                 LD      E,L             ;Set to sector Ø
```

```
27F9 F1         Ø332Ø          POP     AF
27FA 28Ø7       Ø333Ø          JR      Z,GATRW1         ;Go if write
27FC            Ø334Ø          @@RDSSC
27FC 3E55       ØØØ39          LD      A,85
27FE EF         ØØØ4Ø          RST     4Ø
27FF 3E14       Ø335Ø          LD      A,14H
28Ø1 18ØC       Ø336Ø          JR      GATRW3
28Ø3            Ø337Ø GATRW1   @@WRSSC
28Ø3 3E36       ØØØ41          LD      A,54
28Ø5 EF         ØØØ42          RST     4Ø
28Ø6 2ØØ3       Ø338Ø          JR      NZ,GATRW2        ;Skip verify if error
28Ø8            Ø339Ø          @@VRSEC                  ;Verify the write
28Ø8 3E32       ØØØ43          LD      A,5Ø
28ØA EF         ØØØ44          RST     4Ø
28ØB FEØ6       Ø34ØØ GATRW2   CP      6                ;Expect error 6
28ØD 3E15       Ø341Ø          LD      A,15H            ;Init "Gat error
28ØF E1         Ø342Ø GATRW3   POP     HL
281Ø C9         Ø343Ø          RET
                Ø344Ø ;
                Ø345Ø ;        Routine to check on floppy present
                Ø346Ø ;
2811 3E28       Ø347Ø CKDRV    LD      A,4Ø             ;@DCSTAT
2813 EF         Ø348Ø          RST     28H
2814 2Ø2F       Ø349Ø          JR      NZ,ILLEG
2816 3E2C       Ø35ØØ          LD      A,44             ;@RSTORE
2818 EF         Ø351Ø          RST     28H
2819 21ØØ2A     Ø352Ø          LD      HL,BUF1          ;Set up for
281C C5         Ø353Ø          PUSH    BC               ;  mini ckdrv
281D            Ø354Ø          @@TIME                   ;P/u timer ptr
281D 3E13       ØØØ45          LD      A,19
281F EF         ØØØ46          RST     4Ø
282Ø C1         Ø355Ø          POP     BC
2821 EB         Ø356Ø          EX      DE,HL            ;Pt HL to
2822 2B         Ø357Ø          DEC     HL               ;  heartbeat counter
2823 3E2F       Ø358Ø          LD      A,47             ;@RSLCT
2825 EF         Ø359Ø          RST     28H              ;Wait till ready
2826 7E         Ø36ØØ          LD      A,(HL)           ;Get heartbeat count
2827 C614       Ø361Ø          ADD     A,2Ø             ;Init to + 5ØØms
2829 57         Ø362Ø          LD      D,A              ;Store for timeout check
282A CD3A28     Ø363Ø CK1      CALL    INDEX
282D 2ØFB       Ø364Ø          JR      NZ,CK1           ;Get no pulse
282F CD3A28     Ø365Ø CK2      CALL    INDEX
2832 28FB       Ø366Ø          JR      Z,CK2            ;Get pulse
2834 CD3A28     Ø367Ø CK3      CALL    INDEX
2837 2ØFB       Ø368Ø          JR      NZ,CK3           ;Get no pulse
2839 C9         Ø369Ø          RET
                Ø37ØØ ;
283A 7E         Ø371Ø INDEX    LD      A,(HL)           ;Get time
283B BA         Ø372Ø          CP      D                ;Interval expired?
283C 28Ø6       Ø373Ø          JR      Z,ILLG1
283E 3E2F       Ø374Ø          LD      A,47             ;@RSLCT
284Ø EF         Ø375Ø          RST     28H
2841 CB4F       Ø376Ø          BIT     1,A              ;Test for index pulse
2843 C9         Ø377Ø          RET
                Ø378Ø ;
2844 E1         Ø379Ø ILLG1    POP     HL               ;Fix stack
2845 3E2Ø       Ø38ØØ ILLEG    LD      A,32             ;'illegal drv #'
2847 C3C227     Ø381Ø          JP      IOERR
                Ø382Ø ;
                Ø383Ø ;
                Ø384Ø ;        Messages
```

```
               Ø385Ø ;
284A 52        Ø386Ø HELLO$  DB      'REPAIR'
     45 5Ø 41 49 52
285Ø           Ø387Ø *GET    CLIENT:3
               Ø395Ø ;CLIENTS/ASM - File to establish sign-on headers
               Ø396Ø ;
285Ø 2Ø        Ø397Ø         DB      ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
287A 2Ø        Ø398Ø         DB      ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
               Ø399Ø ;
288F 41        Ø4ØØØ         DB      'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
28B7 2Ø        Ø4Ø1Ø         DB      ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
               Ø388Ø ;
28CF 52        Ø389Ø ALCAO$  DB      'Repair function complete',CR
     65 7Ø 61 69 72 2Ø 66 75
     6E 63 74 69 6F 6E 2Ø 63
     6F 6D 7Ø 6C 65 74 65 ØD
28E8 52        Ø39ØØ ABTJOB$ DB      'REPAIR aborted',CR
     45 5Ø 41 49 52 2Ø 61 62
     6F 72 74 65 64 ØD
28F7 43        Ø391Ø NOTØ$   DB      'Can''t REPAIR drive Ø',CR
     61 6E 27 74 2Ø 52 45 5Ø
     41 49 52 2Ø 64 72 69 76
     65 2Ø 3Ø ØD
29ØC 5Ø        Ø392Ø PRMERR$ DB      'Parameter error',CR
     61 72 61 6D 65 74 65 72
     2Ø 65 72 72 6F 72 ØD
291C 49        Ø393Ø BADMPW$ DB      'Invalid master password',CR
     6E 76 61 6C 69 64 2Ø 6D
     61 73 74 65 72 2Ø 7Ø 61
     73 73 77 6F 72 64 ØD
2934 43        Ø394Ø NIXHARD$        DB      'Can''t repair a hard drive',CR
     61 6E 27 74 2Ø 72 65 7Ø
     61 69 72 2Ø 61 2Ø 68 61
     72 64 2Ø 64 72 69 76 65
     ØD
               Ø395Ø ;
294E 8Ø        Ø396Ø PRMTBL$ DB      8ØH
ØØ2Ø           Ø397Ø STR     EQU     2ØH
294F 23        Ø398Ø         DB      STR!3,'MPW'
     4D 5Ø 57
2953 ØØ        Ø399Ø MRSP    DB      Ø
2954 Ø727      Ø4ØØØ         DW      MPARM+1
2956 ØØ        Ø4Ø1Ø         NOP
               Ø4Ø2Ø ;
```

```
ØØØ8           Ø4Ø3Ø PSWDBUF DS      8                ;Password buffer
ØØØ4           Ø4Ø4Ø HASHBUF DS      4                ;Owner & user hashes
ØØ2Ø           Ø4Ø5Ø FCB     DS      32
2AØØ           Ø4Ø6Ø         ORG     $<-8+1<+8
Ø1ØØ           Ø4Ø7Ø BUF1    DS      256
               Ø4Ø8Ø ;
26ØØ           Ø4Ø9Ø         END     BEGIN
```

```
$DSPLY       279F $EXIT       2618 @@1         0000
@@2          0000 @@3         0000 @@4         0000
@MOD2        0000 @MOD4       FFFF ABB         0010
ABTJOB$      28E8 ALCAO$      28CF ALIEN1      26A4
ALIEN2       26AB ALIEN3      26E0 ALIEN4      26FA
BADMPW$      291C BEGIN       2600 BEGINA      2609
BLNKMPW      4296 BUF1        2A00 CK1         282A
CK2          282F CK3         2834 CKDRV       2811
CKMPW        2753 CKMPW1      275A CKMPW2      2768
CKMPW3       277A CKMPW4      277C CKMPW5      277F
CKMPW7       2783 CR          000D DRIVE       271C
EXTERR       27E5 FCB         2963 FLAG        0040
GATRD        27EE GATRW1      2803 GATRW2      280B
GATRW3       280F GATWR       27EF GETMPW      272D
GMPW1        2734 GMPW2       273A GMPW4       274E
HASHBUF      295F HELLO$      284A ILLEG       2845
ILLG1        2844 INDEX       283A INVMPW      2787
IOERR        27C2 LC          26A0 LF          000A
MPARM        2706 MRSP        2953 NIXHARD     27D9
NIXHARD$     2934 NOT0        27DD NOT0$       28F7
PGRM         2622 PRMERR      27E1 PRMERR$     290C
PRMTBL$      294E PSWDBUF     2957 QUIT$       261B
QUIT$$       27EB RDSEC       27B8 STACK       261C
STR          0020 UNOPEN      278F WRSEC       27B2
WRSYS        27A5 ZAP         2794 @@ABORT     8EE9
@@ADTSK      8F7C @@BANK      9494 @@BKSP      9174
@@BREAK      94AA @@CHNIO     8ED4 @@CKBRKC    94F8
@@CKDRV      8FD0 @@CKEOF     9189 @@CKTSK     8F67
@@CLOSE      915F @@CLS       94E2 @@CMNDI     8F13
@@CMNDR      8F28 @@CTL       8D38 @@DATE      8EAA
@@DCSTAT     900F @@DEBUG     8F52 @@DECHEX    9414
@@DIRRD      9381 @@DIRWR     9396 @@DIV16     93FF
@@DIV8       93EA @@DODIR     8FE5 @@DSP       8CFC
@@DSPLY      8D9C @@ERROR     8F3D @@EXIT      8EFE
@@FEXT       92EE @@FLAGS     947E @@FNAME     9303
@@FSPEC      92D9 @@GATRD     936C @@GATWR     93AB
@@GET        8D10 @@GTDCB     932D @@GTDCT     9318
@@GTMOD      9342 @@HDFMT     90B7 @@HEX16     9453
@@HEX8       943E @@HEXDEC    9429 @@HIGH$     9468
@@INIT       9135 @@KBD       8D74 @@KEY       8CE8
@@KEYIN      8D88 @@KLTSK     8FBB @@LOAD      92AF
@@LOC        919E @@LOF       91B3 @@LOGER     8DD3
@@LOGOT      8DE8 @@MSG       8E1F @@MUL16     93D5
@@MUL8       93C0 @@OPEN      914A @@PARAM     8E95
@@PAUSE      8E80 @@PEOF      91C8 @@POSN      91DD
@@PRINT      8E34 @@PRT       8D4C @@PUT       8D24
@@RAMDIR     8FFA @@RDSEC     908D @@RDSSC     9357
@@READ       91F2 @@REMOV     9120 @@RENAM     910B
@@REW        9207 @@RMTSK     8F91 @@RPTSK     8FA6
@@RREAD      921C @@RSLCT     9078 @@RSTOR     9039
@@RUN        92C4 @@RWRIT     9231 @@SEEK      9063
@@SEEKSC     9246 @@SKIP      925B @@SLCT      9024
@@STEPI      904E @@TIME      8EBF @@VDCTL     8E6B
@@VER        9270 @@VRSEC     90A2 @@WEOF      9285
@@WHERE      8D60 @@WRITE     929A @@WRSEC     90CC
@@WRSSC      90E1 @@WRTRK     90F6
2600 is the transfer address
00000 Total errors
```

NOTES:

TAPE1ØØ/CMD - Read or write a Model 1ØØ tape

Tape1ØØ allows cassette tapes written on a Model 1ØØ to be read in and save as a disk file, and vice versa.

```
                     ;TAPE1ØØ - Tape/Disk & Disk/Tape Xfer Utility
ØØØØ                          TITLE   <TAPE1ØØ - LS-DOS 6.2>
                     ;
F44Ø                 BREAKLC  EQU     ØF44ØH          ;<BREAK> key location
ØØ3A                 LOADA    EQU     3AH             ; LD  A,(nnnn) opcode
ØØ16                 WRMASK   EQU     'W'-'A'         ;WRINTMASK port mask byte
ØØØC                 MODMASK  EQU     'M'-'A'         ;MODOUT port mask byte
                     ;
ØØ3A                 @INIT    EQU     58              ;@INIT SVC #
ØØ3B                 @OPEN    EQU     59              ;@OPEN SVC #
                     ;
ØØEØ                 PORTEØ   EQU     ØEØH
ØØEC                 MODOUT   EQU     ØECH
ØØFF                 PORTFF   EQU     ØFFH
ØØ78                 OPREG$   EQU     78H             ;Operating Register
ØØ84                 @OPREG   EQU     84H             ;Video/Keyboard Control Port
F8ØØ                 VIDEO    EQU     ØF8ØØH          ;Start of Video RAM
                     ;
ØØ22                 WHICH1   EQU     22H             ;Which one - Ø or 1 ?
ØØØF                 TOOSHRT  EQU     ØFH             ;Pulse too Short ?
ØØ3E                 TOOLONG  EQU     3EH             ;Pulse too Long ?
ØØØ6                 ROUTOFF  EQU     6               ;Interrupt rout offset
ØØØD                 DIFFER   EQU     ØDH             ;Difference between 2 pulses
2B2F                 DELAYØ   EQU     2B2FH           ;Bit = Ø Delay count
1217                 DELAY1   EQU     1217H           ;Bit = 1 Delay count
                     ;
ØØØE                 CURON    EQU     14              ;Cursor on
ØØØF                 CUROFF   EQU     15              ;Cursor off
                     ;
ØØØØ                 *GET     SVCMAC:3                ;SVC Macro equivalents
                     ;SVCMAC/ASM - LS-DOS Version VI
                     *LIST    OFF
                     *LIST    ON
ØØØØ                 *GET     VALUES:3                ;Misc. equates
                     ;VALUES/ASM - Version 6
                     *LIST OFF
                     *LIST ON
ØØØØ                 *GET     COPYCOM:3               ;Copyright message
                     ; COPYCOM - File for Copyright COMment block
                     ;
ØØØØ                          COM     '<*(C) 1982,83,84 by LSI*>'
                     ;
26ØØ                          ORG     26ØØH
                     ;
                     START
26ØØ                          @@CKBRKC                ;Check for break
26ØØ 3E6A                     LD      A,1Ø6
26Ø2 EF                       RST     4Ø
26Ø3 28Ø4                     JR      Z,STARTA        ;Continue if not
26Ø5 21FFFF                   LD      HL,-1           ;  else abort
26Ø8 C9                       RET
                     ;
26Ø9 ED735C27        STARTA   LD      (OLDSP+1),SP    ;Save entry stack
26ØD CDC727                   CALL    DOINIT          ;Do initialization
                     ;
                     ;        Was READ or WRITE entered ?
                     ;
261Ø 3AD729                   LD      A,(RRESP)       ;P/u read response
2613 47                       LD      B,A             ;Xfer to B
2614 3ACF29                   LD      A,(WRESP)       ;P/u write response
2617 A8                       XOR     B               ;Are both the same ?
```

```
2618 28Ø7                  JR      Z,INP_R_W       ;Yes - prompt
                  ;
                  ;        Both weren't entered - which one was
                  ;
261A Ø4           CHKPRM   INC     B               ;READ entered ?
261B Ø5                    DEC     B
261C 281C                  JR      Z,WRTAPE        ;<W>rite a tapefile
261E C3B126                JP      RDTAPE          ;<R>ead a tapefile
                  ;
                  ;        Prompt for READ or WRITE
                  ;
2621 E5           INP_R_W  PUSH    HL              ;Save command ptr
                  ;
2622 21DB28                LD      HL,RDORWR       ;"Read or Write"
2625 CD4928                CALL    DSPLY
                  ;
                  ;        Input R (Read) or W (Write)
                  ;
2628 Ø6Ø1                  LD      B,1             ;Take input, 1 char
262A CD3528                CALL    INPUT
262D 7E                    LD      A,(HL)          ;P/u first char
262E E1                    POP     HL              ;Recover command ptr
262F CBAF                  RES     5,A             ;Convert to U/C
2631 FE52                  CP      'R'             ;<R>ead ?
2633 CAB126                JP      Z,RDTAPE
2636 FE57                  CP      'W'             ;<W>rite ?
2638 2ØE7                  JR      NZ,INP_R_W      ;No - re-prompt
                  ;
                  ;        WRITE diskfile to tapefile
                  ;
263A 11F12D       WRTAPE   LD      DE,FCB1         ;DE => Source FCB
263D                       @@FSPEC                 ;If a bad spec,
263D 3E4E                  LD      A,78
263F EF                    RST     4Ø
264Ø C4Ø828                CALL    NZ,PRSOUR       ;  prompt for source
                  ;
                  ;        WRITE - check if destination filespec input
                  ;
2643 11112E       WRTAPE2  LD      DE,FCB2         ;DE => Destination FCB
2646                       @@FSPEC
2646 3E4E                  LD      A,78
2648 EF                    RST     4Ø
2649 C41Ø28                CALL    NZ,PRDEST       ;Prompt for destination
264C CDAC27                CALL    GTFILE          ;Xfer into Filename
                  ;
                  ;        Open Disk Source file
                  ;
264F 11F12D       OPDSRC   LD      DE,FCB1         ;DE => Source
2652 CDCF2C                CALL    OPEN
2655 C24627                JP      NZ,IOERR        ;NZ - abort
                  ;
                  ;        Can this disk file fit into memory ?
                  ;
2658 2AFD2D                LD      HL,(FCB1+12)    ;P/u ERN
265B 24                    INC     H               ;Too big ?
265C 25                    DEC     H
265D C2BF29                JP      NZ,TOOBIG       ;Yes - forget it
266Ø 3EØØ         ENUF     LD      A,$-$           ;Enough memory ?
2662 C63Ø                  ADD     A,MEM<-8        ;Add mem start
2664 BD                    CP      L
2665 DABF29                JP      C,TOOBIG        ;No - forget it
```

