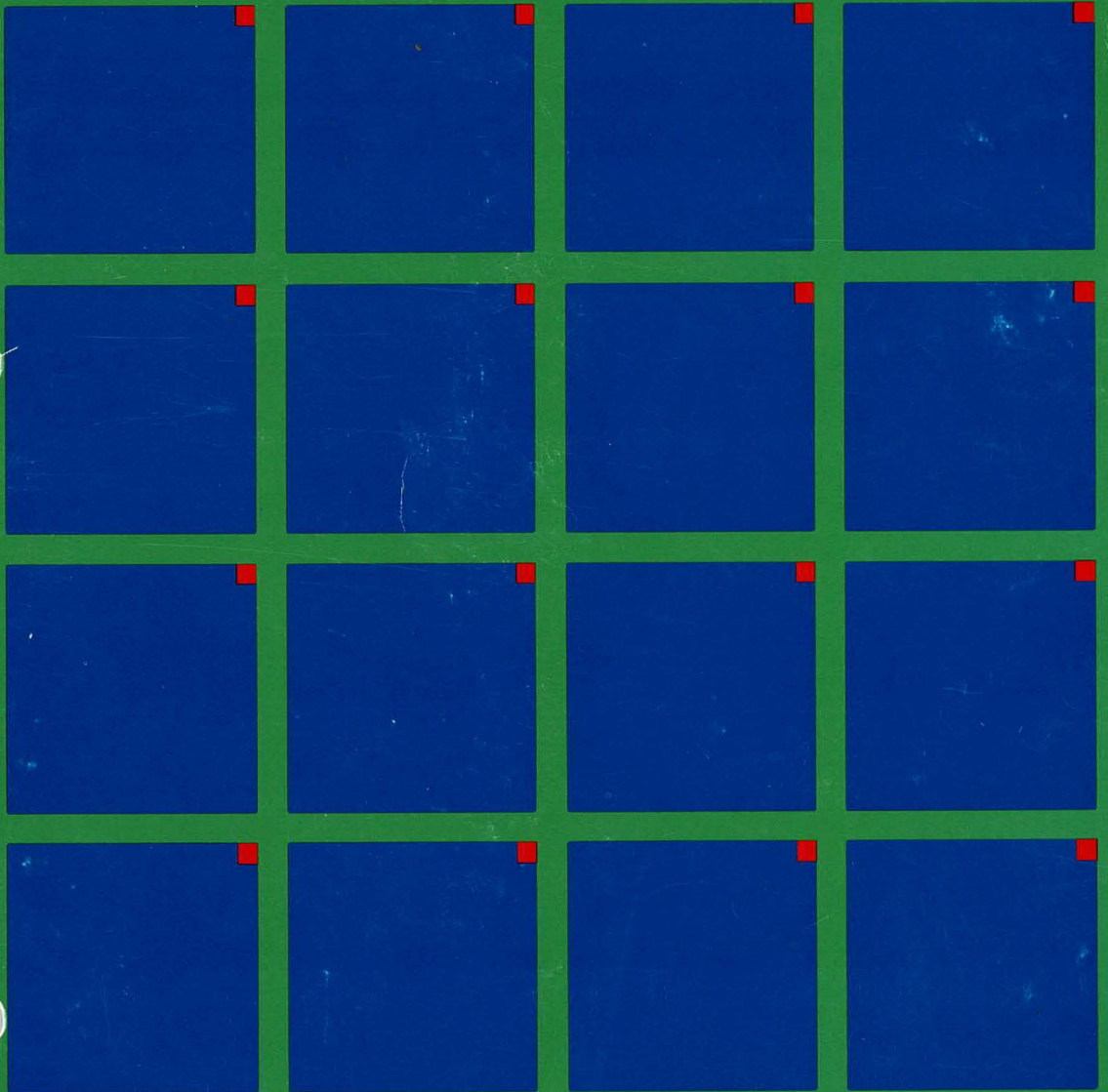


# Using MS-DOS on the GRiDCase Plus





# **Using MS-DOS on the GRiDCase Plus**

**September 1986**

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Manual Name: Using MS-DOS on the GRiDCase Plus  
Order Number: 029550-44  
Issue Date: September 1986

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# Welcome to the GRiDCase Plus Computer

The aim of this booklet is to facilitate a quick and smooth transition from the personal computer you presently use to your new GRiDCase Plus. The booklet introduces the GRiDCase Plus and the GRiD version of MS-DOS™ that operates the computer; it also provides specific guidelines for installing new MS-DOS application programs (or reinstalling old ones) on the GRiDCase Plus.

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**Who This Booklet is For** This booklet is primarily for users of the IBM® Personal Computer who want to run their programs on the GRiDCase Plus. However, the booklet contains vital information for all users; all new GRiDCase Plus owners should read most of the chapters.

This booklet is not a tutorial for the novice. You may not understand the information in this booklet unless you've operated a personal computer using an MS-DOS application. If you require training in basic MS-DOS skills, inquire at a local computer store on the availability of MS-DOS classes, and about the many tutorials and computer-based training programs available for purchase.

---

**How the Booklet is Organized** Here's a glance at the information covered in each chapter:

**Chapter 1: What's Different About the GRiDCase Plus?**

This chapter explains how operating a GRiDCase Plus and an IBM PC or PC/XT differ. It focuses on differences you must be aware of before starting up MS-DOS for the first time—for example, the different keyboard layouts.

**Chapter 2: What's Different About GRiD MS-DOS?**

This chapter describes how the GRiD version of MS-DOS differs from PC-DOS—for example, differences in commands, how BASIC programs operate, how MS-DOS assigns device letters, etc.