```
               Ø117Ø ;
               Ø118Ø ;        Read in Disk file & Write to tape
               Ø119Ø ;
2668 CD3B2A    Ø12ØØ          CALL    PRTAPE          ;Display "Ready Tape"
266B CDBC2C    Ø121Ø          CALL    CURSOFF         ;Turn of cursor
266E 217B27    Ø122Ø          LD      HL,READING      ;Init "Reading : "
2671 CD4928    Ø123Ø          CALL    DSPLY           ;Display line
2674 219D27    Ø124Ø          LD      HL,DFBUF        ;HL => Disk Filename
2677 CD4928    Ø125Ø          CALL    DSPLY
267A CD692D    Ø126Ø          CALL    READSRC         ;Read the source file
267D CDCA2D    Ø127Ø          CALL    GETPOS          ;Get new cursor pos
268Ø CD9B2D    Ø128Ø          CALL    ENDOKI          ;Bring in Video
2683 218527    Ø129Ø          LD      HL,WRITING      ;Display "Writing : "
2686 CD8Ø2C    Ø13ØØ          CALL    DISPSTR
2689 219Ø27    Ø131Ø          LD      HL,FILENM       ;"filenm"
268C CD8Ø2C    Ø132Ø          CALL    DISPSTR
268F CD1A2A    Ø133Ø          CALL    CASSON          ;Turn on cassette
2692 Ø68Ø      Ø134Ø          LD      B,8ØH           ;Pause a bit
2694           Ø135Ø          @@PAUSE
2694 3E1Ø      ØØØØ7          LD      A,16
2696 EF        ØØØØ8          RST     4Ø
2697 CDEC2B    Ø136Ø          CALL    WRHEAD          ;Write Header
269A CD192C    Ø137Ø          CALL    WRDAT           ;Write Data
269D 2A6627    Ø138Ø          LD      HL,(CURPOS)     ;P/u new cursor pos
26AØ CDE32D    Ø139Ø          CALL    GETCRS
26A3 Ø6Ø3      Ø14ØØ          LD      B,3             ;Give to system
26A5           Ø141Ø          @@VDCTL
26A5 3EØF      ØØØØ9          LD      A,15
26A7 EF        ØØØ1Ø          RST     4Ø
26A8 CDA92D    Ø142Ø          CALL    DISDOKI         ;Restore video
26AB CD2B2A    Ø143Ø          CALL    CASSOFF         ;Turn off cassette
26AE C35827    Ø144Ø          JP      EXIT            ;Clean exit
               Ø145Ø ;
               Ø146Ø ;        Get Source & Destination for READ
               Ø147Ø ;
26B1 11F12D    Ø148Ø RDTAPE   LD      DE,FCB1         ;First filespec legal ?
26B4           Ø149Ø          @@FSPEC
26B4 3E4E      ØØØ11          LD      A,78
26B6 EF        ØØØ12          RST     4Ø
26B7 28ØD      Ø15ØØ          JR      Z,CHKSEC        ;Yes - check for second
               Ø151Ø ;
               Ø152Ø ;        Accept first filename on tape
               Ø153Ø ;
26B9 3EC9      Ø154Ø          LD      A,ØC9H
26BB 32ØD2B    Ø155Ø          LD      (CORRECT),A
26BE 11112E    Ø156Ø          LD      DE,FCB2         ;Prompt for dest filename
26C1 CD2D28    Ø157Ø          CALL    PRDEST2         ;Prompt for dest
26C4 1825      Ø158Ø          JR      READFIL         ;  and read file
               Ø159Ø ;
               Ø16ØØ ;        Copy source FCB into destination
               Ø161Ø ;
26C6 E5        Ø162Ø CHKSEC   PUSH    HL              ;Save comm ptr
26C7 EB        Ø163Ø          EX      DE,HL
26C8 11112E    Ø164Ø          LD      DE,FCB2         ;DE => Disk FCB
26CB Ø12ØØØ    Ø165Ø          LD      BC,32
26CE D5        Ø166Ø          PUSH    DE              ;Save dest FCB
26CF EDBØ      Ø167Ø          LDIR
26D1 D1        Ø168Ø          POP     DE
26D2 E1        Ø169Ø          POP     HL
               Ø17ØØ ;
               Ø171Ø ;        P/u destination filespec
```

```
                Ø172Ø ;
26D3 2B         Ø173Ø          DEC     HL              ;Skip leading spaces
26D4 23         Ø174Ø SKPSPC   INC     HL
26D5 7E         Ø175Ø          LD      A,(HL)          ;P/u char
26D6 FE2Ø       Ø176Ø          CP      ' '             ;Space ?
26D8 28FA       Ø177Ø          JR      Z,SKPSPC
26DA FEØE       Ø178Ø          CP      CR+1            ;Eol ?
26DC 38Ø7       Ø179Ø          JR      C,GTFILE2       ;Yes - use default
26DE FE28       Ø18ØØ          CP      '('             ;Eol ?
26EØ 28Ø3       Ø181Ø          JR      Z,GTFILE2
26E2            Ø182Ø          @@FSPEC                 ;Xfer in if legal
26E2 3E4E       ØØØ13          LD      A,78
26E4 EF         ØØØ14          RST     4Ø
                Ø183Ø ;
                Ø184Ø ;        Transfer filename into buffer left just'd
                Ø185Ø ;
26E5 11F12D     Ø186Ø GTFILE2  LD      DE,FCB1         ;DE => Source
26E8 CDAC27     Ø187Ø          CALL    GTFILE          ;Stuff Filename into buff
                Ø188Ø ;
                Ø189Ø ;        Read in Tape Source file
                Ø19ØØ ;
26EB 11112E     Ø191Ø READFIL  LD      DE,FCB2         ;@INIT the dest file
26EE CDCB2C     Ø192Ø          CALL    INIT
26F1 C24627     Ø193Ø          JP      NZ,IOERR
26F4 DD4EØ6     Ø194Ø          LD      C,(IX+6)        ;P/u drive #
26F7            Ø195Ø          @@CKDRV                 ;Write protected ?
26F7 3E21       ØØØ15          LD      A,33
26F9 EF         ØØØ16          RST     4Ø
26FA 3EØF       Ø196Ø          LD      A,15            ;Write Protected Disk
26FC DA4627     Ø197Ø          JP      C,IOERR         ;Good bye
26FF CD3B2A     Ø198Ø          CALL    PRTAPE          ;"Ready Cassette"
27Ø2 CDBC2C     Ø199Ø          CALL    CURSOFF
27Ø5 CD9B2D     Ø2ØØØ          CALL    ENDOKI          ;Bring in KI & DO RAM
27Ø8 CDCA2D     Ø2Ø1Ø          CALL    GETPOS          ;Calculate cursor posn
27ØB 217B27     Ø2Ø2Ø          LD      HL,READING      ;Display "Reading : "
27ØE CD8Ø2C     Ø2Ø3Ø          CALL    DISPSTR
2711 CD1A2A     Ø2Ø4Ø          CALL    CASSON          ;Turn on cassette
2714 CDD82A     Ø2Ø5Ø          CALL    RDHEAD          ;Search for header
2717 CD492A     Ø2Ø6Ø          CALL    RDDAT           ;Read in Data
271A F3         Ø2Ø7Ø          DI                      ;Make sure off
271B CD2B2A     Ø2Ø8Ø          CALL    CASSOFF         ;Turn off cassette
271E 218527     Ø2Ø9Ø          LD      HL,WRITING      ;Display "Writing : "
2721 CD8Ø2C     Ø21ØØ          CALL    DISPSTR         ;
2724 219D27     Ø211Ø          LD      HL,DFBUF        ;HL => Destination
2727 CD8Ø2C     Ø212Ø          CALL    DISPSTR         ;
272A 2A6627     Ø213Ø          LD      HL,(CURPOS)     ;P/u new cursor position
272D CDE32D     Ø214Ø          CALL    GETCRS          ;Convert to Row, Column
273Ø Ø6Ø3       Ø215Ø          LD      B,3             ;Give system new cursor
2732            Ø216Ø          @@VDCTL                 ;
2732 3EØF       ØØØ17          LD      A,15
2734 EF         ØØØ18          RST     4Ø
2735 CDA92D     Ø217Ø          CALL    DISDOKI         ;Enable real RAM
2738 18Ø6       Ø218Ø          JR      WRTDES2         ;
273A CDA92D     Ø219Ø FORNOW   CALL    DISDOKI         ;Enable real RAM
273D CD2B2A     Ø22ØØ          CALL    CASSOFF         ;Turn off cassette
274Ø CD512D     Ø221Ø WRTDES2  CALL    WRTDEST         ;Write Destination file
2743 C35827     Ø222Ø          JP      EXIT            ;Clean exit
                Ø223Ø ;
                Ø224Ø ;
2746 6F         Ø225Ø IOERR    LD      L,A             ;Xfer error # to HL
2747 26ØØ       Ø226Ø          LD      H,Ø             ;
```

```
2749 F6CØ      Ø227Ø          OR      ØCØH            ;Abbrev, return
274B 4F        Ø228Ø          LD      C,A
274C           Ø229Ø          @@ERROR                 ;Display error
274C 3E1A      ØØØ19          LD      A,26
274E EF        ØØØ2Ø          RST     4Ø
274F 18ØA      Ø23ØØ          JR      OLDSP           ;  and abort
               Ø231Ø ;
2751 C35427    Ø232Ø ILLEGAL JP       ABORT           ;For now
               Ø233Ø ;
2754 21FFFF    Ø234Ø ABORT   LD       HL,-1           ;Show error return
2757 DD        Ø235Ø          DB      ØDDH            ;Skip LD HL,Ø
2758 21ØØØØ    Ø236Ø EXIT    LD       HL,Ø            ;Clean exit
275B 31ØØØØ    Ø237Ø OLDSP   LD       SP,$-$          ;P/u original SP
275E FB        Ø238Ø          EI                      ;Re-enable interrupts
275F           Ø239Ø          @@CKBRKC                ;Clear Break
275F 3E6A      ØØØ21          LD      A,1Ø6
2761 EF        ØØØ22          RST     4Ø
2762 C9        Ø24ØØ          RET                     ;  and RETurn
               Ø241Ø ;
2763 ØØ        Ø242Ø DLEN    DB       Ø,Ø,Ø
     ØØ ØØ
2766 ØØØØ      Ø243Ø CURPOS  DW       Ø               ;Cursor Position
2768 ØA        Ø244Ø READERR DB       LF,'Tape Read Error  ',CR
     54 61 7Ø 65 2Ø 52 65 61
     64 2Ø 45 72 72 6F 72 2Ø
     2Ø ØD
277B 52        Ø245Ø READING DB       'Reading: ',ETX
     65 61 64 69 6E 67 3A 2Ø
     Ø3
2785 ØA        Ø246Ø WRITING DB       LF,'Writing: ',ETX
     57 72 69 74 69 6E 67 3A
     2Ø Ø3
279Ø 46        Ø247Ø FILENM  DB       'FILENM',CR
     49 4C 45 4E 4D ØD
ØØØ6           Ø248Ø BUFFER  DS       6
279D 46        Ø249Ø DFBUF   DB       'Filename/ext:d',ETX
     69 6C 65 6E 61 6D 65 2F
     65 78 74 3A 64 Ø3
               Ø25ØØ ;
               Ø251Ø ;
               Ø252Ø ;       GTFILE - Stuff filename from FCB into buffer
               Ø253Ø ;       DE => FCB with filename contained
               Ø254Ø ;
27AC 219Ø27    Ø255Ø GTFILE  LD       HL,FILENM       ;HL => Filename buffered
27AF E5        Ø256Ø          PUSH    HL              ;Save it
27BØ Ø6Ø6      Ø257Ø          LD      B,6             ;Init to all spaces
27B2 362Ø      Ø258Ø CLEAN   LD       (HL),' '
27B4 23        Ø259Ø          INC     HL
27B5 1ØFB      Ø26ØØ          DJNZ    CLEAN
27B7 E1        Ø261Ø          POP     HL              ;HL => Filename dest
27B8 Ø6Ø6      Ø262Ø          LD      B,6             ;Only accept first 6
               Ø263Ø ;
27BA 1A        Ø264Ø GETFILN LD       A,(DE)          ;P/u char
27BB FEØE      Ø265Ø          CP      CR+1            ;End ?
27BD D8        Ø266Ø          RET     C               ;Yes - done
27BE FE2E      Ø267Ø          CP      '.'             ;Start of password?
27CØ C8        Ø268Ø          RET     Z               ;Yes - done
27C1 77        Ø269Ø          LD      (HL),A          ;Stuff into filename buff
27C2 23        Ø27ØØ          INC     HL              ;Bump
27C3 13        Ø271Ø          INC     DE
27C4 1ØF4      Ø272Ø          DJNZ    GETFILN
```

```
27C6 C9         Ø273Ø          RET                        ;Done - RETurn
                Ø274Ø ;
                Ø275Ø ;        DOINIT - Do initialization
                Ø276Ø ;
27C7            Ø277Ø DOINIT   @@FLAGS                    ;IY => System Flags
27C7 3E65       ØØØ23          LD      A,1Ø1
27C9 EF         ØØØ24          RST     4Ø
                Ø278Ø ;
                Ø279Ø ;        Calculate highest mem address of buffer
                Ø28ØØ ;
27CA E5         Ø281Ø          PUSH    HL                 ;Save command line stuff
27CB 21ØØØØ     Ø282Ø          LD      HL,Ø               ;P/u HIGH$
27CE 45         Ø283Ø          LD      B,L
27CF FDCBØ24E   Ø284Ø          BIT     1,(IY+CFLAG$)      ;@CMNDR ?
27D3 28Ø1       Ø285Ø          JR      Z,USEHI
27D5 Ø4         Ø286Ø          INC     B                  ;Use LOW$
27D6            Ø287Ø USEHI    @@HIGH$
27D6 3E64       ØØØ25          LD      A,1ØØ
27D8 EF         ØØØ26          RST     4Ø
27D9 23         Ø288Ø          INC     HL                 ;Set hi-mem byte
27DA 25         Ø289Ø          DEC     H                  ;Give some lee-way
27DB 25         Ø29ØØ          DEC     H
27DC 7C         Ø291Ø          LD      A,H                ;  & stuff in R/W routines
27DD 326126     Ø292Ø          LD      (ENUF+1),A
                Ø293Ø ;
                Ø294Ø ;        Display Log-on message
                Ø295Ø ;
27EØ 215328     Ø296Ø          LD      HL,HELLO$          ;Display banner
27E3 CD4928     Ø297Ø          CALL    DSPLY
27E6 E1         Ø298Ø          POP     HL                 ;Process parm line
                Ø299Ø ;
                Ø3ØØØ ;        P/u READ or WRITE parm if entered
                Ø3Ø1Ø ;
27E7 E5         Ø3Ø2Ø          PUSH    HL                 ;Save HL
27E8 2B         Ø3Ø3Ø          DEC     HL                 ;Back up one
27E9 23         Ø3Ø4Ø CKPLP    INC     HL                 ;Bump
27EA 7E         Ø3Ø5Ø          LD      A,(HL)             ;P/u char
27EB FEØE       Ø3Ø6Ø          CP      CR+1               ;Eol ?
27ED 38ØD       Ø3Ø7Ø          JR      C,DUNLIN           ;Yes - done
27EF FE28       Ø3Ø8Ø          CP      '('                ;Paramter entered ?
27F1 2ØF6       Ø3Ø9Ø          JR      NZ,CKPLP           ;No - go til eol
                Ø31ØØ ;
                Ø311Ø ;        Process parameter entry
                Ø312Ø ;
27F3 11C829     Ø313Ø          LD      DE,PARMTBL         ;DE => Param table
27F6            Ø314Ø          @@PARAM
27F6 3E11       ØØØ27          LD      A,17
27F8 EF         ØØØ28          RST     4Ø
27F9 C2BB29     Ø315Ø          JP      NZ,PRMERR          ;NZ - parameter error
27FC E1         Ø316Ø DUNLIN   POP     HL                 ;Rcvr command ptr
                Ø317Ø ;
                Ø318Ø ;        If C=N entered then use checksum
                Ø319Ø ;
27FD Ø1FFFF     Ø32ØØ CPARM    LD      BC,ØFFFFH          ;Default no checksum
28ØØ Ø4         Ø321Ø          INC     B                  ;User requesting checksum?
28Ø1 CØ         Ø322Ø          RET     NZ                 ;Yes, return
28Ø2 3EC9       Ø323Ø          LD      A,ØC9H             ;Init RET opcode
28Ø4 32242B     Ø324Ø          LD      (CHKERR+1),A       ;Stuff into Checksum error
28Ø7 C9         Ø325Ø          RET
                Ø326Ø ;
                Ø327Ø ;        PRSOUR/PRDEST - Prompt for Source & Destination
```

```
               ;
28Ø8 E5        PRSOUR  PUSH    HL              ;Save HL
28Ø9 21ØA29            LD      HL,DSF          ;"Disk Source Filename"
28ØC Ø617              LD      B,23            ;23 chars max
28ØE 18Ø6              JR      DOINPUT
281Ø E5        PRDEST  PUSH    HL              ;Save HL
2811 212329            LD      HL,TDF          ;"Tape Dest Filename"
2814 Ø6Ø6              LD      B,6             ;6 char max
2816 CD4928    DOINPUT CALL    DSPLY           ;Display prompt
2819 E5                PUSH    HL              ;Save prompt start
281A CD3528            CALL    INPUT           ;Input
281D                   @@FSPEC                 ;Legal ?
281D 3E4E              LD      A,78
281F EF                RST     4Ø
282Ø E1                POP     HL              ;HL => Prompt string
2821 2ØF3              JR      NZ,DOINPUT      ;Reprompt on bad name
2823 E1                POP     HL              ;Recover ptr
2824 C9                RET                     ;  and return
               ;
               ;       PRSOUR2/PRDEST2 - Prompt for READ source/dest
               ;
2825 E5        PRSOUR2 PUSH    HL              ;Save HL
2826 21F128            LD      HL,TSF          ;"Tape Source filename"
2829 Ø6Ø6              LD      B,6             ;6 char max
282B 18E9              JR      DOINPUT
282D E5        PRDEST2 PUSH    HL              ;Save HL
282E 214129            LD      HL,DDF          ;"Disk Destination file"
2831 Ø617              LD      B,23            ;23 char max
2833 18E1              JR      DOINPUT
               ;
               ;       INPUT - Line input routine
               ;
2835 D5        INPUT   PUSH    DE              ;Save DE
2836 C5                PUSH    BC              ;  and BC
2837 21312E            LD      HL,INBUFF       ;HL => Input buffer
283A                   @@KEYIN                 ;Input line
283A 3EØ9              LD      A,9
283C EF                RST     4Ø
283D DA5427            JP      C,ABORT         ;<BREAK> abort
284Ø C1                POP     BC              ;Restore regs
2841 D1                POP     DE
2842 C9                RET
               ;
2843 D5        DSP     PUSH    DE              ;Save DE
2844                   @@DSP                   ;Output char
2844 3EØ2              LD      A,2
2846 EF                RST     4Ø
2847 18Ø4              JR      EXDSP
               ;
2849 D5        DSPLY   PUSH    DE              ;Save DE
284A                   @@DSPLY                 ;Display message
                       IFEQ    ØØH,1
                       LD      HL,
                       ENDIF
284A 3EØA              LD      A,1Ø
284C EF                RST     4Ø
284D D1        EXDSP   POP     DE              ;Rcvr DE
284E C8                RET     Z               ;RETurn if OK
284F C34627            JP      IOERR           ;  else abort
               ;
2852 ØØ        COUNT   DB      Ø               ;Count
```