**Chapter 3: Moving Application Programs to the GRiDCase Plus**

This chapter describes how to move applications currently in use on the IBM PC, PC/XT, or PC/AT to the GRiDCase Plus, and then how to run them.

**Chapter 4: Installation Guidelines**

This chapter provides special instructions for installing commercial application programs on the GRiDCase Plus.

---

**How to Use This Booklet** All readers should read Chapters 1 and 2 for important points on using the GRiDCase Plus hardware and the GRiD MS-DOS that runs the GRiDCase Plus.

IBM PC, PC/XT, and PC/AT users should read Chapter 3 for information on moving their current application programs to the GRiDCase Plus.

Any reader wishing to install (or reinstall) a commercial MS-DOS application program on the GRiDCase Plus should read Chapter 4.

---

**Related Publications** You may want to refer to the following related publications for further information:

- *GRiDCase Plus Owner's Guide* (Order Number: 001200-45) Describes the optional and standard hardware features (including power supply) of the GRiDCase Plus; how to connect external storage devices, printers, power supply, etc., to the GRiDCase Plus; and how to start up (boot) MS-DOS. This manual comes with all GRiDCase computers.
- *MS-DOS Reference: Release 3.2 Version D* (Order Number: 029550-40) Describes in detail the commands and functions of GRiD MS-DOS. This manual comes with GRiD MS-DOS.
- *MS-DOS GW-BASIC Reference* (Order Number: 022014-40) Describes the BASIC language available with the GW-BASIC interpreter which runs on the GRiDCase. This manual comes with MS-DOS GW-BASIC.
- *GRiDCase Plus Technical Reference* (Order Number: 029500-50) A reference manual for programmers that describes the GRiDCase Plus hardware and system interface. Using the information in this manual, the MS-DOS programmer should be able to (1) modify existing PC-DOS/MS-DOS application programs so that they run on GRiDCase MS-DOS, and (2) write new application programs from scratch. Contact a GRiD representative for information on ordering this manual.



# Chapter 1: What's Different About the GRiDCase Plus?

This chapter explains the differences between operating a GRiDCase Plus computer and an IBM PC or PC/XT. You should be aware of these differences before starting up your system. The chapter discusses the following points:

- The GRiDCase Plus uses a different operating system—you must use GRiD MS-DOS on the GRiDCase Plus—not PC-DOS or an MS-DOS operating system used on other computers.
- You can plug in an IBM color monitor and keyboard to your GRiDCase Plus, and use it just as you would an IBM PC or PC/XT. When you travel, simply disconnect the monitor and keyboard, and use the GRiDCase Plus display and keyboard instead.
- The GRiDCase Plus keyboard has fewer keys, but all the functions of an IBM PC or PC/XT keyboard. You'll learn how to use the GRiDCase Plus keyboard in this chapter.
- The GRiDCase Plus displays text and images in black and yellow, or black and red (depending on the GRiDCase Plus model); many monitors connected to an IBM PC or PC/XT display text and images in full color, if the software supports color.
- The GRiDCase Plus has Read Only Memory (also called ROM), which increases the portability of your GRiDCase Plus.
- The built-in Hayes compatible modem and the serial (RS-232C) port share the same internal circuitry, therefore, only one of these can be active at a time.

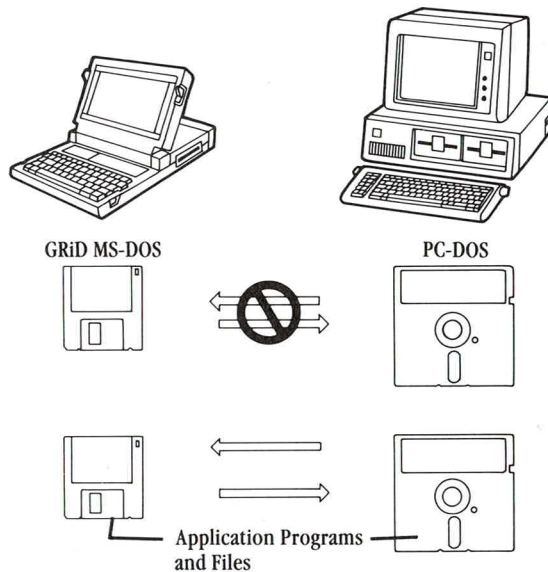
For details on GRiDCase Plus features and options not covered in this chapter, refer to the *GRiDCase Plus Owner's Guide*.



**Why Only GRiD MS-DOS on the GRiDCase Plus?** GRiD MS-DOS is the only MS-DOS operating system that should be run on the GRiDCase Plus. Although GRiDCase Plus is fully compatible with the IBM PC and PC/XT, it is neither legal nor desirable to run PC-DOS on the GRiDCase Plus.

**NOTE:** The version of GRiD MS-DOS for the GRiDCase Plus is also not interchangeable with the GRiD MS-DOS for the GRiD Compass computer.

Figure 1-1. *The GRiDCase Plus Requires GRiD MS-DOS*



PC-DOS is licensed to run only on an IBM personal computer and GRiD MS-DOS to run only on GRiDCase Plus models. Although you can interchange application programs, subject to the licensing agreement you have with the software publisher, you cannot interchange operating systems (Figure 1-1).

Moreover, GRiD MS-DOS offers the following facilities not available in PC-DOS:

- GRiD MS-DOS commands can read, write, and format 3 ½-inch diskettes containing 720K bytes of storage. PC-DOS commands can process only the smaller capacity, 5 ¼-inch diskettes.