```
                 Ø378Ø ;
2853 1C          Ø379Ø HELLO$  DB      1CH,1FH,'TAPE1ØØ'
     1F 54 41 5Ø 45 31 3Ø 3Ø
285C             Ø38ØØ *GET    CLIENT:3
                 Ø424Ø ;CLIENTS/ASM - File to establish sign-on headers
                 Ø425Ø ;
285C 2Ø          Ø426Ø         DB      ' - 6.2.Ø - Copyright 1982/83/84 by Logical'
     2D 2Ø 36 2E 32 2E 3Ø 2Ø
     2D 2Ø 43 6F 7Ø 79 72 69
     67 68 74 2Ø 31 39 38 32
     2F 38 33 2F 38 34 2Ø 62
     79 2Ø 4C 6F 67 69 63 61
     6C
2886 2Ø          Ø427Ø         DB      ' Systems, Inc.      ',1Ø
     53 79 73 74 65 6D 73 2C
     2Ø 49 6E 63 2E 2Ø 2Ø 2Ø
     2Ø 2Ø 2Ø ØA
                 Ø428Ø ;
289B 41          Ø429Ø         DB      'All Rights Reserved. Licensed 1982/83/84'
     6C 6C 2Ø 52 69 67 68 74
     73 2Ø 52 65 73 65 72 76
     65 64 2E 2Ø 4C 69 63 65
     6E 73 65 64 2Ø 31 39 38
     32 2F 38 33 2F 38 34
28C3 2Ø          Ø43ØØ         DB      ' to xxxxxxxxxxxxxxxxxx',1Ø,13
     74 6F 2Ø 78 78 78 78 78
     78 78 78 78 78 78 78 78
     78 78 78 78 78 ØA ØD
                 Ø381Ø ;
28DB 3C          Ø382Ø RDORWR  DB      '<R>ead or <W>rite ? ',CURON,ETX
     52 3E 65 61 64 2Ø 6F 72
     2Ø 3C 57 3E 72 69 74 65
     2Ø 3F 2Ø ØE Ø3
28F1 54          Ø383Ø TSF     DB      'Tape Source Filespec ? ',CURON,ETX
     61 7Ø 65 2Ø 53 6F 75 72
     63 65 2Ø 46 69 6C 65 73
     7Ø 65 63 2Ø 3F 2Ø ØE Ø3
29ØA 44          Ø384Ø DSF     DB      'Disk Source Filespec ? ',CURON,ETX
     69 73 6B 2Ø 53 6F 75 72
     63 65 2Ø 46 69 6C 65 73
     7Ø 65 63 2Ø 3F 2Ø ØE Ø3
2923 54          Ø385Ø TDF     DB      'Tape Destination Filespec ? ',CURON,ETX
     61 7Ø 65 2Ø 44 65 73 74
     69 6E 61 74 69 6F 6E 2Ø
     46 69 6C 65 73 7Ø 65 63
     2Ø 3F 2Ø ØE Ø3
2941 44          Ø386Ø DDF     DB      'Disk Destination Filespec ? ',CURON,ETX
     69 73 6B 2Ø 44 65 73 74
     69 6E 61 74 69 6F 6E 2Ø
     46 69 6C 65 73 7Ø 65 63
     2Ø 3F 2Ø ØE Ø3
295F 52          Ø387Ø TREADY  DB      'Ready Cassette & Press <ENTER>'
     65 61 64 79 2Ø 43 61 73
     73 65 74 74 65 2Ø 26 2Ø
     5Ø 72 65 73 73 2Ø 3C 45
     4E 54 45 52 3E
297D ØE          Ø388Ø         DB      CURON,ETX
     Ø3
297F 5Ø          Ø389Ø PRMERR$ DB      'Parameter error',LF,CR
     61 72 61 6D 65 74 65 72
     2Ø 65 72 72 6F 72 ØA ØD
```

```
299Ø 46          Ø39ØØ TOOBIG$ DB       'File too large to fit in available '
     69 6C 65 2Ø 74 6F 6F 2Ø
     6C 61 72 67 65 2Ø 74 6F
     2Ø 66 69 74 2Ø 69 6E 2Ø
     61 76 61 69 6C 61 62 6C
     65 2Ø
29B3 6D          Ø391Ø         DB       'memory',LF,CR
     65 6D 6F 72 79 ØA ØD
                 Ø392Ø ;
                 Ø393Ø ;
                 Ø394Ø ;       Error Exit routine
                 Ø395Ø ;
29BB 217F29      Ø396Ø PRMERR  LD       HL,PRMERR$        ;"Parameter Error"
29BE DD          Ø397Ø         DB       ØDDH              ;Skip
29BF 219Ø29      Ø398Ø TOOBIG  LD       HL,TOOBIG$        ;"File too Big"
                 Ø399Ø ;
29C2             Ø4ØØØ         @@LOGOT                    ;Display error
                 ØØØ4Ø         IFEQ     ØØH,1
                 ØØØ41         LD       HL,
                 ØØØ42         ENDIF
29C2 3EØC        ØØØ43         LD       A,12
29C4 EF          ØØØ44         RST      4Ø
29C5 C35427      Ø4Ø1Ø         JP       ABORT             ;Good bye
                 Ø4Ø2Ø ;
                 Ø4Ø3Ø ;       Parameter Table
                 Ø4Ø4Ø ;
29C8 8Ø          Ø4Ø5Ø PARMTBL DB       8ØH               ;6.x @PARAM
29C9 55          Ø4Ø6Ø         DB       FLAG!ABB!5
29CA 57          Ø4Ø7Ø         DB       'WRITE'
     52 49 54 45
29CF ØØ          Ø4Ø8Ø WRESP   DB       Ø
29DØ E629        Ø4Ø9Ø         DW       WPARM
                 Ø41ØØ ;
29D2 54          Ø411Ø         DB       FLAG!ABB!4
29D3 52          Ø412Ø         DB       'READ'
     45 41 44
29D7 ØØ          Ø413Ø RRESP   DB       Ø
29D8 E429        Ø414Ø         DW       RPARM
                 Ø415Ø ;
29DA 54          Ø416Ø         DB       FLAG!ABB!4
29DB 43          Ø417Ø         DB       'CHECK'
     48 45 43 4B
29EØ ØØ          Ø418Ø CRESP   DB       Ø
29E1 FE27        Ø419Ø         DW       CPARM+1
                 Ø42ØØ ;
29E3 ØØ          Ø421Ø         DB       Ø
                 Ø422Ø ;
29E4 ØØØØ        Ø423Ø RPARM   DW       Ø
29E6 ØØØØ        Ø424Ø WPARM   DW       Ø
                 Ø425Ø ;
29E8 ØØ          Ø426Ø         DC       5Ø,Ø              ;Patch space
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ ØØ ØØ ØØ ØØ ØØ ØØ ØØ
     ØØ
                 Ø427Ø ;
2A1A             Ø428Ø *GET    TAPE1ØØA:3
                 Ø431Ø ;TAPE1ØØA/ASM - Tape I/O routines
```

```
                ;        CASSON - Turn Cassette Motor On
                ;
2A1A F3         CASSON   DI                          ;Disable interrupts
2A1B CDB52D              CALL     SWAP38             ;Grab RST 38H vector
2A1E DBEØ                IN       A,(PORTEØ)         ;Clear any latches
2A2Ø DBEC                IN       A,(MODOUT)         ;Clear any latches
2A22 3EØ2                LD       A,2                ;Motor on, slow speed
2A24 D3EC                OUT      (MODOUT),A         ;Turn on motor
2A26 3EØ3                LD       A,3                ;Disable other interrupts
2A28 D3EØ                OUT      (PORTEØ),A
2A2A C9                  RET
                ;
                ;        CASSOFF - Turn off Cassette Motor
                ;
2A2B FD7E16     CASSOFF  LD       A,(IY+WRMASK)      ;P/u original
2A2E D3EØ                OUT      (PORTEØ),A         ;Set up R/F interrupt
2A3Ø DBFF                IN       A,(PORTFF)         ;Clear 15ØØ bd interrupts
2A32 FD7EØC              LD       A,(IY+MODMASK)     ;Turn off motor
2A35 D3EC                OUT      (MODOUT),A
2A37 CDB52D              CALL     SWAP38             ;Restore RST 38H vector
2A3A C9                  RET
                ;
                ;        PRTAPE - Prompt for "Tape Ready" & turn motor on
                ;
2A3B 215F29     PRTAPE   LD       HL,TREADY          ;"Ready cassette & <ENTER>
2A3E CD4928              CALL     DSPLY
2A41 Ø6Ø1       NOTENT   LD       B,1                ;Just 1 char
2A43 CD3528              CALL     INPUT              ;<BREAK> or <ENTER>
2A46 C3BC2C              JP       CURSOFF            ;Turn off Cursor & RETurn
                ;
                ;        RDDAT - Read in a tape file
                ;
2A49 21ØØ2F     RDDAT    LD       HL,MEM-1ØØH        ;HL => Start of file
2A4C 24         RDDAT2   INC      H                  ;Bump hi-byte
2A4D CD582A              CALL     RDDATA             ;Read a block
2A5Ø C8                  RET      Z                  ;Eof ?
2A51 3EØØ       EOTF     LD       A,$-$              ;At top of memory ?
2A53 BC                  CP       H
2A54 2ØF6                JR       NZ,RDDAT2          ;No
2A56 B7                  OR       A                  ;Top of mem -
2A57 C9                  RET                         ;RETurn NZ
                ;
                ;        RDDATA - Read in a block of Data
                ;        HL => Destination of Block
                ;
2A58 CD392B     RDDATA   CALL     RDSYNC             ;Read sync field
2A5B CDA72B              CALL     RDBYTE             ;Read a byte
2A5E FE8D                CP       8DH                ;Legal ?
2A6Ø C25127              JP       NZ,ILLEGAL         ;No - bad news
2A63 11ØØØØ              LD       DE,Ø               ;D=EOF flag, E = checksum
                ;
2A66 CDA72B     RDLP1    CALL     RDBYTE             ;Read a byte
2A69 77                  LD       (HL),A             ;Stuff into buffer
                ;
                ;        Check for End of File byte X'1A'
                ;
2A6A FE1A                CP       1AH                ;Eof ?
2A6C 2ØØ5                JR       NZ,AFTER           ;No
2A6E BA                  CP       D                  ;Been here before ?
2A6F 28Ø2                JR       Z,AFTER            ;First time ?
2A71 57                  LD       D,A                ;Set D = 1AH
```

```
2A72 45                   LD      B,L               ;Yes - set B = pos
                 ;
                 ;        Add byte to checksum
                 ;
2A73 83          AFTER    ADD     A,E               ;Add checksum
2A74 5F                   LD      E,A               ;Xfer back to E
2A75 2C                   INC     L                 ;Bump
2A76 2ØEE                 JR      NZ,RDLP1
2A78 ED44                 NEG                       ;Negate checksum
2A7A 5F                   LD      E,A               ;Stuff back in E
                 ;
                 ;        Verify Checksum byte
                 ;
2A7B CDA72B               CALL    RDBYTE            ;Read in byte
2A7E BB                   CP      E                 ;Checksums match ?
2A7F C4232B               CALL    NZ,CHKERR         ;No - checksum error
                 ;
                 ;        Stuff EOF offset byte into WRTDEST routine
                 ;
2A82 7C                   LD      A,H               ;P/u eom
2A83 325C2D               LD      (EOTF2+1),A       ;Stuff into WRTDEST
2A86 78                   LD      A,B               ;P/u byte
2A87 3C                   INC     A                 ;Bump
2A88 32612D               LD      (OFFSET+1),A
                 ;
                 ;        Read past 2Ø dummy zeroes
                 ;
2A8B Ø614                 LD      B,2Ø
2A8D CDA72B      RDLP2    CALL    RDBYTE
2A9Ø 1ØFB                 DJNZ    RDLP2
                 ;
                 ;        Set Z flag if at EOF
                 ;
2A92 7A                   LD      A,D               ;Eof ?
2A93 FE1A                 CP      1AH
2A95 C9                   RET                       ;Done
                 ;
                 ;        RDBIT - Read a Bit from Cassette
                 ;
2A96 ØEØØ        RDBIT    LD      C,Ø               ;Init count = Ø
2A98 FB                   EI                        ;Back on
2A99 ØC          RBLP     INC     C                 ;Bump count
2A9A 3A4ØF4               LD      A,(BREAKLC)       ;<BREAK> hit ?
2A9D E6Ø4                 AND     4
2A9F 28F8                 JR      Z,RBLP            ;No - wait for interrupt
                 ;
                 ;        <BREAK> key hit - Abort
                 ;
2AA1 F3                   DI                        ;Cancel next interrupt
2AA2 CDA92D               CALL    DISDOKI           ;Put *DO & *KI back
2AA5 CD2B2A               CALL    CASSOFF           ;Turn off cassette
2AA8 ØEØD                 LD      C,CR              ;End line
2AAA CD4328               CALL    DSP
2AAD C35427               JP      ABORT             ;Go to abort routine
                 ;
                 ;        Interrupt Handler - Comes from RST 38
                 ;
2ABØ C3B32A      RST38V   JP      $+3               ;Wait
2AB3 F5                   PUSH    AF                ;Save status
2AB4 DBEØ                 IN      A,(PORTEØ)        ;Read port
2AB6 1F                   RRA                       ;Bit Ø low ?
```

```
2AB7 D2C12A     Ø554Ø          JP      NC,BITØLOW
2ABA 1F         Ø555Ø          RRA                        ;Bit 1 low ?
2ABB D2C52A     Ø556Ø          JP      NC,BIT1LOW
2ABE F1         Ø557Ø          POP     AF                 ;Recover status
2ABF FB         Ø558Ø          EI                         ;Back on
2ACØ C9         Ø559Ø          RET                        ;RETurn
                Ø56ØØ ;
                Ø561Ø ;        Set E = bit image - bit Ø or 1
                Ø562Ø ;
2AC1 1EØ1       Ø563Ø BITØLOW  LD      E,1                ;High
2AC3 18Ø2       Ø564Ø          JR      BIT1LOW+2          ;Add interrupt offset
2AC5 1EØØ       Ø565Ø BIT1LOW  LD      E,Ø                ;Low
2AC7 3EØ6       Ø566Ø          LD      A,ROUTOFF          ;Add interrupt routine
2AC9 81         Ø567Ø          ADD     A,C                ;Offset to C
2ACA 4F         Ø568Ø          LD      C,A
                Ø569Ø ;
                Ø57ØØ ;        Is the Head on a valid pulse ?
                Ø571Ø ;
2ACB DBFF       Ø572Ø          IN      A,(PORTFF)         ;Read cassette level
2ACD E6Ø1       Ø573Ø          AND     1                  ;Mask off all but bit Ø
2ACF BB         Ø574Ø          CP      E                  ;Same as given level ?
2ADØ 2ØØ3       Ø575Ø          JR      NZ,WAITINT         ;No - wait for next inter
                Ø576Ø ;
                Ø577Ø ;        Valid pulse - Get out of interrupt routine
                Ø578Ø ;
2AD2 F1         Ø579Ø          POP     AF                 ;Remove RST 38 RET addr
2AD3 F1         Ø58ØØ          POP     AF
2AD4 C9         Ø581Ø          RET
                Ø582Ø ;
                Ø583Ø ;        Not the right interrupt - wait for next
                Ø584Ø ;
2AD5 F1         Ø585Ø WAITINT  POP     AF                 ;Recover status
2AD6 FB         Ø586Ø          EI                         ;  and wait for next
2AD7 C9         Ø587Ø          RET                        ;  interrupt
                Ø588Ø ;
                Ø589Ø ;        RDHEAD - Read a TAPE1ØØ header
                Ø59ØØ ;
2AD8 2A6627     Ø591Ø RDHEAD   LD      HL,(CURPOS)        ;P/u cursor position
2ADB 119727     Ø592Ø          LD      DE,BUFFER          ;Buffer
2ADE CD392B     Ø593Ø          CALL    RDSYNC             ;Read in SYNC
                Ø594Ø ;
                Ø595Ø ;        Read in Header Type byte
                Ø596Ø ;
2AE1 CDA72B     Ø597Ø          CALL    RDBYTE             ;Read type byte
2AE4 FE9C       Ø598Ø          CP      9CH                ;Text type ?
2AE6 2ØFØ       Ø599Ø          JR      NZ,RDHEAD          ;No - try again
                Ø6ØØØ ;
2AE8 Ø1ØØØ6     Ø6Ø1Ø          LD      BC,6ØØH            ;B=6 bytes, Checksum = Ø
                Ø6Ø2Ø ;
2AEB CDA22B     Ø6Ø3Ø RFNLP    CALL    RDBYTEC            ;Read byte
2AEE 77         Ø6Ø4Ø          LD      (HL),A             ;Save byte
2AEF 12         Ø6Ø5Ø          LD      (DE),A             ;Stuff in buffer
2AFØ 23         Ø6Ø6Ø          INC     HL                 ;Bump cursor pos
2AF1 13         Ø6Ø7Ø          INC     DE                 ;Bump buffer ptr
2AF2 1ØF7       Ø6Ø8Ø          DJNZ    RFNLP
                Ø6Ø9Ø ;
                Ø61ØØ ;        Next ten bytes are unused
                Ø611Ø ;
2AF4 Ø6ØA       Ø612Ø          LD      B,1Ø
2AF6 CDA22B     Ø613Ø BOGUSLP  CALL    RDBYTEC            ;Read byte & checksum
2AF9 1ØFB       Ø614Ø          DJNZ    BOGUSLP
```