- Only the GRiD MS-DOS MODE command supports GRiD input/output devices. For example, this command controls access to the GRiDCase Plus serial port and the internal modem, as shown in Chapter 2. Proper use of the MODE command increases the battery life. The PC-DOS MODE command cannot control the GRiDCase Plus modem or serial port.
- GRiD MS-DOS supports Read Only Memory (ROM). (ROM is described in detail later in this chapter.) ROM increases the amount of permanent storage available to your data files and programs. Use of programs in ROM also increases battery life.
- GRiD MS-DOS has the HELP command for instant, on-line reference information on system commands and facilities.
- GRiD MS-DOS supports the RAMDISK utility. RAMDISK creates an extra logical disk drive using main memory for more efficient program execution and improved performance from programs that run better on a two-drive system.
- GRiD MS-DOS provides the PCMASTER and PCSLAVE commands for easy file transfer between the GRiDCase Plus and an IBM PC, PC/XT or PC/AT.
- GRiD MS-DOS has the SERVER command, which allows GRiD Server users to gain access to a central device and share storage, printing, and other input/output functions.
- GRiD MS-DOS includes the NUMPAD utility that allows you to lock the keypad into number-only mode.
- GRiD MS-DOS includes the SCANCASE command, which shows the status of input/output devices attached to your GRiDCase Plus and lists the factory-installed hardware options.

You'll learn more about these facilities throughout this manual.

---

**Using an External Monitor and Keyboard** The GRiDCase Plus works like an IBM PC or PC/XT. You can use the GRiDCase Plus keyboard and display, or you can plug in your IBM keyboard. If your GRiDCase Plus has the video output option, you can also plug in an IBM color monitor (Figure 1-2). The keyboard and display on the GRiDCase Plus always remain active.

Figure 1-2. Using the GRiDCase Plus with an IBM PC Keyboard and Color Monitor

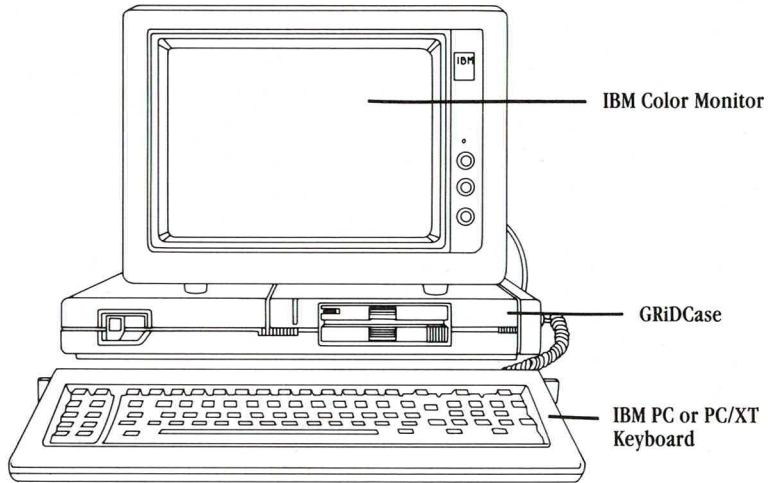
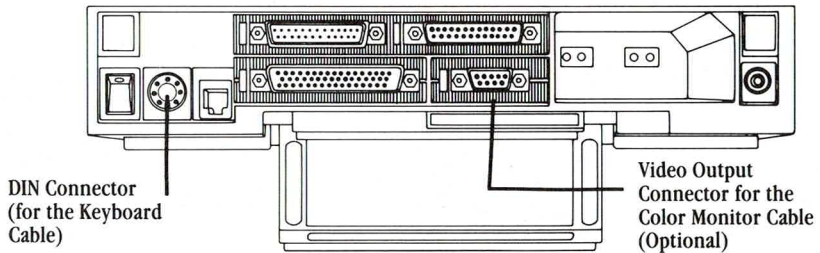


Figure 1-2 shows how you might set up such a configuration. Figure 1-3 shows the slots in the rear panel of the GRiDCase Plus where you connect the cables from the keyboard and color monitor.

Figure 1-3. GRiDCase Plus Keyboard and Video Connectors



With both the IBM keyboard and IBM color monitor connected, you can operate your GRiDCase Plus just as you would an IBM PC or PC/XT. When you travel or take your work elsewhere, simply unplug the IBM keyboard and the monitor, and use the GRiDCase Plus keyboard and display. This arrangement gives you a desktop and a portable computer in one.

---

**The GRiDCase Plus Internal Hard Disk Option** If your GRiDCase Plus has an internal hard disk, the hard disk is already formatted for use with MS-DOS, and version 3.2 of MS-DOS has been loaded onto the disk. If you want to load additional files onto the hard disk from diskette you must use one of the following GRiD products.

- *Model 32170 3 1/2" Pocket Diskette Drive* The Pocket Diskette Drive can be attached to the floppy port on the side of your GRiDCase Plus, allowing access to files stored on 3 1/2" diskette.
- *Model 2202 Portable 5 1/4" Diskette Drive* If your programs are stored on 5 1/4" floppy disks, this diskette drive may be used to access them.
- *Model 6201 PCMaster/PCSlave Serial Cable* This cable can be used to connect a GRiDCase Plus to an IBM PC through the serial ports on each computer. Working with software supplied on your GRiDCase MS-DOS Version 3.2 system diskette, you may transfer files from storage devices on an IBM PC to your GRiDCase Plus hard disk.

---

**The GRiDCase Plus Keyboard** The GRiDCase Plus keyboard contains fewer keys than the IBM PC or PC/XT keyboard (Figure 1-4). Consequently, you press slightly different GRiDCase Plus keys to invoke equivalent IBM PC or PC/XT functions. GRiDCase Plus keys with green keycaps correspond to function and other special keys on the IBM keyboard—PgUp, PgDn, Break, Home, etc.

To invoke equivalent IBM functions from the GRiDCase Plus keyboard, press the Fn key (the "FN" label is green) on the lower right of the keyboard at the same time that you press the desired function key. For example, pressing FN-Pause halts scrolling data on the display.

Table 1-1 lists several examples of IBM function keys and their equivalent keys on the GRiDCase Plus keyboard. For a complete list of the function keys and their GRiDCase Plus equivalents, refer to the *GRiDCase Plus Owner's Guide*.

Table 1-1. Example of IBM Function Keys and GRiDCase Plus Equivalents













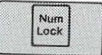





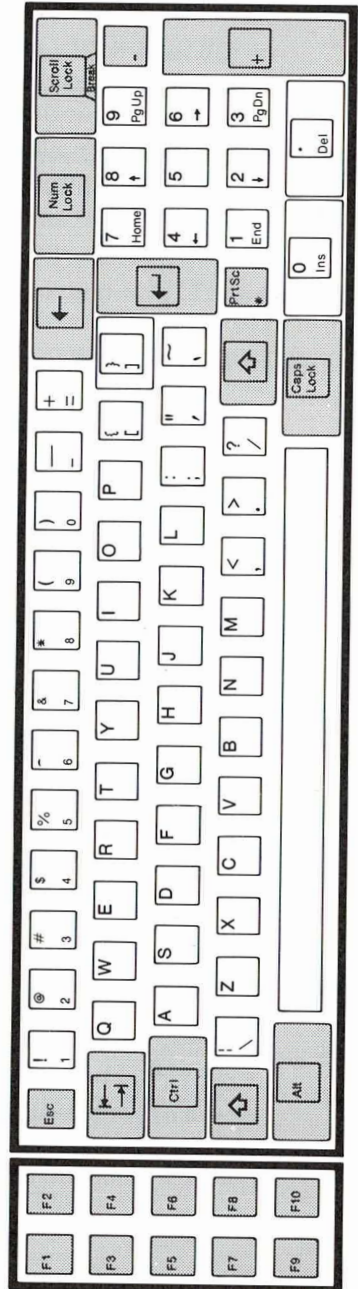
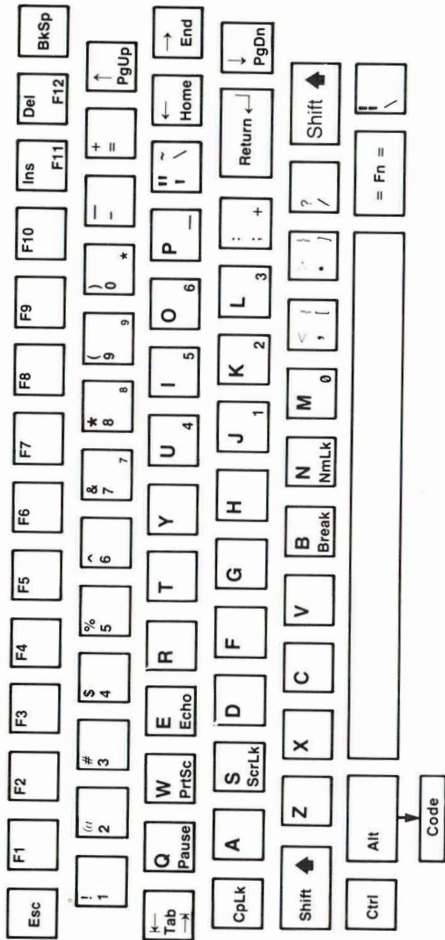
IBM PC or PC/XT Key	Equivalent GRiDCase Plus Key
 	   
  	    
	 
	 



Figure 1-4. The GRiDCase Plus Keyboard (left) and the IBM PC Keyboard (right)



---

**The GRiDCase Plus Display** There are two notable exceptions in how the GRiDCase Plus display functions in relation to an IBM color monitor:

- On the GRiDCase Plus display, text and images appear in blue and yellow, or black and red, depending on the GRiDCase Plus model you use. The color monitor displays text and graphics in full color.
- On the GRiDCase Plus display, text and images cannot be highlighted by your application as they can on a color monitor. Text designated as bold by a word processor command appears highlighted on the color monitor, but appears in a different type font on the GRiDCase Plus display.

Other differences are hardly noticeable and rarely seen. For example, the shape of characters on the GRiDCase Plus display differs slightly from the shape of characters on a color monitor. Also, images that appear as circles on a color monitor appear in an oval form on the GRiDCase Plus display. These variations are due to the *aspect ratio* of the GRiDCase Plus display, which differs from that of the monitor.

The aspect ratio is a measurement of the dots or "pixels" that make up the characters and images that appear on the display. The aspect ratio for an external monitor is 2.5:1; the aspect ratio for the GRiDCase Plus is 1.4:1. Check the application software you are running to see if it has an install option that allows you to configure it for different aspect ratios.

---

**The Internal Modem and the Serial (RS-232C) Port** The serial (RS-232C) port and the internal Hayes compatible modem share the same internal circuitry and the logical device name, COM1. This means that you can use either the internal modem or the serial port, but not both, at the same time. You must activate the serial port or the internal modem with the MODE command before using them; the procedures for doing this are in Chapter 2.

---

**Conserving Battery Power** If you intend to power your GRiDCase Plus from a battery pack, read the next few paragraphs.

A GRiDCase Plus battery lasts from one to six hours, depending on the model of your GRiDCase Plus computer and how you use it. The best way to conserve power is to treat your GRiDCase Plus as a flashlight or any other portable electrical device: turn it off when you're not using it.



If you have the GRiDCase 3 Plus (with a red plasma screen), lower the intensity of the display when you power it with a battery pack. This decreases the power drain from the battery. The GRiDCase 2 Plus (yellow and blue) uses significantly less power than the GRiDCase 3 Plus.