```
               Ø615Ø ;
               Ø616Ø ;        Negate checksum
               Ø617Ø ;
2AFB 79        Ø618Ø          LD      A,C             ;P/u checksum
2AFC ED44      Ø619Ø          NEG                     ;Negate it
2AFE 4F        Ø62ØØ          LD      C,A
2AFF CDA72B    Ø621Ø          CALL    RDBYTE          ;Read in Checksum byte
2BØ2 B9        Ø622Ø          CP      C               ;Match ?
2BØ3 C4232B    Ø623Ø          CALL    NZ,CHKERR       ;No - checksum error
               Ø624Ø ;
               Ø625Ø ;        Read in twenty zeros
               Ø626Ø ;
2BØ6 Ø614      Ø627Ø          LD      B,2Ø
2BØ8 CDA72B    Ø628Ø DUMBYT   CALL    RDBYTE
2BØB 1ØFB      Ø629Ø          DJNZ    DUMBYT
               Ø63ØØ ;
               Ø631Ø ;        Check if this is the correct filename
               Ø632Ø ;
2BØD ØØ        Ø633Ø CORRECT  NOP                     ;X'C9' if first filename
2BØE 119727    Ø634Ø          LD      DE,BUFFER       ;Is this the one ?
2B11 219Ø27    Ø635Ø          LD      HL,FILENM
2B14 Ø6Ø6      Ø636Ø          LD      B,6             ;6 chars in filename
               Ø637Ø ;
               Ø638Ø ;        Loop to compare (HL) to (DE)
               Ø639Ø ;
2B16 1A        Ø64ØØ CKFILE   LD      A,(DE)          ;P/u header byte
2B17 CDB32C    Ø641Ø          CALL    CONV_UC         ;Convert to U/C
2B1A BE        Ø642Ø          CP      (HL)            ;Match ?
2B1B 23        Ø643Ø          INC     HL
2B1C 13        Ø644Ø          INC     DE
2B1D C2D82A    Ø645Ø          JP      NZ,RDHEAD       ;No - try again
2B2Ø 1ØF4      Ø646Ø          DJNZ    CKFILE
2B22 C9        Ø647Ø          RET                     ;Yes - RETurn
               Ø648Ø ;
               Ø649Ø ;        Checksum error - Either ignore it or "C"
               Ø65ØØ ;
2B23 ØØ        Ø651Ø CHKERR   NOP                     ;RETurn or NOP
2B24 F3        Ø652Ø          DI                      ;Disable interrupts
2B25 3E43      Ø653Ø          LD      A,'C'           ;<C>hecksum error
2B27 324FF8    Ø654Ø CHKERR2  LD      (VIDEO+79),A
2B2A CDA92D    Ø655Ø          CALL    DISDOKI         ;Bring back RAM
2B2D CD2B2A    Ø656Ø          CALL    CASSOFF         ;Turn off motor
2B3Ø 216827    Ø657Ø          LD      HL,READERR      ;"Tape Read Error!"
2B33 CD4928    Ø658Ø          CALL    DSPLY
2B36 C35427    Ø659Ø          JP      ABORT           ;Good bye
               Ø66ØØ ;
               Ø661Ø ;        RDSYNC - Read Cassette SYNC byte field
               Ø662Ø ;
               Ø663Ø ;        Save Registers
               Ø664Ø ;
2B39 E5        Ø665Ø RDSYNC   PUSH    HL              ;Save regs
2B3A D5        Ø666Ø          PUSH    DE
2B3B C5        Ø667Ø          PUSH    BC
2B3C 3EØ1      Ø668Ø          LD      A,1             ;Set interrupt vector
2B3E D3EØ      Ø669Ø          OUT     (PORTEØ),A
               Ø67ØØ ;
               Ø671Ø ;        Read in 128 bits (16 bytes) initially
               Ø672Ø ;
2B4Ø Ø68Ø      Ø673Ø RDSYNC2  LD      B,8ØH           ;Read 128 bits (16 bytes)
2B42 CD962A    Ø674Ø RBTLP    CALL    RDBIT           ;Read bit
2B45 79        Ø675Ø          LD      A,C             ;P/u count value
```

```
2B46 FEØF             CP      TOOSHRT          ;Is this a bit ?
2B48 38F6             JR      C,RDSYNC2        ;No - didn't find a bit
2B4A FE3E             CP      TOOLONG          ;Is this a bit ?
2B4C 3ØF2             JR      NC,RDSYNC2       ;No - wait for bit
2B4E 1ØF2             DJNZ    RBTLP            ;Legal bit - dec count
             ;
             ;        Now check parity of next 128 bits
             ;
2B5Ø 21ØØØØ  RESCNT   LD      HL,Ø             ;H = Ø's count, L = 1's
2B53 Ø64Ø             LD      B,4ØH
             ;
             ;        Read in 3 bits
             ;
2B55 CD962A  LOOP     CALL    RDBIT            ;Read bit
2B58 CD962A           CALL    RDBIT            ;Read bit
2B5B 51               LD      D,C              ;Save count
2B5C CD962A           CALL    RDBIT            ;Read bit
             ;
             ;        Calculate Difference between last 2 bits
             ;
2B5F 7A               LD      A,D              ;P/u last bit
2B6Ø 91               SUB     C                ;Subtract current bit
2B61 3ØØ2             JR      NC,ABSVAL
2B63 ED44             NEG                      ;Change to ABS value
             ;
             ;        If Value < DIFFER then Bit = 1, else Bit = Ø
             ;
2B65 FEØD    ABSVAL   CP      DIFFER           ;Bit = 1 ?
2B67 38Ø3             JR      C,BIT1           ;Yes - bump Bit 1 count
2B69 24               INC     H                ;No - bump Bit Ø count
2B6A 18Ø1             JR      DODJ             ;Back to loop
2B6C 2C      BIT1     INC     L                ;Bump Bit 1 count
2B6D 1ØE6    DODJ     DJNZ    LOOP             ;Dec count - go to loop
             ;
             ;        Check if H (Ø's count) & L (1's count) = 4Ø
             ;
2B6F 3E4Ø             LD      A,4ØH            ;Is H = 64 ?
2B71 BC               CP      H
2B72 28ØA             JR      Z,CHKMARK        ;Yes - check for marker
2B74 BD               CP      L                ;Is L = 64 ?
2B75 2ØD9             JR      NZ,RESCNT        ;No - Reset count
             ;
             ;        Set interrupt Vector & discard 1 bit
             ;
2B77 3EØ2             LD      A,2              ;Set interrupt vector
2B79 D3EØ             OUT     (PORTEØ),A
2B7B CD962A           CALL    RDBIT            ;Read bit
             ;
             ;        Rotate each bit read in D & check if = X'7F'
             ;
2B7E 16ØØ    CHKMARK  LD      D,Ø              ;Set byte = Ø
2B8Ø CD962A  GETBIT   CALL    RDBIT            ;Read next bit
2B83 CD8F2B           CALL    ROTBYTE          ;Rotate into Byte (D)
2B86 7A               LD      A,D              ;P/u byte
2B87 FE7F             CP      7FH              ;Marker byte ?
2B89 2ØF5             JR      NZ,GETBIT        ;No - get another bit
             ;
             ;        Found marker byte - Restore Regs & RETurn
             ;
2B8B C1               POP     BC               ;Restore Registers
2B8C D1               POP     DE
```

```
2B8D E1                        POP     HL
2B8E C9                        RET                             ;Done
                       ;
                       ;       ROTBYTE - Rotate bit through D & check if error
                       ;
2B8F 79                ROTBYTE LD      A,C                     ;P/u count
2B9Ø FE22                      CP      WHICH1                  ;Bit = Ø or 1 ?
2B92 CB12                      RL      D                       ;Set bit if Carry set
2B94 FEØF                      CP      TOOSHRT                 ;Too quick ?
2B96 DA9C2B                    JP      C,CIOERR                ;Yes - I/O Error
2B99 FE3E                      CP      TOOLONG                 ;Too long
2B9B D8                        RET     C                       ;No - RETurn
                       ;
                       ;       Cassette I/O Error - Display Error
                       ;
2B9C F3                CIOERR  DI                              ;Interrupts off
2B9D 3E44                      LD      A,'D'                   ;Data Error
2B9F C3272B                    JP      CHKERR2
                       ;
                       ;       RDBYTEC - Read byte & Add byte to Check Sum
                       ;
2BA2 CDA72B            RDBYTEC CALL    RDBYTE                  ;Read byte
2BA5 81                        ADD     A,C                     ;Add to checksum
2BA6 C9                        RET                             ;Done
                       ;
                       ;       RDBYTE - Read a byte
                       ;       A <= Byte
                       ;
2BA7 D5                RDBYTE: PUSH    DE                      ;Save regs
2BA8 C5                        PUSH    BC
2BA9 CD962A                    CALL    RDBIT                   ;Get bogus bit
2BAC 16ØØ                      LD      D,Ø                     ;Init byte = Ø
2BAE Ø6Ø8                      LD      B,8                     ;8 bits to read
                       ;
2BBØ CD962A            RDBLP   CALL    RDBIT                   ;Read a bit
2BB3 CD8F2B                    CALL    ROTBYTE                 ;Rotate into D
2BB6 1ØF8                      DJNZ    RDBLP
                       ;
                       ;       Add to Byte count
                       ;
2BB8 3A5228                    LD      A,(COUNT)               ;P/u count
2BBB 3C                        INC     A                       ;  & inc it
2BBC E63F                      AND     3FH                     ;Ck if the 64th
2BBE 325228                    LD      (COUNT),A               ;Save the count
2BC1 2ØØ8                      JR      NZ,NOTBLNK
                       ;
2BC3 3A4FF8                    LD      A,(VIDEO+79)            ;Blink every 64
2BC6 EEØA                      XOR     ØAH
2BC8 324FF8                    LD      (VIDEO+79),A
                       ;
2BCB 7A                NOTBLNK LD      A,D                     ;Xfer byte to A
2BCC 18ØØ                      JR      NEXTINS                 ;Timing
                       ;
2BCE C1                NEXTINS POP     BC                      ;Restore BC & DE
2BCF D1                        POP     DE
2BDØ C9                        RET                             ;Done
                       ;
                       ;       WRBIT - Write a bit to Cassette
                       ;
                       ;       Set DE = Delay Count for bit
                       ;
```

```
2BD1 CBØ1     WRBIT   RLC     C                ;Get bit
2BD3 3ØØ5             JR      NC,NOPULS        ;NC - bit Ø
2BD5 111712   BT1     LD      DE,DELAY1        ;Delay for bit 1
2BD8 18Ø3             JR      DEL_LP           ;Go to delay
2BDA 112F2B   NOPULS  LD      DE,DELAYØ        ;Delay for bit=Ø
              ;
              ;       Delay 18 counts for 1, 43 counts for Ø
              ;
2BDD 15       DEL_LP  DEC     D                ;Dec count
2BDE 2ØFD             JR      NZ,DEL_LP
2BEØ 3EØ2             LD      A,2              ;Ø Volts to tape
2BE2 D3FF             OUT     (PORTFF),A
2BE4 1D       DEL_LP2 DEC     E                ;Secondary delay
2BE5 2ØFD             JR      NZ,DEL_LP2
2BE7 3EØ1             LD      A,1              ;Ø.85 volts to tape
2BE9 D3FF             OUT     (PORTFF),A
2BEB C9               RET                      ;Done
              ;
              ;       WRHEAD - Write a cassette header
              ;
2BEC CD6Ø2C   WRHEAD  CALL    WRSYNC           ;Write SYNC pattern
              ;
              ;       Write Text header type byte X'9C'
              ;
2BEF 16ØØ             LD      D,Ø              ;Init checksum = Ø
2BF1 ØE9C             LD      C,9CH            ;Text header type byte
2BF3 CD512C           CALL    WRBYTE           ;Write type byte
              ;
              ;       Write Filename in header block
              ;
2BF6 Ø6Ø6             LD      B,6              ;B = 6 chars
2BF8 219Ø27           LD      HL,FILENM        ;HL => Filename
2BFB 4E       FILELP  LD      C,(HL)           ;P/u filename character
2BFC CD4A2C           CALL    WRBYTEC          ;  and write it
2BFF 23               INC     HL               ;Bump count
2CØØ 1ØF9             DJNZ    FILELP
              ;
              ;       Write 1Ø filler bytes
              ;
2CØ2 Ø6ØA             LD      B,1Ø
2CØ4 CD4A2C   BOGUS   CALL    WRBYTEC
2CØ7 1ØFB             DJNZ    BOGUS
              ;
              ;       Write checksum byte & 2Ø dummy X'ØØ' bytes
              ;
2CØ9 7A               LD      A,D              ;P/u checksum
2CØA ED44             NEG
2CØC 4F               LD      C,A              ;  & xfer to C
2CØD CD512C           CALL    WRBYTE           ;Write Checksum byte
2C1Ø Ø1ØØ14           LD      BC,14ØØH         ;B = 2Ø bytes, C = Ø
2C13 CD512C   DUMMY   CALL    WRBYTE           ;Write byte
2C16 1ØFB             DJNZ    DUMMY
2C18 C9               RET                      ;Get back quick
              ;
              ;       WRDAT - Write a chunk of data to cassette
              ;
2C19 21ØØ3Ø   WRDAT   LD      HL,MEM           ;HL => Mem start
2C1C CD272C   WRDAT2  CALL    WRDATA           ;Write Block
2C1F 24               INC     H
2C2Ø 3AF52D           LD      A,(FCB1+4)       ;Finished ?
2C23 BC               CP      H
```

```
2C24 20F6                JR      NZ,WRDAT2          ;No - write another
2C26 C9                  RET                        ;Yes - RETurn
                ;
                ;        WRDATA - Write a data Block
                ;        HL => 256 byte block of data (page boundary)
                ;
2C27 CD602C     WRDATA   CALL    WRSYNC             ;Write sync pattern
2C2A 0E8D                LD      C,8DH              ;Write X'8D' type byte
2C2C CD512C              CALL    WRBYTE
                ;
                ;        Write 256 byte block of data
                ;
2C2F AF                  XOR     A                  ;Set checksum = 0
2C30 4E         WBLP     LD      C,(HL)             ;P/u byte
2C31 81                  ADD     A,C                ;Add checksum
2C32 F5                  PUSH    AF                 ;Save A
2C33 CD512C              CALL    WRBYTE             ;Write byte
2C36 F1                  POP     AF                 ;Recover checksum
2C37 2C                  INC     L                  ;Bump count
2C38 20F6                JR      NZ,WBLP
                ;
                ;        Write checksum byte
                ;
2C3A ED44                NEG                        ;Negate checksum
2C3C 4F                  LD      C,A                ;Write checksum byte
2C3D CD512C              CALL    WRBYTE
                ;
                ;        Write 20 dummy bytes - X'00'
                ;
2C40 0614                LD      B,20               ;Write 20 dummy zeroes
2C42 0E00       WDLP     LD      C,0
2C44 CD512C              CALL    WRBYTE
2C47 10F9                DJNZ    WDLP
2C49 C9                  RET                        ;Done
                ;
                ;        WRBYTEC - Write a byte & add checksum
                ;
2C4A CD512C     WRBYTEC  CALL    WRBYTE             ;Write byte
2C4D 79                  LD      A,C                ;P/u byte
2C4E 82                  ADD     A,D                ;Add checksum
2C4F 57                  LD      D,A                ;New checksum
2C50 C9                  RET                        ;And RETurn
                ;
                ;        WRBYTE - Write a byte to Cassette
                ;        C => Byte to Output
                ;
2C51 C5         WRBYTE:  PUSH    BC                 ;Save regs
2C52 D5                  PUSH    DE
2C53 CDDA2B              CALL    NOPULS             ;Write dummy pulse
2C56 0608                LD      B,8                ;8 bits to write
2C58 CDD12B     WRBTLP   CALL    WRBIT              ;Write bit
2C5B 10FB                DJNZ    WRBTLP
2C5D D1                  POP     DE                 ;Restore regs
2C5E C1                  POP     BC
2C5F C9                  RET
                ;
                ;        WRSYNC - Write a SYNC pattern to Cassette
                ;
2C60 F3         WRSYNC   DI                         ;Disable interrupts
2C61 C5                  PUSH    BC                 ;Save BC
2C62 0680                LD      B,80H              ;Delay
```

```
2C64           Ø92ØØ          @@PAUSE
2C64 3E1Ø      ØØØ45          LD      A,16
2C66 EF        ØØØ46          RST     4Ø
2C67 Ø155ØØ    Ø921Ø          LD      BC,ØØ55H          ;B = 256, C = X'55'
               Ø922Ø ;
               Ø923Ø ;        Write SYNC bytes - X'55'
               Ø924Ø ;
2C6A CD762C    Ø925Ø WR55LP   CALL    WRBYTE8           ;Write 8 bit byte
2C6D 1ØFB      Ø926Ø          DJNZ    WR55LP
               Ø927Ø ;
               Ø928Ø ;        Write Marker byte - X'7F'
               Ø929Ø ;
2C6F ØE7F      Ø93ØØ          LD      C,7FH             ;Write marker byte X'7F'
2C71 CD762C    Ø931Ø          CALL    WRBYTE8
2C74 C1        Ø932Ø          POP     BC                ;Recover BC
2C75 C9        Ø933Ø          RET                       ;Done
               Ø934Ø ;
2C76 C5        Ø935Ø WRBYTE8  PUSH    BC                ;Save B
2C77 Ø6Ø8      Ø936Ø          LD      B,8               ;8 bits long
2C79 CDD12B    Ø937Ø WB8LP    CALL    WRBIT             ;Write bit
2C7C 1ØFB      Ø938Ø          DJNZ    WB8LP
2C7E C1        Ø939Ø          POP     BC
2C7F C9        Ø94ØØ          RET
2C8Ø           Ø429Ø *GET     TAPE1ØØB:3
               Ø941Ø ;TAPE1ØØB/ASM - Disk I/O & other routines
               Ø942Ø ;
               Ø943Ø ;        DISPSTR - Display String
               Ø944Ø ;
2C8Ø D5        Ø945Ø DISPSTR  PUSH    DE                ;Save DE
2C81 ED5B6627  Ø946Ø          LD      DE,(CURPOS)       ;P/u cursor position
2C85 7E        Ø947Ø DSLP     LD      A,(HL)            ;P/u source char
2C86 FEØ3      Ø948Ø          CP      ETX               ;Done ?
2C88 2815      Ø949Ø          JR      Z,EXIT1           ;Yes - exit
2C8A FEØD      Ø95ØØ          CP      CR                ;Done ?
2C8C 28ØE      Ø951Ø          JR      Z,EXIT2           ;Yes - exit
2C8E FEØA      Ø952Ø          CP      LF                ;Line feed ?
2C9Ø 2ØØ5      Ø953Ø          JR      NZ,STUFCHR        ;No - stuff character
2C92 CDA52C    Ø954Ø          CALL    NEXTLIN           ;Get next line
2C95 18Ø2      Ø955Ø          JR      BUMPIT
2C97 12        Ø956Ø STUFCHR  LD      (DE),A            ;Output to video
2C98 13        Ø957Ø          INC     DE
2C99 23        Ø958Ø BUMPIT   INC     HL                ;No - bump count
2C9A 18E9      Ø959Ø          JR      DSLP
2C9C CDA52C    Ø96ØØ EXIT2    CALL    NEXTLIN           ;Next one down
2C9F ED536627  Ø961Ø EXIT1    LD      (CURPOS),DE       ;Save cursor position
2CA3 D1        Ø962Ø          POP     DE                ;Restore DE
2CA4 C9        Ø963Ø          RET
               Ø964Ø ;
               Ø965Ø ;        NEXTLIN - Position to next line on video
               Ø966Ø ;        DE => RAM location
               Ø967Ø ;
2CA5 E5        Ø968Ø NEXTLIN  PUSH    HL                ;Save regs
2CA6 EB        Ø969Ø          EX      DE,HL             ;Xfer # to HL
2CA7 CDE32D    Ø97ØØ          CALL    GETCRS            ;Calculate X,Y
2CAA 24        Ø971Ø          INC     H                 ;Bump row #
2CAB 2EØØ      Ø972Ø          LD      L,Ø               ;  and start @ beginning
2CAD CDCF2D    Ø973Ø          CALL    GETPOS2           ;Convert to RAM location
2CBØ EB        Ø974Ø          EX      DE,HL             ;Stuff into DE
2CB1 E1        Ø975Ø          POP     HL
2CB2 C9        Ø976Ø          RET
               Ø977Ø ;
```