Here are some other important factors that help extend the life of a battery pack:

- Minimize the use of the internal diskette drive. When you access or save a file on a diskette, the drive spins and consumes power. Using internal ROMS and the RAMDISK utility help decrease diskette drive usage.
- Turn off the serial port and the internal modem when they are not in use; they consume power. (You will learn how to do this in Chapter 2 with the MODE command.)
- When necessary, restart MS-DOS by pressing Ctrl-Alt-Del (warm start). This method uses less power than switching the computer off, and then on again.

---

**What to Do When the Low-Battery Indicator Lights** The low-battery indicator is located to the lower right of the display; it lights when the battery pack is running low. You should never remove a battery and recharge it until the indicator lights. If the battery isn't fully discharged at the time of the recharge, it will not last as long during the next use cycle. (You'll get the longest use of a battery pack after approximately three discharge/recharge cycles.)

Here's what to do (and what *not* to do) when the low-battery indicator lights:

- **Do not** immediately remove the battery pack. First, save any data you are working with. (Removing the battery pack cuts off the power; any data currently in RAM is lost.)
- Immediately connect the GRiDCase Plus to external power, such as the AC Power Pack, or remove the battery pack and insert a new battery. (Connecting external power keeps the GRiDCase Plus running without interruption.)
- Restart MS-DOS if you interrupted the power to change battery packs.

Refer to the *GRiDCase Plus Owner's Guide* for more information on battery life and recharging the battery pack.

---

**External Read Only Memory (ROM)** GRiDCase Plus computers have sockets for removable Read Only Memory (ROM) cartridges, which give permanent storage for MS-DOS programs. (The four sockets for user-installable ROMs are under a removable cover above the keyboard. There is also room for four factory-installable ROMs in internal sockets, including EPROMS.)

You can buy a ROM cartridge from GRiD which contains the MS-DOS system files required to start up and operate your computer; you can also buy ROM cartridges that contain MS-DOS utilities, MS-DOS application programs, and GW-BASIC. Contact a GRiD representative to find out which programs are available on ROM cartridges.

**NOTE:** You should carefully read the booklet that comes with each cartridge before inserting or removing a ROM cartridge.

MS-DOS treats files on the ROM cartridge as though they reside in Drive A, and thus as an extension of the diskette in Drive A. If you use an MS-DOS system ROM, you do not need to include the MS-DOS system files on the diskette with your application and data files. This increases the space available for data files on your diskettes. Therefore, when you install an application program on a GRiDCase Plus that has an MS-DOS ROM, note the following:

- There is no need to specify the /S option when using the FORMAT command. (This option copies the MS-DOS system files to the diskette after completing the formatting process.)
- There is no need to use the SYS command to copy the MS-DOS system files to an application diskette, or to the hard disk.

ROM files differ from diskette files in the following ways:

- You cannot delete programs from ROM nor store additional programs or data in ROM.
- You cannot specify a ROM file as a target file in an MS-DOS COPY command. MS-DOS issues the message "File Creation Error" and the command fails.
- If the diskette in Drive A contains a file with the same name as a file in ROM, MS-DOS always uses the file on the diskette.
- When copying files, you cannot specify a target file for Drive A that has the same name as a ROM file unless you either remove the ROM cartridge or temporarily rename the ROM file. The power must be off before you remove the ROM cartridge.

The next procedure shows how to copy a file from a diskette in Drive B to a diskette in Drive A, when the file in Drive B has the same name as an existing ROM file.

### To Copy a Duplicate ROM File from Drive B to Drive A

1. Remove the diskette from Drive A if it already has a file with the same name as the ROM file.
2. Rename the ROM file: for example, the following command

```
A>REN COMMAND.COM TEMP.COM
```

momentarily renames the COMMAND.COM file in ROM to TEMP.COM. (The temporary name remains in effect until the system is restarted or the file is renamed back to its original name.)

3. Ensure that the desired diskette is inserted into Drive A and then copy the file. For example

```
A>COPY B:COMMAND.COM A:
```

copies the COMMAND.COM file from the diskette in Drive B to the diskette in Drive A.

After the next start-up, the TEMP.COM file in ROM resumes the name of COMMAND.COM. A directory listing will now show two COMMAND.COM files in Drive A, one on disk and one in ROM.

---

**A Note About Diskettes** Among the variety of blank diskettes available on the market, certain types can either malfunction or cause you to lose data when operating from a GRiDCase diskette device. To avoid this problem, use only the following diskettes:

3 1/2-inch: Sony OM-D440, Xidex 3022-3000, Maxell FM2DD, 3N5337, or Fuji MFNB2 (or equivalent) with the following characteristics:

Double sided  
Double density  
Soft sectored  
135 TPI (tracks per inch)

5 1/4-inch: Dysan 104/2D with the following characteristics:

Double sided  
Double density  
Soft sectored  
48 TPI



---

**Summary of Important Points** Here is a summary of the important points to remember from this chapter:

- Always use GRiD MS-DOS as the operating system on your GRiDCase Plus. It is neither legal nor desirable to use PC-DOS or other MS-DOS operating systems.
- You can use your GRiDCase Plus as an IBM PC or PC/XT. Simply plug the IBM keyboard and a color monitor into the back panel of your GRiDCase Plus, if your GRiDCase Plus has the video output option.
- If your system has an internal hard disk, you will need access to one of a variety of GRiD floppy disk drive products in order to load additional files onto the hard disk.
- A green keycap on the GRiDCase Plus keyboard indicates an equivalent IBM function key. To activate the function, simply press Fn on the lower right of the GRiDCase Plus keyboard *and* the desired key.
- Remember to conserve power when you operate your GRiDCase Plus from a battery pack. Turn your GRiDCase Plus off when you're not using it. Carefully read the instructions on battery operation in this chapter and in the *GRiDCase Plus Owner's Guide*.
- You can use either the internal modem or the serial port at any given time, but not both at the same time. Activate each one when needed as described in Chapter 2.
- Some commands and procedures used with diskettes differ when you have a ROM cartridge. If you have a ROM cartridge, read the instruction booklet that comes with it to learn about these differences.

---

## Chapter 2: What's Different About GRiD MS-DOS?

GRiD MS-DOS is an operating system specifically written for the GRiDCase Plus computer. If you are accustomed to using PC-DOS or MS-DOS on another computer, you must learn how using GRiD MS-DOS differs from these operating systems. This chapter discusses these differences under the following points:

- How GRiD MS-DOS commands and PC-DOS commands differ.
- The limitations of the DISKCOPY command when copying 3 ½ -inch diskettes to 5 ¼ -inch diskettes, and vice versa.
- The RAMDISK utility.
- The NUMPAD utility.
- How to run BASICA programs on the GRiDCase Plus .
- Special procedures when using the serial port and the internal modem.
- The assignment letters to your diskette and hard disk drives by GRiD MS-DOS.

---

**How Commands Differ** On the GRiDCase Plus there is one new DOS command and several DOS commands that provide functions not available in PC-DOS. Let's look at these commands.

### **FC (File Comparison)**

The functions of the COMP command available with PC-DOS are performed by the File Comparison (FC) utility in GRiD MS-DOS. The FC utility is described in Chapter 10 of the *MS-DOS Reference manual*.

### **PCMASTER/PCSLAVE**

The PCMASTER and PCSLAVE commands (also called the PC file transfer utilities) transfer files from IBM PC, PC/XT, or PC/AT storage devices to GRiDCase Plus storage devices and vice versa. The transfer takes place over a cable attached to the serial port of each computer. See Chapter 3 for more information on PCMASTER and PCSLAVE.

### **MODE**

The GRiD MS-DOS MODE command offers the same functions as the PC-DOS MODE command, plus the ability to control GRiD devices that can't be used with an IBM PC or PC/XT. Proper use of this command extends battery life. (A list of the new MODE options is shown in Figure 2-2.)

**HELP**

The HELP command displays immediate answers to many questions you might have about MS-DOS commands and functions. Normally, you find such information only in a reference manual. Instead, using GRiD MS-DOS, you can type in the following command:

A>HELP

and press RETURN. The Help menu (Figure 2-1) is then displayed.

Figure 2-1. *The Help Menu*

```

The MODE command provides 11 options for controlling devices attached to your
computer. The options are summarized below. See the option topic for
information on a specific option.

Option1 - Controls output to the printer.
Option2 - Sets display mode for the screen and external monitor.
Option3 - Determines serial port's communications protocol.
Option4 - Changes parallel printer output to serial printer output.
Option5 - Sets the PRN device.
Option6 - Switches power on or off to the serial port.
Option7 - Switches power on or off to the internal modem and controls
          modem parameters.
Option8 - Determines the blink and shape of the cursor.
Option9 - Controls power to the internal disk drive.
Option10 - Sets font size and reverse video.
Option11 - Determines which device letter ROM files are appended to.

Additional Topics:

OPTION1      OPTION2      OPTION3      OPTION4      OPTION5      OPTION6
OPTION7      OPTION8      OPTION9      OPTION10     OPTION11

HELP (Enter topic or Esc to exit)> option6

```



From this menu, you pick out the name of the command or function you want information on, and type it in. MODE was typed in to display the information shown in Figure 2-2.

Figure 2-2. *MODE Help Information*

```
This version of the MODE command switches on or off power to the internal
serial port. To turn on the power to the serial port, specify
```

```
MODE SERIAL=ON
```

```
The system then displays the following message:
```

```
COM1: status - serial power ON, modem power OFF
```

```
To turn off the power to the serial port, specify
```

```
MODE SERIAL=OFF
```

```
The system then displays the following message:
```

```
COM1: status - serial power OFF, modem power OFF
```

```
When you turn on the power to the serial port, the power to the internal
modem is automatically turned off.
```

```
Immediately after you turn on the power to the serial port, the following
protocol is in effect for serial communications: 2400 baud, no parity,
8 databits, and 1 stopbit. To change these settings, use Option 3 of the
MODE command.
```

```
*****Press Any Key To Continue*****
```

The MODE help menu displays subtopics that you can select to retrieve more specific information. In this menu (Figure 2-2), the subtopic OPTION6 was typed in. Figure 2-3 shows a partial display of the additional information.

Figure 2-3. *MODE Option 6 Information*

```

MS-DOS Help Utility (version 3.2D)
Copyright (c) 1985,86 GRiD Systems Corporation

Topics Available:

APPEND      ASSIGN      ATTRIB      BATCHFILES  BREAK       CHDIR
CHKDSK      CLS         CONFIG.SYS  COPY        CTTY        DATE
DEL         DIR         DISKCOMP    DISKCOPY    EDLIN       EXE2BIN
EXIT        FDISK      FC          FIND        FORMAT      GRAFTABL
GRAPHICS    HELP       JOIN        KEYBOARD    LABEL       LINK
LOGICALDRIVE MKDIR      MODE        MODEM       MORE        PATH
PCMASTER   PCSLAVE    PRINT       PROMPT      RAMDRIVE    RECOVER
REN         REPLACE    RMDIR      SERVER      SET         SHARE
SORT       SUBST     SYS        TIME        TREE        TYPE
VER        VERIFY    VOL        XCOPY

HELP (Enter topic or Esc to exit)> mode

```

As shown at the bottom of the screen (Figure 2-3), pressing any key displays the next screen of information on Option 6 of the MODE command. Pressing RETURN displays the main menu shown in Figure 2-1.