```
                 Ø978Ø ;        CONV_UC - Convert A to upper case
                 Ø979Ø ;
2CB3 FE61        Ø98ØØ CONV_UC CP       'a'               ;Lower case ?
2CB5 D8          Ø981Ø         RET      C                 ;No
2CB6 FE7B        Ø982Ø         CP       'z'+1             ;Lower case ?
2CB8 DØ          Ø983Ø         RET      NC                ;No
2CB9 CBAF        Ø984Ø         RES      5,A               ;Convert to Upper Case
2CBB C9          Ø985Ø         RET
                 Ø986Ø ;
                 Ø987Ø ;        CURSOFF - Turn off Cursor
                 Ø988Ø ;
2CBC F5          Ø989Ø CURSOFF PUSH     AF                ;Save regs
2CBD D5          Ø99ØØ         PUSH     DE
2CBE C5          Ø991Ø         PUSH     BC
2CBF ØEØF        Ø992Ø         LD       C,CUROFF          ;Cursor off Character
2CC1             Ø993Ø         @@DSP
2CC1 3EØ2        ØØØ47         LD       A,2
2CC3 EF          ØØØ48         RST      4Ø
2CC4 C24627      Ø994Ø         JP       NZ,IOERR
2CC7 C1          Ø995Ø         POP      BC                ;Restore regs
2CC8 D1          Ø996Ø         POP      DE
2CC9 F1          Ø997Ø         POP      AF
2CCA C9          Ø998Ø         RET
                 Ø999Ø ;
                 1ØØØØ ;        INIT - Init a file
                 1ØØ1Ø ;
2CCB 3E3A        1ØØ2Ø INIT    LD       A,@INIT           ;SVC #
2CCD 18Ø6        1ØØ3Ø         JR       DOSVC             ;INIT file
                 1ØØ4Ø ;
                 1ØØ5Ø ;        OPEN - Open Source File
                 1ØØ6Ø ;
2CCF FDCB12C6    1ØØ7Ø OPEN    SET      Ø,(IY+SFLAG$)     ;Inhibit file-open bit
2CD3 3E3B        1ØØ8Ø         LD       A,@OPEN           ;OPEN SVC #
                 1ØØ9Ø ;
2CD5 F5          1Ø1ØØ DOSVC   PUSH     AF
2CD6 D5          1Ø11Ø         PUSH     DE
2CD7 219D27      1Ø12Ø         LD       HL,DFBUF          ;HL => Disk filename buf
2CDA 1A          1Ø13Ø TLP     LD       A,(DE)            ;P/u byte from FCB
2CDB 77          1Ø14Ø         LD       (HL),A            ;Xfer to TEMBUF
2CDC 23          1Ø15Ø         INC      HL
2CDD 13          1Ø16Ø         INC      DE
2CDE FEØE        1Ø17Ø         CP       CR+1              ;Done ?
2CEØ 38Ø8        1Ø18Ø         JR       C,DUN
2CE2 FE3A        1Ø19Ø         CP       ':'
2CE4 28Ø4        1Ø2ØØ         JR       Z,DUN
2CE6 FE2E        1Ø21Ø         CP       '.'
2CE8 2ØFØ        1Ø22Ø         JR       NZ,TLP
                 1Ø23Ø ;
                 1Ø24Ø ;        Found valid terminator - Is this a device ?
                 1Ø25Ø ;
2CEA 2B          1Ø26Ø DUN     DEC      HL                ;Back up to term
2CEB D1          1Ø27Ø         POP      DE                ;DE => FCB+Ø
2CEC 1A          1Ø28Ø         LD       A,(DE)            ;Device ?
2CED FE2A        1Ø29Ø         CP       '*'
2CEF 28Ø7        1Ø3ØØ         JR       Z,DUN2            ;Yes - done
2CF1 363A        1Ø31Ø         LD       (HL),':'          ;No - overwrite with ":"
2CF3 23          1Ø32Ø         INC      HL                ;Bump
2CF4 22122D      1Ø33Ø         LD       (DSPEC+1),HL      ;Save drivespec location
2CF7 23          1Ø34Ø         INC      HL                ;Bump
2CF8 36Ø3        1Ø35Ø DUN2    LD       (HL),ETX          ;End with X'Ø3'
2CFA F1          1Ø36Ø         POP      AF                ;A = SVC #
```

```
2CFB 32212D    1Ø37Ø          LD      (SVCNUM+1),A    ;Save SVC #
2CFE 21ØØ2F    1Ø38Ø          LD      HL,IOBUFF       ;HL => I/O Buffer
2DØ1 Ø6ØØ      1Ø39Ø          LD      B,Ø             ;LRL = 256
2DØ3 EF        1Ø4ØØ          RST     28H             ;OPEN or INIT file
2DØ4 28Ø3      1Ø41Ø CHECK    JR      Z,CHKPROT       ;Check PROTection status
               1Ø42Ø ;
               1Ø43Ø ;        Ignore Error #42 - "LRL Open Fault"
               1Ø44Ø ;
2DØ6 FE2A      1Ø45Ø          CP      42              ;Ignore this error
2DØ8 CØ        1Ø46Ø          RET     NZ              ;NZ - Abort
               1Ø47Ø ;
               1Ø48Ø ;        Stuff Drive # into Buffer
               1Ø49Ø ;
2DØ9 D5        1Ø5ØØ CHKPROT  PUSH    DE              ;P/u drivespec
2DØA DDE1      1Ø51Ø          POP     IX              ;  from FCB+6
2DØC DD7EØ6    1Ø52Ø          LD      A,(IX+6)
2DØF C63Ø      1Ø53Ø          ADD     A,'Ø'           ;Convert to ASCII
2D11 32ØØØØ    1Ø54Ø DSPEC    LD      ($-$),A
               1Ø55Ø ;
               1Ø56Ø ;        Check if File has proper Access
               1Ø57Ø ;
2D14 DDCBØØ7E  1Ø58Ø          BIT     7,(IX)          ;Is FCB open?
2D18 281F      1Ø59Ø          JR      Z,ILLFILE       ;No - Illegal Filename
2D1A DD7EØ1    1Ø6ØØ          LD      A,(IX+1)        ;P/u protection byte
2D1D E6Ø7      1Ø61Ø          AND     7
2D1F 47        1Ø62Ø          LD      B,A             ;Xfer to B
               1Ø63Ø ;
2D2Ø 3EØØ      1Ø64Ø SVCNUM   LD      A,$-$           ;P/u SVC #
2D22 FE3A      1Ø65Ø          CP      @INIT           ;@INIT ?
2D24 78        1Ø66Ø          LD      A,B             ;P/u protection level
2D25 28ØC      1Ø67Ø          JR      Z,INIT1         ;Z - Must be < 5
2D27 FEØ6      1Ø68Ø          CP      6               ;Read Access ?
2D29 38ØC      1Ø69Ø          JR      C,OKYDOKY       ;Yes - set Z & RETurn
               1Ø7ØØ ;
               1Ø71Ø ;        Illegal Access to protected file
               1Ø72Ø ;
2D2B           1Ø73Ø ILLACC   @@CLOSE                 ;Close File
2D2B 3E3C      ØØØ49          LD      A,6Ø
2D2D EF        ØØØ5Ø          RST     4Ø
2D2E 3E19      1Ø74Ø          LD      A,25            ;File Access Denied
2D3Ø C34627    1Ø75Ø          JP      IOERR           ;Error - Regardless
               1Ø76Ø ;
2D33 FEØ5      1Ø77Ø INIT1    CP      5               ;Update Access ?
2D35 3ØF4      1Ø78Ø          JR      NC,ILLACC       ;No - Illegal Access
2D37 AF        1Ø79Ø OKYDOKY  XOR     A               ;RETurn Z
2D38 C9        1Ø8ØØ          RET
               1Ø81Ø ;
2D39 3E13      1Ø82Ø ILLFILE  LD      A,19            ;Illegal Filename
2D3B B7        1Ø83Ø          OR      A               ;Set NZ
2D3C C9        1Ø84Ø          RET                     ;
               1Ø85Ø ;
               1Ø86Ø ;        CLOSE - Close the Destination File
               1Ø87Ø ;
2D3D 11112E    1Ø88Ø CLOSE    LD      DE,FCB2         ;DE => FCB
2D4Ø           1Ø89Ø          @@CLOSE                 ;Close File
2D4Ø 3E3C      ØØØ51          LD      A,6Ø
2D42 EF        ØØØ52          RST     4Ø
2D43 C8        1Ø9ØØ          RET     Z               ;Good - RETurn
2D44 C34627    1Ø91Ø          JP      IOERR           ;Bad - Quit
               1Ø92Ø ;
               1Ø93Ø ;        WRITESC - Write a Sector to Destination file
```

```
                 ;
2D47 11112E      WRITESC LD      DE,FCB2         ;DE => FCB
2D4A                     @@WRITE                 ;Write Sector
2D4A 3E4B                LD      A,75
2D4C EF                  RST     4Ø
2D4D C24627              JP      NZ,IOERR        ;Bad - quit
2D5Ø C9                  RET                     ;Good - RETurn
                 ;
                 ;       WRTDEST - Write Destination File
                 ;
2D51 11112E      WRTDEST LD      DE,FCB2         ;DE => Destination FCB
2D54 21152E      WRTDES  LD      HL,FCB2+4       ;HL => msb of I/O buffer
2D57 34                  INC     (HL)            ;Bump
2D58 CD472D              CALL    WRITESC         ;Write Sector
2D5B 3EØØ        EOTF2   LD      A,$-$           ;P/u # of sectors
2D5D BE                  CP      (HL)            ;Finished ?
2D5E 2ØF4                JR      NZ,WRTDES       ;No - back to loop
                 ;
                 ;       Finished Writing - Set EOF offset byte
                 ;
2D6Ø 3EØØ        OFFSET  LD      A,$-$           ;P/u offset byte
2D62 32192E              LD      (FCB2+8),A      ;  & stuff into FCB
2D65 CD3D2D              CALL    CLOSE           ;Close the File
2D68 C9                  RET
                 ;
                 ;       READSRC - Read in chunk of Source Disk file
                 ;
2D69 21F52D      READSRC LD      HL,FCB1+4       ;HL => Hi byte of I/O buf
2D6C 362F                LD      (HL),MEM<-8-1   ;Init FCB I/O buffer
                 ;
                 ;       Read in Source file
                 ;
2D6E 11F12D      READSR2 LD      DE,FCB1         ;Pt DE to FCB
2D71 34                  INC     (HL)            ;Bump I/O buffer
2D72                     @@READ                  ;Read a sector
2D72 3E43                LD      A,67
2D74 EF                  RST     4Ø
2D75 28F7                JR      Z,READSR2
                 ;
                 ;       Fill remainder of sector w/ X'1A's
                 ;
2D77 F5                  PUSH    AF              ;Save Error code
2D78 3AF92D      NOMORE  LD      A,(FCB1+8)      ;P/u EOF offset byte
2D7B ED44                NEG
2D7D 47                  LD      B,A             ;Xfer to B for DJNZ
2D7E 66                  LD      H,(HL)          ;P/u I/O buffer msb
2D7F 2EFF                LD      L,ØFFH          ;End of sector
2D81 28Ø1                JR      Z,NULBUF        ;Z - keep HL here
2D83 25                  DEC     H               ;Sector boundary
2D84 361A        NULBUF  LD      (HL),1AH        ;Fill remainder of buffer
2D86 2B                  DEC     HL              ;  with zeroes
2D87 1ØFB                DJNZ    NULBUF
                 ;
                 ;       Add a sector of 1As
                 ;
2D89 24                  INC     H               ;Pt to next sector
2D8A 2EØØ                LD      L,Ø
2D8C 361A        XTR1AS  LD      (HL),Ø1AH       ;EOF indicator
2D8E 23                  INC     HL              ;Bump
2D8F 1ØFB                DJNZ    XTR1AS
2D91 F1          DONTFIL POP     AF              ;Recover error code
```

```
               ;
               ;       I/O Error - Better be EOF error
               ;
2D92 FE1C                CP      1CH               ;EOF ?
2D94 C8                  RET     Z                 ;Yes - RETurn
2D95 FE1D                CP      1DH               ;NRN > ERN
2D97 C8                  RET     Z                 ;Yes - RETurn
2D98 C34627              JP      IOERR             ;No - Disk Error
               ;
               ;       ENDOKI - Enable Video & Keyboard
               ;
2D9B F5        ENDOKI    PUSH    AF
2D9C E5                  PUSH    HL
2D9D 3A78ØØ              LD      A,(OPREG$)        ;P/u port mask
2DAØ 32AC2D              LD      (SVOPREG+1),A     ;  and save it for DISDOKI
2DA3 CB87                RES     Ø,A               ;Reset bit Ø
2DA5 CBCF                SET     1,A               ;Set bit 1
2DA7 18Ø4                JR      DOOPREG           ;Set new assignment
               ;
               ;       DISDOKI - Disable Video & Keyboard
               ;
2DA9 F5        DISDOKI   PUSH    AF
2DAA E5                  PUSH    HL
               ;
2DAB 3EØØ      SVOPREG   LD      A,$-$             ;Restore original mask
2DAD 3278ØØ    DOOPREG   LD      (OPREG$),A
2DBØ D384                OUT     (@OPREG),A        ;  and disable video
               ;
2DB2 E1                  POP     HL                ;Restore regs & RETurn
2DB3 F1                  POP     AF
2DB4 C9                  RET
               ;
               ;       SWAP38 - Swap 38H - 3AH with save area
               ;
2DB5 Ø6Ø3      SWAP38    LD      B,3               ;3 bytes to exchange
2DB7 21C72D              LD      HL,SWAREA         ;HL => Swap Area
2DBA 1138ØØ              LD      DE,38H            ;DE => Restart Xfer addr
2DBD 4E        SWAPLP    LD      C,(HL)            ;P/u source
2DBE 1A                  LD      A,(DE)
2DBF EB                  EX      DE,HL             ;Swap ptrs
2DCØ 71                  LD      (HL),C            ;Stuff in dest
2DC1 12                  LD      (DE),A
2DC2 23                  INC     HL                ;Bump ptrs
2DC3 13                  INC     DE
2DC4 1ØF7                DJNZ    SWAPLP            ;3 bytes to swap
2DC6 C9                  RET
               ;
2DC7 C3BØ2A    SWAREA    JP      RST38V            ;JP vector
               ;
               ;       GETPOS - Get current cursor position in video
               ;
2DCA Ø6Ø4      GETPOS    LD      B,4               ;P/u current cursor pos
2DCC                     @@VDCTL
2DCC 3EØF                LD      A,15
2DCE EF                  RST     4Ø
2DCF 4D        GETPOS2   LD      C,L               ;Save column #
2DDØ 6C                  LD      L,H
2DD1 26ØØ                LD      H,Ø               ;HL => Row #
2DD3 54                  LD      D,H               ;Set DE = HL
2DD4 5D                  LD      E,L
2DD5 29                  ADD     HL,HL             ;X 2
```

```
2DD6 29         121ØØ           ADD     HL,HL           ;X 4
2DD7 19         1211Ø           ADD     HL,DE           ;X 5
2DD8 29         1212Ø           ADD     HL,HL           ;X 1Ø
2DD9 29         1213Ø           ADD     HL,HL           ;X 2Ø
2DDA 29         1214Ø           ADD     HL,HL           ;X 4Ø
2DDB 29         1215Ø           ADD     HL,HL           ;X 8Ø
2DDC Ø6F8       1216Ø           LD      B,VIDEO<-8      ;D = high byte of video
2DDE Ø9         1217Ø           ADD     HL,BC           ;HL => Cursor location
2DDF 226627     1218Ø           LD      (CURPOS),HL     ;Save cursor position
2DE2 C9         1219Ø           RET
                122ØØ ;
                1221Ø ;         GETCRS - Calculate row x column cursor pos
                1222Ø ;         HL => Cursor position in RAM
                1223Ø ;         HL <= Cursor position in Row (H) Column (L)
                1224Ø ;
2DE3 11ØØF8     1225Ø GETCRS    LD      DE,VIDEO        ;Get offset
2DE6 B7         1226Ø           OR      A
2DE7 ED52       1227Ø           SBC     HL,DE
2DE9 ØE5Ø       1228Ø           LD      C,8Ø            ;Calculate row #
2DEB            1229Ø           @@DIV16
2DEB 3E5E       ØØØ59           LD      A,94
2DED EF         ØØØ6Ø           RST     4Ø
2DEE 65         123ØØ           LD      H,L             ;Set H = Row
2DEF 6F         1231Ø           LD      L,A             ;Set L = Column
2DFØ C9         1232Ø           RET
                Ø43ØØ ;
ØØ2Ø            Ø431Ø FCB1      DS      32
ØØ2Ø            Ø432Ø FCB2      DS      32
ØØ19            Ø433Ø INBUFF    DS      25
                Ø434Ø ;
2FØØ            Ø435Ø           ORG     $<-8+1<+8
                Ø436Ø ;
Ø1ØØ            Ø437Ø IOBUFF    DS      256
3ØØØ            Ø438Ø MEM       EQU     $
                Ø439Ø ;
26ØØ            Ø44ØØ           END     START
```