To learn more about HELP, try using it or read about it in Chapter 7 of the *MS-DOS Reference* manual.

## SERVER

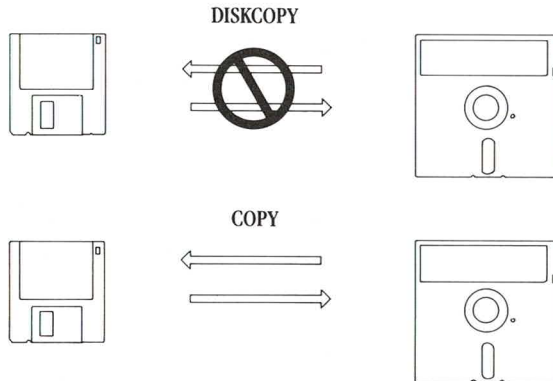
The SERVER command gives authorized users access to a GRiD Server either through a telephone line or a GRiDLink cable. GRiD Server is a powerful modular system that allows up to 58 users to share storage, printing, and other input/output devices. Both GRiDCase Plus and IBM PC or PC/XT users can connect to a GRiD Server. For details on using GRiD Server, refer to the *GRiD Server User's Guide for MS-DOS and PC-DOS Users*.

## SCANCASE

The SCANCASE command displays the status of input/output devices attached to your GRiDCase Plus and lists the factory-installed hardware options. The command is useful to find out if your computer has the built-in options your applications require, and to provide troubleshooting information. Refer to the *GRiDCase Plus Owner's Guide* or the *MS-DOS Reference* manual for more information.

**When to Use COPY Instead of DISKCOPY** Always use the COPY command instead of DISKCOPY when you duplicate files from a 5 ¼-inch diskette to a 3 ½-inch diskette, and vice versa (Figure 2-4).

Figure 2-4. *When to Use COPY and DISKCOPY*



Here's why you should use COPY as indicated in Figure 2-4:

- DISKCOPY cannot duplicate from a 3 ½-inch to a 5 ¼-inch diskette because a 3 ½-inch diskette stores twice as much information as a 5 ¼-inch diskette. MS-DOS issues an error message if you try.
- When duplicating from a 5 ¼-inch diskette, DISKCOPY uses space inefficiently on a 3 ½-inch diskette; it reduces by half the available space for files.

Use the COPY command and wildcard characters as shown below if you wish to copy an entire diskette:

```
A> COPY *.* B:
```

copies all files on the diskette in Drive A to the diskette in Drive B.

---

**The RAMDISK Utility** RAMDISK is a powerful utility included with MS-DOS for the GRiDCase Plus. RAMDISK creates an extra logical disk drive using the GRiDCase Plus' main memory (RAM). Many programs operate much better with two disk drives, and RAMDISK effectively gives you an extra disk drive without any extra hardware. Disk swapping is minimized and applications loaded into RAMDISK execute faster and more efficiently. Use of RAMDISK also extends battery life by minimizing use of the internal diskette drive.

RAMDISK partitions the available RAM into two areas: an area for running programs ("working memory") and a RAMDISK area. You can specify how large an area to set aside for the RAMDISK. For example, if you create a 180K RAMDISK on a computer containing 512K RAM, then 332K of RAM is available for program execution.

Remember that any programs or data files written to the RAMDISK are being stored in RAM, and therefore are lost when the power is turned off or the computer is rebooted. Before you turn off your computer, copy any important RAMDISK data files to a diskette or hard disk.

The easiest way to use the RAMDISK is to copy your application files to it by using a batch file when you start up your system. Then execute your application from the RAMDISK. (Refer to Chapter 8 of the *MS-DOS Reference* manual for detailed information on creating batch files.) This leaves the GRiDCase Plus internal drive free for your data files.

RAMDISK is installed by creating a CONFIG.SYS file on the start-up device that contains the following statement (or adding it to an existing CONFIG.SYS file):

```
DEVICE = RAMDISK.SYS [disksize] [,#directory entries]
```

For instructions on creating or modifying a CONFIG.SYS file, see Appendix A.

**NOTE:** If PCMASTER is also intalled in your CONFIG.SYS file, the statement "DEVICE = RAMDISK.SYS" should come before the statement "DEVICE = PCMASTER.SYS".

[disksize] is an optional parameter used to specify the size of the RAMDISK in Kbytes. If this parameter is not provided, the RAMDISK will default to 160K. Legal values range from 32 to 384. If the specified size would result in less than 64K remaining in RAM for program execution, then a smaller RAMDISK would be created to allow 64K of RAM for program execution.



[, #directory entries] is an optional parameter used to specify the number of directory entries in the root directory. If this parameter is not provided, the RAMDISK will default to 64 root directory entries. Legal values range from 16 to 512.

The RAMDISK is given the device assignment of the last device in your system. (See Assignment of Device Letters in this section for details.) For example, if you have a GRiDCase Plus with an external 5 ¼-inch drive and a hard disk, the following device letters would be assigned:

Device Letter	Drive
A	External diskette (or internal, depending on switch settings)
B	Internal diskette (or external, depending on switch settings)
C	Hard disk
D	Logical drive A
E	Logical drive B
F	RAMDISK

---

**The NUMPAD Utility** The NUMPAD utility activates the NumLK function on the GRiDCase Plus keyboard so that you can lock the keypad in number mode. Before you can use the NUMPAD utility, you must add either the NUMPAD.SYS to your CONFIG.SYS file, or invoke the NUMPAD.COM command. Add the NUMPAD.SYS driver to CONFIG.SYS if you need to use the keypad in number mode for an extended period of time. Invoke NUMPAD.COM if you need to use the keypad in number mode infrequently. See Appendix A, Creating a CONFIG.SYS file, for information about adding files to CONFIG.SYS.