```
@@1            ØØØØ @@2            ØØØØ @@3            ØØØØ
@@4            ØØØØ @INIT          ØØ3A @MOD2          ØØØØ
@MOD4          FFFF @OPEN          ØØ3B @OPREG         ØØ84
ABB            ØØ1Ø ABORT          2754 ABSVAL         2B65
AFTER          2A73 AP             ØØ27 BITØLOW        2AC1
BIT1           2B6C BIT1LOW        2AC5 BOGUS          2CØ4
BOGUSLP        2AF6 BREAK          ØØ8Ø BREAKLC        F44Ø
BS             ØØØ8 BT1            2BD5 BUFFER         2797
BUMPIT         2C99 CASSOFF        2A2B CASSON         2A1A
CFLAG$         ØØØ2 CHECK          2DØ4 CHKERR         2B23
CHKERR2        2B27 CHKMARK        2B7E CHKPRM         261A
CHKPROT        2DØ9 CHKSEC         26C6 CIOERR         2B9C
CKFILE         2B16 CKPLP          27E9 CLEAN          27B2
CLOSE          2D3D CONV_UC        2CB3 CORRECT        2BØD
COUNT          2852 CPARM          27FD CR             ØØØD
CRESP          29EØ CUROFF         ØØØF CURON          ØØØE
CURPOS         2766 CURSOFF        2CBC DDF            2941
DELAYØ         2B2F DELAY1         1217 DEL_LP         2BDD
DEL_LP2        2BE4 DFBUF          279D DFLAG$         ØØØ3
DIFFER         ØØØD DISDOKI        2DA9 DISPSTR        2C8Ø
DLEN           2763 DODJ           2B6D DOINIT         27C7
DOINPUT        2816 DONTFIL        2D91 DOOPREG        2DAD
DOSVC          2CD5 DSF            29ØA DSLP           2C85
DSP            2843 DSPEC          2D11 DSPLY          2849
DUMBYT         2BØ8 DUMMY          2C13 DUN            2CEA
DUN2           2CF8 DUNLIN         27FC ENDOKI         2D9B
ENUF           266Ø EOTF           2A51 EOTF2          2D5B
ETX            ØØØ3 EXDSP          284D EXIT           2758
EXIT1          2C9F EXIT2          2C9C FCB1           2DF1
FCB2           2E11 FILELP         2BFB FILENM         279Ø
FLAG           ØØ4Ø FORNOW         273A GETBIT         2B8Ø
GETCRS         2DE3 GETFILN        27BA GETPOS         2DCA
GETPOS2        2DCF GTFILE         27AC GTFILE2        26E5
HELLO$         2853 ILLACC         2D2B ILLEGAL        2751
ILLFILE        2D39 INBUFF         2E31 INIT           2CCB
INIT1          2D33 INPUT          2835 INP_R_W        2621
IOBUFF         2FØØ IOERR          2746 KFLAG$         ØØØA
LF             ØØØA LOADA          ØØ3A LOOP           2B55
MEM            3ØØØ MODMASK        ØØØC MODOUT         ØØEC
NEXTINS        2BCE NEXTLIN        2CA5 NOMORE         2D78
NOPULS         2BDA NOTBLNK        2BCB NOTENT         2A41
NULBUF         2D84 NUM            ØØ8Ø OFFSET         2D6Ø
OKYDOKY        2D37 OLDSP          275B OPDSRC         264F
OPEN           2CCF OPREG$         ØØ78 PARMTBL        29C8
PAR_ERR        ØØ2C PORTEØ         ØØEØ PORTFF         ØØFF
PRDEST         281Ø PRDEST2        282D PRMERR         29BB
PRMERR$        297F PRSOUR         28Ø8 PRSOUR2        2825
PRTAPE         2A3B RBLP           2A99 RBTLP          2B42
RDBIT          2A96 RDBLP          2BBØ RDBYTE         2BA7
RDBYTEC        2BA2 RDDAT          2A49 RDDAT2         2A4C
RDDATA         2A58 RDHEAD         2AD8 RDLP1          2A66
RDLP2          2A8D RDORWR         28DB RDSYNC         2B39
RDSYNC2        2B4Ø RDTAPE         26B1 READERR        2768
READFIL        26EB READING        277B READSR2        2D6E
READSRC        2D69 RESCNT         2B5Ø RFNLP          2AEB
ROTBYTE        2B8F ROUTOFF        ØØØ6 RPARM          29E4
RRESP          29D7 RST38V         2ABØ SFLAG$         ØØ12
SKPSPC         26D4 START          26ØØ STARTA         26Ø9
STR            ØØ2Ø STUFCHR        2C97 SVCNUM         2D2Ø
SVOPREG        2DAB SWAP38         2DB5 SWAPLP         2DBD
```

```
SWAREA     2DC7 TAB       ØØØ9 TDF       2923
TLP        2CDA TOOBIG    29BF TOOBIG$   299Ø
TOOLONG    ØØ3E TOOSHRT   ØØØF TREADY    295F
TSF        28F1 USEHI     27D6 VFLAG$    ØØ15
VIDEO      F8ØØ WAITINT   2AD5 WB8LP     2C79
WBLP       2C3Ø WDLP      2C42 WHICH1    ØØ22
WPARM      29E6 WR55LP    2C6A WRBIT     2BD1
WRBTLP     2C58 WRBYTE    2C51 WRBYTE8   2C76
WRBYTEC    2C4A WRDAT     2C19 WRDAT2    2C1C
WRDATA     2C27 WRESP     29CF WRHEAD    2BEC
WRITESC    2D47 WRITING   2785 WRMASK    ØØ16
WRSYNC     2C6Ø WRTAPE    263A WRTAPE2   2643
WRTDES     2D54 WRTDES2   274Ø WRTDEST   2D51
XTR1AS     2D8C @@ABORT   926F @@ADTSK   93Ø2
@@BANK     981A @@BKSP    94FA @@BREAK   983Ø
@@CHNIO    925A @@CKBRKC  987E @@CKDRV   9356
@@CKEOF    95ØF @@CKTSK   92ED @@CLOSE   94E5
@@CLS      9868 @@CMNDI   9299 @@CMNDR   92AE
@@CTL      9ØBE @@DATE    923Ø @@DCSTAT  9395
@@DEBUG    92D8 @@DECHEX  979A @@DIRRD   97Ø7
@@DIRWR    971C @@DIV16   9785 @@DIV8    977Ø
@@DODIR    936B @@DSP     9Ø82 @@DSPLY   9122
@@ERROR    92C3 @@EXIT    9284 @@FEXT    9674
@@FLAGS    98Ø4 @@FNAME   9689 @@FSPEC   965F
@@GATRD    96F2 @@GATWR   9731 @@GET     9Ø96
@@GTDCB    96B3 @@GTDCT   969E @@GTMOD   96C8
@@HDFMT    943D @@HEX16   97D9 @@HEX8    97C4
@@HEXDEC   97AF @@HIGH$   97EE @@INIT    94BB
@@KBD      9ØFA @@KEY     9Ø6E @@KEYIN   91ØE
@@KLTSK    9341 @@LOAD    9635 @@LOC     9524
@@LOF      9539 @@LOGER   9159 @@LOGOT   916E
@@MSG      91A5 @@MUL16   975B @@MUL8    9746
@@OPEN     94DØ @@PARAM   921B @@PAUSE   92Ø6
@@PEOF     954E @@POSN    9563 @@PRINT   91BA
@@PRT      9ØD2 @@PUT     9ØAA @@RAMDIR  938Ø
@@RDSEC    9413 @@RDSSC   96DD @@READ    9578
@@REMOV    94A6 @@RENAM   9491 @@REW     958D
@@RMTSK    9317 @@RPTSK   932C @@RREAD   95A2
@@RSLCT    93FE @@RSTOR   93BF @@RUN     964A
@@RWRIT    95B7 @@SEEK    93E9 @@SEEKSC  95CC
@@SKIP     95E1 @@SLCT    93AA @@STEPI   93D4
@@TIME     9245 @@VDCTL   91F1 @@VER     95F6
@@VRSEC    9428 @@WEOF    96ØB @@WHERE   9ØE6
@@WRITE    962Ø @@WRSEC   9452 @@WRSSC   9467
@@WRTRK    947C
26ØØ is the transfer address
ØØØØØ Total errors
```

NOTES:

NOTES:

NOTES:

NOTES:

NOTES:

NOTES:

NOTES:

```
            ;LDOS6Ø/EQU - Equates from cross reference of Lowcore
ØØØØ                TITLE   <LDOS6Ø/EQU>
            ;
Ø8FØ        @$SYS   EQU     Ø8FØH
ØØØØ        @@1     DEFL    ØØØØH
ØØØØ        @@2     DEFL    ØØØØH
ØØØØ        @@3     DEFL    ØØØØH
ØØØØ        @@4     DEFL    ØØØØH
Ø877        @BANK   EQU     Ø877H
13ØØ        @BYTEIO EQU     13ØØH
Ø689        @CHNIO  EQU     Ø689H
Ø553        @CKBRKC EQU     Ø553H
Ø545        @CLS    EQU     Ø545H
Ø623        @CTL    EQU     Ø623H
Ø7A8        @DATE   EQU     Ø7A8H
Ø6E3        @DIV16  EQU     Ø6E3H
Ø642        @DSP    EQU     Ø642H
Ø52D        @DSPLY  EQU     Ø52DH
ØØØØ        @FRENCH EQU     ØØØØH
ØØØØ        @GERMAN EQU     ØØØØH
Ø638        @GET    EQU     Ø638H
Ø7BD        @HEX16  EQU     Ø7BDH
Ø7C2        @HEX8   EQU     Ø7C2H
Ø6F6        @HEXDEC EQU     Ø6F6H
ØØØØ        @HZ5Ø   EQU     ØØØØH
ØØØØ        @INTL   EQU     ØØØØH
Ø63Ø        @JCL    EQU     Ø63ØH
Ø635        @KBD    EQU     Ø635H
Ø628        @KEY    EQU     Ø628H
Ø585        @KEYIN  EQU     Ø585H
ØØ89        @KITSK  EQU     ØØ89H
Ø5Ø3        @LOGER  EQU     Ø5Ø3H
Ø5ØØ        @LOGOT  EQU     Ø5ØØH
ØØØØ        @MOD2   EQU     ØØØØH
FFFF        @MOD4   EQU     ØFFFFH
Ø53Ø        @MSG    EQU     Ø53ØH
Ø6C9        @MUL16  EQU     Ø6C9H
ØØ84        @OPREG  EQU     ØØ84H
Ø528        @PRINT  EQU     Ø528H
Ø63D        @PRT    EQU     Ø63DH
Ø645        @PUT    EQU     Ø645H
ØFE9        @RSTNMI EQU     ØFE9H
Ø68Ø        @RSTREG EQU     Ø68ØH
Ø78D        @TIME   EQU     Ø78DH
FFFF        @USA    EQU     ØFFFFH
ØB99        @VDCTL  EQU     ØB99H
ØD38        @VDCTL3 EQU     ØD38H
ØD42        @_VDCTL EQU     ØD42H
ØDF1        ADDR_2_ROWCOL   EQU     ØDF1H
Ø2Ø1        BAR$    EQU     Ø2Ø1H
439D        BOOTST$ EQU     439DH
Ø2ØØ        BUR$    EQU     Ø2ØØH
ØA7B        CASHK$  EQU     ØA7BH
ØØ6C        CFLAG$  EQU     ØØ6CH
Ø3ØØ        CORE$   DEFL    Ø3ØØH
F8ØØ        CRTBGN$ EQU     ØF8ØØH
ØØ33        DATE$   EQU     ØØ33H
Ø4C7        DAYTBL$ EQU     Ø4C7H
ØØ31        DCBKL$  EQU     ØØ31H
Ø47Ø        DCT$    EQU     Ø47ØH
ØØ6D        DFLAG$  EQU     ØØ6DH
```

```
Ø846       DIS_DO_RAM       EQU      Ø846H
ØB94       DODATA$ EQU      ØB94H
Ø21Ø       DODCB$  EQU      Ø21ØH
ØC44       DO_CONTROL       EQU      ØC44H
ØCB8       DO_DSPCHAR       EQU      ØCB8H
ØC8C       DO_INVERT_DIS    EQU      ØC8CH
ØC89       DO_INVERT_ENA    EQU      ØC89H
ØC9B       DO_INVERT_OFF    EQU      ØC9BH
ØØØØ       DO_MASK EQU      ØØØØH
ØBCB       DO_RET  EQU      ØBCBH
ØBCC       DO_RET1 EQU      ØBCCH
ØCCE       DO_SCROLL        EQU      ØCCEH
ØBEA       DO_TABS EQU      ØBEAH
Ø4CØ       DSKTYP$ EQU      Ø4CØH
Ø4C2       DTPMT$  EQU      Ø4C2H
ØFF4       DVREND$ EQU      ØFF4H
Ø2Ø6       DVRHI$  EQU      Ø2Ø6H
Ø817       ENADIS_DO_RAM    EQU      Ø817H
ØØØE       FDDINT$ EQU      ØØØEH
ØØ6A       FLGTAB$ EQU      ØØ6AH
ØDAE       GET_@_ROWCOL     EQU      ØDAEH
Ø75Ø       HERTZ$  EQU      Ø75ØH
Ø4ØE       HIGH$   EQU      Ø4ØEH
ØØ72       IFLAG$  EQU      ØØ72H
Ø42Ø       INBUF$  EQU      Ø42ØH
ØØ3E       INTVC$  EQU      ØØ3EH
Ø2Ø3       JCLCB$  EQU      Ø2Ø3H
Ø23Ø       JLDCB$  EQU      Ø23ØH
Ø7D6       KCK@    EQU      Ø7D6H
ØØ74       KFLAG$  EQU      ØØ74H
Ø8FC       KIDATA$ EQU      Ø8FCH
Ø2Ø8       KIDCB$  EQU      Ø2Ø8H
Ø2Ø2       LBANK$  EQU      Ø2Ø2H
Ø4Ø1       MAXDAY$ EQU      Ø4Ø1H
ØØ76       MODOUT$ EQU      ØØ76H
Ø4DC       MONTBL$ EQU      Ø4DCH
ØØ77       NFLAG$  EQU      ØØ77H
ØØ78       OPREG$  EQU      ØØ78H
Ø86E       OPREG_SV_AREA    EQU      Ø86EH
Ø835       OPREG_SV_PTR     EQU      Ø835H
Ø41Ø       PAKNAM$ EQU      Ø41ØH
Ø382       PAUSE@  EQU      Ø382H
Ø7AF       PCSAVE$ EQU      Ø7AFH
ØØ1B       PDRV$   EQU      ØØ1BH
Ø218       PRDCB$  EQU      Ø218H
ØDCD       PUTA@DE EQU      ØDCDH
ØDCA       PUT_@   EQU      ØDCAH
ØDC6       PUT_@_ROWCOL     EQU      ØDC6H
ØØ7B       RFLAG$  EQU      ØØ7BH
ØDDØ       ROWCOL_2_ADDR    EQU      ØDDØH
Ø4C4       RSTOR$  EQU      Ø4C4H
Ø238       S1DCB$  EQU      Ø238H
ØCF3       SET_SCROLL       EQU      ØCF3H
ØØ7C       SFLAG$  EQU      ØØ7CH
Ø22Ø       SIDCB$  EQU      Ø22ØH
Ø228       SODCB$  EQU      Ø228H
Ø38Ø       STACK$  EQU      Ø38ØH
ØØØØ       START$  EQU      ØØØØH
ØØ2D       TIME$   EQU      ØØ2DH
ØØ2C       TIMER$  EQU      ØØ2CH
ØØ2B       TIMSL$  EQU      ØØ2BH
```

```
Ø713          Ø132Ø TIMTSK$ EQU     Ø713H
Ø4C3          Ø133Ø TMPMT$  EQU     Ø4C3H
Ø7B1          Ø134Ø TRACE_INT       EQU     Ø7B1H
ØA8F          Ø135Ø TYPHK$  EQU     ØA8FH
ØB26          Ø136Ø TYPTSK$ EQU     ØB26H
ØØ7F          Ø137Ø VFLAG$  EQU     ØØ7FH
Ø4Ø1          Ø138Ø ZERO$   EQU     Ø4Ø1H
No end statement
ØØØØØ Total errors
```

```
                ØØ1ØØ ;SYSØ/EQU - Equates from cross reference of Sysres
ØØØØ            ØØ11Ø         TITLE   <SYSØ/EQU>
                ØØ12Ø ;
Ø3B7            ØØ13Ø $A1     EQU     Ø3B7H
Ø3B8            ØØ14Ø $A2     EQU     Ø3B8H
Ø3B9            ØØ15Ø $A3     EQU     Ø3B9H
147Ø            ØØ16Ø $CKEOF  EQU     147ØH
Ø8FØ            ØØ17Ø @$SYS   EQU     Ø8FØH
ØØØØ            ØØ18Ø @@1     DEFL    ØØØØH
ØØØØ            ØØ19Ø @@1     DEFL    ØØØØH
ØØØØ            ØØ2ØØ @@2     DEFL    ØØØØH
ØØØØ            ØØ21Ø @@2     DEFL    ØØØØH
ØØØØ            ØØ22Ø @@3     DEFL    ØØØØH
ØØØØ            ØØ23Ø @@3     DEFL    ØØØØH
ØØØØ            ØØ24Ø @@4     DEFL    ØØØØH
ØØØØ            ØØ25Ø @@4     DEFL    ØØØØH
1BØ8            ØØ26Ø @ABORT  EQU     1BØ8H
1CDA            ØØ27Ø @ADTSK  EQU     1CDAH
Ø877            ØØ28Ø @BANK   EQU     Ø877H
1486            ØØ29Ø @BKSP   EQU     1486H
196F            ØØ3ØØ @BREAK  EQU     196FH
13ØØ            ØØ31Ø @BYTEIO EQU     13ØØH
Ø689            ØØ32Ø @CHNIO  EQU     Ø689H
Ø553            ØØ33Ø @CKBRKC EQU     Ø553H
1993            ØØ34Ø @CKDRV  EQU     1993H
158F            ØØ35Ø @CKEOF  EQU     158FH
1CF5            ØØ36Ø @CKTSK  EQU     1CF5H
1999            ØØ37Ø @CLOSE  EQU     1999H
Ø545            ØØ38Ø @CLS    EQU     Ø545H
197E            ØØ39Ø @CMNDI  EQU     197EH
197B            ØØ4ØØ @CMNDR  EQU     197BH
Ø623            ØØ41Ø @CTL    EQU     Ø623H
Ø7A8            ØØ42Ø @DATE   EQU     Ø7A8H
199F            ØØ43Ø @DBGHK  EQU     199FH
19CØ            ØØ44Ø @DCINIT EQU     19CØH
19C4            ØØ45Ø @DCRES  EQU     19C4H
19B5            ØØ46Ø @DCSTAT EQU     19B5H
1A2B            ØØ47Ø @DCTBYT EQU     1A2BH
19AØ            ØØ48Ø @DEBUG  EQU     19AØH
Ø3E1            ØØ49Ø @DECHEX EQU     Ø3E1H
18F7            ØØ5ØØ @DIRCYL EQU     18F7H
18BB            ØØ51Ø @DIRRD  EQU     18BBH
18Ø3            ØØ52Ø @DIRWR  EQU     18Ø3H
Ø6E3            ØØ53Ø @DIV16  EQU     Ø6E3H
1927            ØØ54Ø @DIV8   EQU     1927H
19AF            ØØ55Ø @DODIR  EQU     19AFH
19A9            ØØ56Ø @DOKEY  EQU     19A9H
Ø642            ØØ57Ø @DSP    EQU     Ø642H
Ø52D            ØØ58Ø @DSPLY  EQU     Ø52DH
1BØF            ØØ59Ø @ERROR  EQU     1BØFH
1BØB            ØØ6ØØ @EXIT   EQU     1BØBH
1984            ØØ61Ø @FEXT   EQU     1984H
196A            ØØ62Ø @FLAGS  EQU     196AH
199C            ØØ63Ø @FNAME  EQU     199CH
ØØØØ            ØØ64Ø @FRENCH EQU     ØØØØH
1981            ØØ65Ø @FSPEC  EQU     1981H
1874            ØØ66Ø @GATRD  EQU     1874H
1875            ØØ67Ø @GATWR  EQU     1875H
ØØØØ            ØØ68Ø @GERMAN EQU     ØØØØH
Ø638            ØØ69Ø @GET    EQU     Ø638H
199Ø            ØØ7ØØ @GTDCB  EQU     199ØH
```

```
1A1E          ØØ71Ø @GTDCT  EQU     1A1EH
19B2          ØØ72Ø @GTMOD  EQU     19B2H
19E4          ØØ73Ø @HDFMT  EQU     19E4H
Ø7BD          ØØ74Ø @HEX16  EQU     Ø7BDH
Ø7C2          ØØ75Ø @HEX8   EQU     Ø7C2H
Ø6F6          ØØ76Ø @HEXDEC EQU     Ø6F6H
1948          ØØ77Ø @HIGH$  EQU     1948H
1897          ØØ78Ø @HITRD  EQU     1897H
1898          ØØ79Ø @HITWR  EQU     1898H
ØØØØ          ØØ8ØØ @HZ5Ø   EQU     ØØØØH
ØØ86          ØØ81Ø @ICNFG  EQU     ØØ86H
198D          ØØ82Ø @INIT   EQU     198DH
ØØØØ          ØØ83Ø @INTL   EQU     ØØØØH
1BF2          ØØ84Ø @IPL    EQU     1BF2H
Ø63Ø          ØØ85Ø @JCL    EQU     Ø63ØH
Ø635          ØØ86Ø @KBD    EQU     Ø635H
Ø628          ØØ87Ø @KEY    EQU     Ø628H
Ø585          ØØ88Ø @KEYIN  EQU     Ø585H
ØØ89          ØØ89Ø @KITSK  EQU     ØØ89H
ØØ89          ØØ9ØØ @KITSK  EQU     ØØ89H
1CDØ          ØØ91Ø @KLTSK  EQU     1CDØH
1B38          ØØ92Ø @LOAD   EQU     1B38H
14B3          ØØ93Ø @LOC    EQU     14B3H
14DE          ØØ94Ø @LOF    EQU     14DEH
Ø5Ø3          ØØ95Ø @LOGER  EQU     Ø5Ø3H
Ø5ØØ          ØØ96Ø @LOGOT  EQU     Ø5ØØH
ØØØØ          ØØ97Ø @MOD2   EQU     ØØØØH
FFFF          ØØ98Ø @MOD4   EQU     ØFFFFH
Ø53Ø          ØØ99Ø @MSG    EQU     Ø53ØH
Ø6C9          Ø1ØØØ @MUL16  EQU     Ø6C9H
19ØA          Ø1Ø1Ø @MUL8   EQU     19ØAH
ØØ66          Ø1Ø2Ø @NMI    EQU     ØØ66H
198A          Ø1Ø3Ø @OPEN   EQU     198AH
ØØ84          Ø1Ø4Ø @OPREG  EQU     ØØ84H
1987          Ø1Ø5Ø @PARAM  EQU     1987H
Ø382          Ø1Ø6Ø @PAUSE  EQU     Ø382H
14A2          Ø1Ø7Ø @PEOF   EQU     14A2H
1434          Ø1Ø8Ø @POSN   EQU     1434H
Ø528          Ø1Ø9Ø @PRINT  EQU     Ø528H
Ø63D          Ø11ØØ @PRT    EQU     Ø63DH
Ø645          Ø111Ø @PUT    EQU     Ø645H
19AC          Ø112Ø @RAMDIR EQU     19ACH
19D8          Ø113Ø @RDHDR  EQU     19D8H
19F4          Ø114Ø @RDSEC  EQU     19F4H
18D8          Ø115Ø @RDSSC  EQU     18D8H
19EØ          Ø116Ø @RDTRK  EQU     19EØH
1513          Ø117Ø @READ   EQU     1513H
19A6          Ø118Ø @REMOVE EQU     19A6H
1996          Ø119Ø @RENAME EQU     1996H
149B          Ø12ØØ @REW    EQU     149BH
1CD7          Ø121Ø @RMTSK  EQU     1CD7H
1CEB          Ø122Ø @RPTSK  EQU     1CEBH
1473          Ø123Ø @RREAD  EQU     1473H
19D4          Ø124Ø @RSLCT  EQU     19D4H
ØØØØ          Ø125Ø @RSTØØ  EQU     ØØØØH
ØØØ8          Ø126Ø @RSTØ8  EQU     ØØØ8H
ØØ1Ø          Ø127Ø @RST1Ø  EQU     ØØ1ØH
ØØ18          Ø128Ø @RST18  EQU     ØØ18H
ØØ2Ø          Ø129Ø @RST2Ø  EQU     ØØ2ØH
ØØ28          Ø13ØØ @RST28  EQU     ØØ28H
ØØ3Ø          Ø131Ø @RST3Ø  EQU     ØØ3ØH
```

```
ØØ38        Ø132Ø @RST38  EQU     ØØ38H
ØFE9        Ø133Ø @RSTNMI EQU     ØFE9H
19C8        Ø134Ø @RSTOR  EQU     19C8H
Ø68Ø        Ø135Ø @RSTREG EQU     Ø68ØH
1B1D        Ø136Ø @RUN    EQU     1B1DH
13AD        Ø137Ø @RWRIT  EQU     13ADH
19DØ        Ø138Ø @SEEK   EQU     19DØH
1421        Ø139Ø @SEEKSC EQU     1421H
143Ø        Ø14ØØ @SKIP   EQU     143ØH
19BC        Ø141Ø @SLCT   EQU     19BCH
Ø392        Ø142Ø @SOUND  EQU     Ø392H
19CC        Ø143Ø @STEPI  EQU     19CCH
Ø78D        Ø144Ø @TIME   EQU     Ø78DH
FFFF        Ø145Ø @USA    EQU     ØFFFFH
ØB99        Ø146Ø @VDCTL  EQU     ØB99H
ØD38        Ø147Ø @VDCTL3 EQU     ØD38H
156Ø        Ø148Ø @VER    EQU     156ØH
19DC        Ø149Ø @VRSEC  EQU     19DCH
14EC        Ø15ØØ @WEOF   EQU     14ECH
1979        Ø151Ø @WHERE  EQU     1979H
1531        Ø152Ø @WRITE  EQU     1531H
19E8        Ø153Ø @WRSEC  EQU     19E8H
19EC        Ø154Ø @WRSSC  EQU     19ECH
19FØ        Ø155Ø @WRTRK  EQU     19FØH
ØD42        Ø156Ø @_VDCTL EQU     ØD42H
ØDF1        Ø157Ø ADDR_2_ROWCOL   EQU     ØDF1H
ØØ6A        Ø158Ø AFLAG$  EQU     ØØ6AH
1FF1        Ø159Ø AUTO?   EQU     1FF1H
Ø2Ø1        Ø16ØØ BAR$    EQU     Ø2Ø1H
439D        Ø161Ø BOOTST$ EQU     439DH
1C6Ø        Ø162Ø BREAK?  EQU     1C6ØH
1C88        Ø163Ø BRKVEC$ EQU     1C88H
Ø2ØØ        Ø164Ø BUR$    EQU     Ø2ØØH
ØA7B        Ø165Ø CASHK$  EQU     ØA7BH
ØØEØ        Ø166Ø CFCB$   EQU     ØØEØH
ØØEØ        Ø167Ø CFGFCB$ EQU     ØØEØH
ØØ6C        Ø168Ø CFLAG$  EQU     ØØ6CH
ØØ6C        Ø169Ø CFLAG$  EQU     ØØ6CH
1A7F        Ø17ØØ CKMOD@  EQU     1A7FH
1568        Ø171Ø CKOPEN@ EQU     1568H
2Ø3F        Ø172Ø CONFIG$ EQU     2Ø3FH
1CFF        Ø173Ø CORE$   DEFL    1CFFH
1BFF        Ø174Ø CORE$   DEFL    1BFFH
1948        Ø175Ø CORE$   DEFL    1948H
1948        Ø176Ø CORE$   DEFL    1948H
Ø3ØØ        Ø177Ø CORE$   DEFL    Ø3ØØH
F8ØØ        Ø178Ø CRTBGN$ EQU     ØF8ØØH
16AE        Ø179Ø CYL_GRN EQU     16AEH
1A26        Ø18ØØ D@FBYT8 EQU     1A26H
ØØ33        Ø181Ø DATE$   EQU     ØØ33H
ØØ33        Ø182Ø DATE$   EQU     ØØ33H
Ø4C7        Ø183Ø DAYTBL$ EQU     Ø4C7H
ØØAØ        Ø184Ø DBGSV$  EQU     ØØAØH
ØØ31        Ø185Ø DCBKL$  EQU     ØØ31H
Ø47Ø        Ø186Ø DCT$    EQU     Ø47ØH
1A29        Ø187Ø DCTBYT8@        EQU     1A29H
1A34        Ø188Ø DCTFLD@ EQU     1A34H
ØØ6D        Ø189Ø DFLAG$  EQU     ØØ6DH
ØØ6D        Ø19ØØ DFLAG$  EQU     ØØ6DH
23ØØ        Ø191Ø DIRBUF$ EQU     23ØØH
Ø846        Ø192Ø DIS_DO_RAM      EQU     Ø846H
```

```
ØB94          Ø193Ø DODATA$ EQU     ØB94H
Ø21Ø          Ø194Ø DODCB$  EQU     Ø21ØH
ØC44          Ø195Ø DO_CONTROL      EQU     ØC44H
ØCB8          Ø196Ø DO_DSPCHAR      EQU     ØCB8H
ØC8C          Ø197Ø DO_INVERT_DIS   EQU     ØC8CH
ØC89          Ø198Ø DO_INVERT_ENA   EQU     ØC89H
ØC9B          Ø199Ø DO_INVERT_OFF   EQU     ØC9BH
ØØØØ          Ø2ØØØ DO_MASK EQU     ØØØØH
ØBCB          Ø2Ø1Ø DO_RET  EQU     ØBCBH
ØBCC          Ø2Ø2Ø DO_RET1 EQU     ØBCCH
ØCCE          Ø2Ø3Ø DO_SCROLL       EQU     ØCCEH
ØBEA          Ø2Ø4Ø DO_TABS EQU     ØBEAH
Ø4CØ          Ø2Ø5Ø DSKTYP$ EQU     Ø4CØH
Ø4C2          Ø2Ø6Ø DTPMT$  EQU     Ø4C2H
ØFF4          Ø2Ø7Ø DVREND$ EQU     ØFF4H
Ø2Ø6          Ø2Ø8Ø DVRHI$  EQU     Ø2Ø6H
ØØ6E          Ø2Ø9Ø EFLAG$  EQU     ØØ6EH
Ø817          Ø21ØØ ENADIS_DO_RAM   EQU     Ø817H
19A4          Ø211Ø EXTDBG$ EQU     19A4H
ØØØE          Ø212Ø FDDINT$ EQU     ØØØEH
ØØØE          Ø213Ø FDDINT$ EQU     ØØØEH
ØØ6F          Ø214Ø FEMSK$  EQU     ØØ6FH
ØØ6A          Ø215Ø FLGTAB$ EQU     ØØ6AH
ØØ6A          Ø216Ø FLGTAB$ EQU     ØØ6AH
ØDAE          Ø217Ø GET_@_ROWCOL    EQU     ØDAEH
Ø75Ø          Ø218Ø HERTZ$  EQU     Ø75ØH
Ø4ØE          Ø219Ø HIGH$   EQU     Ø4ØEH
1A6C          Ø22ØØ HKRES$  EQU     1A6CH
ØØ72          Ø221Ø IFLAG$  EQU     ØØ72H
ØØ72          Ø222Ø IFLAG$  EQU     ØØ72H
Ø42Ø          Ø223Ø INBUF$  EQU     Ø42ØH
ØØ3C          Ø224Ø INTIM$  EQU     ØØ3CH
ØØ3D          Ø225Ø INTMSK$ EQU     ØØ3DH
ØØ3E          Ø226Ø INTVC$  EQU     ØØ3EH
ØØ3E          Ø227Ø INTVC$  EQU     ØØ3EH
Ø2Ø3          Ø228Ø JCLCB$  EQU     Ø2Ø3H
ØØ24          Ø229Ø JDCB$   EQU     ØØ24H
ØØCØ          Ø23ØØ JFCB$   EQU     ØØCØH
Ø23Ø          Ø231Ø JLDCB$  EQU     Ø23ØH
ØØ26          Ø232Ø JRET$   EQU     ØØ26H
Ø7D6          Ø233Ø KCK@    EQU     Ø7D6H
ØØ74          Ø234Ø KFLAG$  EQU     ØØ74H
ØØ74          Ø235Ø KFLAG$  EQU     ØØ74H
Ø8FC          Ø236Ø KIDATA$ EQU     Ø8FCH
Ø2Ø8          Ø237Ø KIDCB$  EQU     Ø2Ø8H
Ø2Ø2          Ø238Ø LBANK$  EQU     Ø2Ø2H
ØØ23          Ø239Ø LDRV$   EQU     ØØ23H
ØØ75          Ø24ØØ LFLAG$  EQU     ØØ75H
1566          Ø241Ø LNKFCB@ EQU     1566H
ØØ1E          Ø242Ø LOW$    EQU     ØØ1EH
ØØØD          Ø243Ø LSVC$   EQU     ØØØDH
24ØØ          Ø244Ø MAXCOR$ EQU     24ØØH
Ø4Ø1          Ø245Ø MAXDAY$ EQU     Ø4Ø1H
3ØØØ          Ø246Ø MINCOR$ EQU     3ØØØH
ØØ76          Ø247Ø MODOUT$ EQU     ØØ76H
ØØ76          Ø248Ø MODOUT$ EQU     ØØ76H
Ø4DC          Ø249Ø MONTBL$ EQU     Ø4DCH
ØØ77          Ø25ØØ NFLAG$  EQU     ØØ77H
ØØ78          Ø251Ø OPREG$  EQU     ØØ78H
ØØ78          Ø252Ø OPREG$  EQU     ØØ78H
Ø86E          Ø253Ø OPREG_SV_AREA   EQU     Ø86EH
```

```
Ø835        Ø254Ø OPREG_SV_PTR    EQU     Ø835H
14DC        Ø255Ø ORARET@ EQU     14DCH
ØØ3B        Ø256Ø OSRLS$  EQU     ØØ3BH
ØØ85        Ø257Ø OSVER$  EQU     ØØ85H
ØØ69        Ø258Ø OVRLY$  EQU     ØØ69H
Ø41Ø        Ø259Ø PAKNAM$ EQU     Ø41ØH
Ø382        Ø26ØØ PAUSE@  EQU     Ø382H
Ø7AF        Ø261Ø PCSAVE$ EQU     Ø7AFH
ØØ1B        Ø262Ø PDRV$   EQU     ØØ1BH
ØØ1B        Ø263Ø PDRV$   EQU     ØØ1BH
ØØ1C        Ø264Ø PHIGH$  EQU     ØØ1CH
Ø218        Ø265Ø PRDCB$  EQU     Ø218H
ØDCD        Ø266Ø PUTA@DE EQU     ØDCDH
ØDCA        Ø267Ø PUT_@   EQU     ØDCAH
ØDC6        Ø268Ø PUT_@_ROWCOL    EQU     ØDC6H
ØØ7B        Ø269Ø RFLAG$  EQU     ØØ7BH
ØØ7B        Ø27ØØ RFLAG$  EQU     ØØ7BH
ØDDØ        Ø271Ø ROWCOL_2_ADDR   EQU     ØDDØH
1BFF        Ø272Ø RST38@  EQU     1BFFH
Ø4C4        Ø273Ø RSTOR$  EQU     Ø4C4H
13A2        Ø274Ø RWRIT@  EQU     13A2H
Ø238        Ø275Ø S1DCB$  EQU     Ø238H
1DØØ        Ø276Ø SBUFF$  EQU     1DØØH
1A79        Ø277Ø SET@EXEC        EQU     1A79H
ØCF3        Ø278Ø SET_SCROLL      EQU     ØCF3H
ØØ8C        Ø279Ø SFCB$   EQU     ØØ8CH
ØØ7C        Ø28ØØ SFLAG$  EQU     ØØ7CH
ØØ7C        Ø281Ø SFLAG$  EQU     ØØ7CH
Ø22Ø        Ø282Ø SIDCB$  EQU     Ø22ØH
Ø228        Ø283Ø SODCB$  EQU     Ø228H
2142        Ø284Ø SPACE4$ EQU     2142H
Ø38Ø        Ø285Ø STACK$  EQU     Ø38ØH
ØØØØ        Ø286Ø START$  EQU     ØØØØH
ØØØØ        Ø287Ø START$  EQU     ØØØØH
ØØØB        Ø288Ø SVCRET$ EQU     ØØØBH
Ø1ØØ        Ø289Ø SVCTAB$ EQU     Ø1ØØH
1B13        Ø29ØØ SYSERR$ EQU     1B13H
ØØ4E        Ø291Ø TCB$    EQU     ØØ4EH
ØØ7D        Ø292Ø TFLAG$  EQU     ØØ7DH
ØØ2D        Ø293Ø TIME$   EQU     ØØ2DH
ØØ2D        Ø294Ø TIME$   EQU     ØØ2DH
ØØ2C        Ø295Ø TIMER$  EQU     ØØ2CH
ØØ2C        Ø296Ø TIMER$  EQU     ØØ2CH
ØØ2B        Ø297Ø TIMSL$  EQU     ØØ2BH
ØØ2B        Ø298Ø TIMSL$  EQU     ØØ2BH
Ø713        Ø299Ø TIMTSK$ EQU     Ø713H
Ø4C3        Ø3ØØØ TMPMT$  EQU     Ø4C3H
Ø7B1        Ø3Ø1Ø TRACE_INT       EQU     Ø7B1H
ØA8F        Ø3Ø2Ø TYPHK$  EQU     ØA8FH
ØB26        Ø3Ø3Ø TYPTSK$ EQU     ØB26H
ØØ13        Ø3Ø4Ø USTOR$  EQU     ØØ13H
ØØ7F        Ø3Ø5Ø VFLAG$  EQU     ØØ7FH
ØØ7F        Ø3Ø6Ø VFLAG$  EQU     ØØ7FH
ØØ8Ø        Ø3Ø7Ø WRINT$  EQU     ØØ8ØH
Ø4Ø1        Ø3Ø8Ø ZERO$   EQU     Ø4Ø1H
13AØ        Ø3Ø9Ø ZEROA@  EQU     13AØH
No end statement
ØØØØØ Total errors
```

```
                ;SVCMAC/ASM - LS-DOS Version VI
0000                    TITLE   <SVCMAC - MACRO EQUIVALENTS>
                ;*LIST  OFF
                ;
0000            @MOD2   EQU     0
FFFF            @MOD4   EQU     -1
0000            @@KEY   MACRO
0000                    LD      A,1
0000                    RST     40
0000                    ENDM
0000            @@DSP   MACRO
0000                    LD      A,2
0000                    RST     40
0000                    ENDM
0000            @@GET   MACRO
0000                    LD      A,3
0000                    RST     40
0000                    ENDM
0000            @@PUT   MACRO
0000                    LD      A,4
0000                    RST     40
0000                    ENDM
0000            @@CTL   MACRO
0000                    LD      A,5
0000                    RST     40
0000                    ENDM
0000            @@PRT   MACRO
0000                    LD      A,6
0000                    RST     40
0000                    ENDM
0000            @@WHERE MACRO
0000                    LD      A,7
0000                    RST     40
0000                    ENDM
0000            @@KBD   MACRO
0000                    LD      A,8
0000                    RST     40
0000                    ENDM
0000            @@KEYIN MACRO
0000                    LD      A,9
0000                    RST     40
0000                    ENDM
0000            @@DSPLY MACRO   #MSG
0000                    IFEQ    %%,1
0000                    LD      HL,#MSG
0000                    ENDIF
0000                    LD      A,10
0000                    RST     40
0000                    ENDM
0000            @@LOGER MACRO
0000                    LD      A,11
0000                    RST     40
0000                    ENDM
0000            @@LOGOT MACRO   #MSG
0000                    IFEQ    %%,1
0000                    LD      HL,#MSG
0000                    ENDIF
0000                    LD      A,12
0000                    RST     40
0000                    ENDM
0000            @@MSG   MACRO
```

```
ØØØØ           ØØ71Ø         LD     A,13
ØØØØ           ØØ72Ø         RST    4Ø
ØØØØ           ØØ73Ø         ENDM
ØØØØ           ØØ74Ø @@PRINT MACRO  #MSG
ØØØØ           ØØ75Ø         IFEQ   %%,1
ØØØØ           ØØ76Ø         LD     HL,#MSG
ØØØØ           ØØ77Ø         ENDIF
ØØØØ           ØØ78Ø         LD     A,14
ØØØØ           ØØ79Ø         RST    4Ø
ØØØØ           ØØ8ØØ         ENDM
ØØØØ           ØØ81Ø @@VDCTL MACRO
ØØØØ           ØØ82Ø         LD     A,15
ØØØØ           ØØ83Ø         RST    4Ø
ØØØØ           ØØ84Ø         ENDM
ØØØØ           ØØ85Ø @@PAUSE MACRO
ØØØØ           ØØ86Ø         LD     A,16
ØØØØ           ØØ87Ø         RST    4Ø
ØØØØ           ØØ88Ø         ENDM
ØØØØ           ØØ89Ø @@PARAM MACRO
ØØØØ           ØØ9ØØ         LD     A,17
ØØØØ           ØØ91Ø         RST    4Ø
ØØØØ           ØØ92Ø         ENDM
ØØØØ           ØØ93Ø @@DATE  MACRO
ØØØØ           ØØ94Ø         LD     A,18
ØØØØ           ØØ95Ø         RST    4Ø
ØØØØ           ØØ96Ø         ENDM
ØØØØ           ØØ97Ø @@TIME  MACRO
ØØØØ           ØØ98Ø         LD     A,19
ØØØØ           ØØ99Ø         RST    4Ø
ØØØØ           Ø1ØØØ         ENDM
ØØØØ           Ø1Ø1Ø @@CHNIO MACRO
ØØØØ           Ø1Ø2Ø         LD     A,2Ø
ØØØØ           Ø1Ø3Ø         RST    4Ø
ØØØØ           Ø1Ø4Ø         ENDM
ØØØØ           Ø1Ø5Ø @@ABORT MACRO
ØØØØ           Ø1Ø6Ø         LD     A,21
ØØØØ           Ø1Ø7Ø         RST    4Ø
ØØØØ           Ø1Ø8Ø         ENDM
ØØØØ           Ø1Ø9Ø @@EXIT  MACRO
ØØØØ           Ø11ØØ         LD     A,22
ØØØØ           Ø111Ø         RST    4Ø
ØØØØ           Ø112Ø         ENDM
ØØØØ           Ø113Ø @@CMNDI MACRO
ØØØØ           Ø114Ø         LD     A,24
ØØØØ           Ø115Ø         RST    4Ø
ØØØØ           Ø116Ø         ENDM
ØØØØ           Ø117Ø @@CMNDR MACRO
ØØØØ           Ø118Ø         LD     A,25
ØØØØ           Ø119Ø         RST    4Ø
ØØØØ           Ø12ØØ         ENDM
ØØØØ           Ø121Ø @@ERROR MACRO
ØØØØ           Ø122Ø         LD     A,26
ØØØØ           Ø123Ø         RST    4Ø
ØØØØ           Ø124Ø         ENDM
ØØØØ           Ø125Ø @@DEBUG MACRO
ØØØØ           Ø126Ø         LD     A,27
ØØØØ           Ø127Ø         RST    4Ø
ØØØØ           Ø128Ø         ENDM
ØØØØ           Ø129Ø @@CKTSK MACRO
ØØØØ           Ø13ØØ         LD     A,28
ØØØØ           Ø131Ø         RST    4Ø
```

```
ØØØØ          Ø132Ø         ENDM
ØØØØ          Ø133Ø @@ADTSK MACRO
ØØØØ          Ø134Ø         LD      A,29
ØØØØ          Ø135Ø         RST     4Ø
ØØØØ          Ø136Ø         ENDM
ØØØØ          Ø137Ø @@RMTSK MACRO
ØØØØ          Ø138Ø         LD      A,3Ø
ØØØØ          Ø139Ø         RST     4Ø
ØØØØ          Ø14ØØ         ENDM
ØØØØ          Ø141Ø @@RPTSK MACRO
ØØØØ          Ø142Ø         LD      A,31
ØØØØ          Ø143Ø         RST     4Ø
ØØØØ          Ø144Ø         ENDM
ØØØØ          Ø145Ø @@KLTSK MACRO
ØØØØ          Ø146Ø         LD      A,32
ØØØØ          Ø147Ø         RST     4Ø
ØØØØ          Ø148Ø         ENDM
ØØØØ          Ø149Ø @@CKDRV MACRO
ØØØØ          Ø15ØØ         LD      A,33
ØØØØ          Ø151Ø         RST     4Ø
ØØØØ          Ø152Ø         ENDM
ØØØØ          Ø153Ø @@DODIR MACRO
ØØØØ          Ø154Ø         LD      A,34
ØØØØ          Ø155Ø         RST     4Ø
ØØØØ          Ø156Ø         ENDM
ØØØØ          Ø157Ø @@RAMDIR        MACRO
ØØØØ          Ø158Ø         LD      A,35
ØØØØ          Ø159Ø         RST     4Ø
ØØØØ          Ø16ØØ         ENDM
ØØØØ          Ø161Ø @@DCSTAT        MACRO
ØØØØ          Ø162Ø         LD      A,4Ø
ØØØØ          Ø163Ø         RST     4Ø
ØØØØ          Ø164Ø         ENDM
ØØØØ          Ø165Ø @@SLCT  MACRO
ØØØØ          Ø166Ø         LD      A,41
ØØØØ          Ø167Ø         RST     4Ø
ØØØØ          Ø168Ø         ENDM
ØØØØ          Ø169Ø @@RSTOR MACRO
ØØØØ          Ø17ØØ         LD      A,44
ØØØØ          Ø171Ø         RST     4Ø
ØØØØ          Ø172Ø         ENDM
ØØØØ          Ø173Ø @@STEPI MACRO
ØØØØ          Ø174Ø         LD      A,45
ØØØØ          Ø175Ø         RST     4Ø
ØØØØ          Ø176Ø         ENDM
ØØØØ          Ø177Ø @@SEEK  MACRO
ØØØØ          Ø178Ø         LD      A,46
ØØØØ          Ø179Ø         RST     4Ø
ØØØØ          Ø18ØØ         ENDM
ØØØØ          Ø181Ø @@RSLCT MACRO
ØØØØ          Ø182Ø         LD      A,47
ØØØØ          Ø183Ø         RST     4Ø
ØØØØ          Ø184Ø         ENDM
ØØØØ          Ø185Ø @@RDSEC MACRO
ØØØØ          Ø186Ø         LD      A,49
ØØØØ          Ø187Ø         RST     4Ø
ØØØØ          Ø188Ø         ENDM
ØØØØ          Ø189Ø @@VRSEC MACRO
ØØØØ          Ø19ØØ         LD      A,5Ø
ØØØØ          Ø191Ø         RST     4Ø
ØØØØ          Ø192Ø         ENDM
```

```
0000          01930 @@HDFMT MACRO
0000          01940         LD      A,52
0000          01950         RST     40
0000          01960         ENDM
0000          01970 @@WRSEC MACRO
0000          01980         LD      A,53
0000          01990         RST     40
0000          02000         ENDM
0000          02010 @@WRSSC MACRO
0000          02020         LD      A,54
0000          02030         RST     40
0000          02040         ENDM
0000          02050 @@WRTRK MACRO
0000          02060         LD      A,55
0000          02070         RST     40
0000          02080         ENDM
0000          02090 @@RENAM MACRO
0000          02100         LD      A,56
0000          02110         RST     40
0000          02120         ENDM
0000          02130 @@REMOV MACRO
0000          02140         LD      A,57
0000          02150         RST     40
0000          02160         ENDM
0000          02170 @@INIT  MACRO
0000          02180         LD      A,58
0000          02190         RST     40
0000          02200         ENDM
0000          02210 @@OPEN  MACRO
0000          02220         LD      A,59
0000          02230         RST     40
0000          02240         ENDM
0000          02250 @@CLOSE MACRO
0000          02260         LD      A,60
0000          02270         RST     40
0000          02280         ENDM
0000          02290 @@BKSP  MACRO
0000          02300         LD      A,61
0000          02310         RST     40
0000          02320         ENDM
0000          02330 @@CKEOF MACRO
0000          02340         LD      A,62
0000          02350         RST     40
0000          02360         ENDM
0000          02370 @@LOC   MACRO
0000          02380         LD      A,63
0000          02390         RST     40
0000          02400         ENDM
0000          02410 @@LOF   MACRO
0000          02420         LD      A,64
0000          02430         RST     40
0000          02440         ENDM
0000          02450 @@PEOF  MACRO
0000          02460         LD      A,65
0000          02470         RST     40
0000          02480         ENDM
0000          02490 @@POSN  MACRO
0000          02500         LD      A,66
0000          02510         RST     40
0000          02520         ENDM
0000          02530 @@READ  MACRO
```

```
0000           02540        LD      A,67
0000           02550        RST     40
0000           02560        ENDM
0000           02570 @@REW  MACRO
0000           02580        LD      A,68
0000           02590        RST     40
0000           02600        ENDM
0000           02610 @@RREAD MACRO
0000           02620        LD      A,69
0000           02630        RST     40
0000           02640        ENDM
0000           02650 @@RWRIT MACRO
0000           02660        LD      A,70
0000           02670        RST     40
0000           02680        ENDM
0000           02690 @@SEEKSC       MACRO
0000           02700        LD      A,71
0000           02710        RST     40
0000           02720        ENDM
0000           02730 @@SKIP MACRO
0000           02740        LD      A,72
0000           02750        RST     40
0000           02760        ENDM
0000           02770 @@VER  MACRO
0000           02780        LD      A,73
0000           02790        RST     40
0000           02800        ENDM
0000           02810 @@WEOF MACRO
0000           02820        LD      A,74
0000           02830        RST     40
0000           02840        ENDM
0000           02850 @@WRITE MACRO
0000           02860        LD      A,75
0000           02870        RST     40
0000           02880        ENDM
0000           02890 @@LOAD MACRO
0000           02900        LD      A,76
0000           02910        RST     40
0000           02920        ENDM
0000           02930 @@RUN  MACRO
0000           02940        LD      A,77
0000           02950        RST     40
0000           02960        ENDM
0000           02970 @@FSPEC MACRO
0000           02980        LD      A,78
0000           02990        RST     40
0000           03000        ENDM
0000           03010 @@FEXT MACRO
0000           03020        LD      A,79
0000           03030        RST     40
0000           03040        ENDM
0000           03050 @@FNAME MACRO
0000           03060        LD      A,80
0000           03070        RST     40
0000           03080        ENDM
0000           03090 @@GTDCT MACRO
0000           03100        LD      A,81
0000           03110        RST     40
0000           03120        ENDM
0000           03130 @@GTDCB MACRO
0000           03140        LD      A,82
```

```
0000         03150          RST      40
0000         03160          ENDM
0000         03170 @@GTMOD MACRO
0000         03180          LD       A,83
0000         03190          RST      40
0000         03200          ENDM
0000         03210 @@RDSSC MACRO
0000         03220          LD       A,85
0000         03230          RST      40
0000         03240          ENDM
0000         03250 @@GATRD MACRO
0000         03260          LD       A,86
0000         03270          RST      40
0000         03280          ENDM
0000         03290 @@DIRRD MACRO
0000         03300          LD       A,87
0000         03310          RST      40
0000         03320          ENDM
0000         03330 @@DIRWR MACRO
0000         03340          LD       A,88
0000         03350          RST      40
0000         03360          ENDM
0000         03370 @@GATWR MACRO
0000         03380          LD       A,89
0000         03390          RST      40
0000         03400          ENDM
0000         03410 @@MUL8  MACRO
0000         03420          LD       A,90
0000         03430          RST      40
0000         03440          ENDM
0000         03450 @@MUL16 MACRO
0000         03460          LD       A,91
0000         03470          RST      40
0000         03480          ENDM
0000         03490 @@DIV8  MACRO
0000         03500          LD       A,93
0000         03510          RST      40
0000         03520          ENDM
0000         03530 @@DIV16 MACRO
0000         03540          LD       A,94
0000         03550          RST      40
0000         03560          ENDM
0000         03570 @@DECHEX          MACRO
0000         03580          LD       A,96
0000         03590          RST      40
0000         03600          ENDM
0000         03610 @@HEXDEC          MACRO
0000         03620          LD       A,97
0000         03630          RST      40
0000         03640          ENDM
0000         03650 @@HEX8  MACRO
0000         03660          LD       A,98
0000         03670          RST      40
0000         03680          ENDM
0000         03690 @@HEX16 MACRO
0000         03700          LD       A,99
0000         03710          RST      40
0000         03720          ENDM
0000         03730 @@HIGH$ MACRO
0000         03740          LD       A,100
0000         03750          RST      40
```

```
0000          03760          ENDM
0000          03770 @@FLAGS  MACRO
0000          03780          LD       A,101
0000          03790          RST      40
0000          03800          ENDM
0000          03810 @@BANK   MACRO
0000          03820          LD       A,102
0000          03830          RST      40
0000          03840          ENDM
0000          03850 @@BREAK  MACRO    #ADR
0000          03860          IFEQ     %%,1
0000          03870          LD       HL,#ADR
0000          03880          ENDIF
0000          03890          LD       A,103
0000          03900          RST      40
0000          03910          ENDM
0000          03920 @@CLS    MACRO
0000          03930          LD       A,105
0000          03940          RST      40
0000          03950          ENDM
0000          03960 @@CKBRKC          MACRO
0000          03970          LD       A,106
0000          03980          RST      40
0000          03990          ENDM
              04000 *LIST    ON
0000          04010          END
00000 Total errors
```