**NOTE:** The NUMPAD utility does not run on an IBM keyboard.

The numeric keypad is located on the keys marked in red. The keys in the keypad work in one of three modes: Full Keypad Access, Temporary Keypad Access, and Operator Key Only Access.

### Full Keypad Access

In order to lock in the keypad function you must first have the NUMPAD software driver installed. Once NUMPAD is activated, press the FN and NmLk (N) keys together. To unlock the keypad so that you can use the letter keys again, press the Fn and NmLk (N) keys a second time.

### Temporary Keypad Access

If you occasionally use an external keyboard you may want to use temporary keypad access by not installing the NUMPAD software. Installing NUMPAD causes an external keyboard to return numbers instead of letters (for example "1" instead of "j") when in NumLock mode. If you do not install NUMPAD, your external keyboard will function properly. You can still access the GRiDCase Plus numeric keypad keys by first pressing the Fn and NmLk (N) keys together as before; then, after you are in NumLock mode, press Fn and the appropriate key together to get your keypad number. For example, Fn plus "J" will result in a keypad "1".

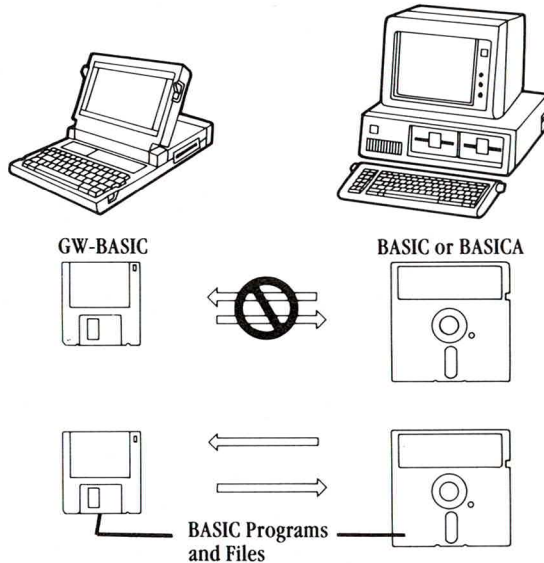
### Operator Key Only Access

This is a special case of temporary keypad access. Several popular applications use the keypad operator keys (Plus, Minus and Asterisk) for command keys. These three keys (located on "0," "P" and ";" respectively) can be accessed by pressing Fn and the appropriate key **whether or not you have pressed NumLk.**

---

**Running BASIC Programs** Programs written in IBM's BASIC or BASICA run on your GRiDCase Plus if you use GRiD'S GW-BASIC instead of IBM's BASIC. (Figure 2-5). If you use a batch file that references BASICA, rename the GWBASIC.EXE file to BASIC.EXE or BASICA.EXE, depending on the name specified in the batch file.



Figure 2-5. *Running BASIC Programs on the GRiDCase Plus*

The GRiDCase Plus doesn't support light-pens, joy sticks, and cassettes; consequently, BASIC programs that require them cannot run on the GRiDCase Plus.

---

**Activating the Serial Port** Before you use a serial device, you must activate the serial port using the MODE command (located on the MS-DOS diskette or ROM). (A serial device is an external device—for example, a printer or an external modem—that plugs into the serial port on the back of the computer.) Here's how you enter the command:

```
A > MODE SERIAL = ON
```

When you issue this command, MS-DOS does the following:

- Displays the following message:  
COM1: status—serial power ON, modem power OFF.
- Deactivates the internal modem, if it is active.
- Sets an internal switch that allows communications through the serial port. Any reference to the logical device name COM1 now refers to the serial port.
- Powers on the serial port. The serial port uses electrical power, which you must turn on before using the port and should turn off when finished. (At start-up, power to the serial port is off.)

When using a battery pack, you should turn off the serial port when it's no longer needed by using the MODE command as follows:

```
A> MODE SERIAL = OFF
```

You can automate this activating and deactivating process with a batch file, as described below.

### Using a Batch File to Activate the Serial Port

Instead of manually entering MODE commands each time you use an application, simply enter the name of the batch file that contains the commands. (Refer to Chapter 8 of the *MS-DOS Reference* manual for detailed information on creating batch files.)

Consider the following statements in the batch file STAR.BAT for use with WordStar:

```
MODE SERIAL = ON  
WS  
MODE SERIAL = OFF
```

Entering STAR next to the system prompt and pressing RETURN results in the following:

- Activates the serial port, where you can connect a serial printer or any other serial device.
- Displays the first screen of the WordStar application and makes its word processing facilities available.
- Upon exiting WordStar, deactivates the serial port.

**NOTE:** When using a batch command as just described, the serial port remains active until you exit WordStar. Therefore, when you operate from a battery pack and need to conserve power, a batch file may not be the best solution. Instead, exit the application and activate (and subsequently deactivate) the serial port only when you need it.

**Activating the Internal Modem** The GRiDCase Plus internal modem (an optional feature) permits communications through the telephone system. The internal modem behaves just like a Hayes 1200 baud Smartmodem™; it has symbolic software switches that correspond to the Hayes hardware switches. You can change the symbolic switches to match any setting of the Hayes switches.

Before you use the internal modem, you must activate it using the MODE command as follows:

```
A> MODE MODEM = ON
```

When you activate the internal modem, MS-DOS does the following:

- Displays the following message:  
COM1: status—modem power ON, serial power OFF.
- Deactivates the serial port, if it is active.
- Sets an internal switch that allows communications through the modem. Any reference to the logical device name COM1 now refers to the internal modem.
- Powers on the internal modem. Like the serial port, the internal modem uses electrical power, which you must turn on before starting communications and should turn off when finished. (At start-up, power to the internal modem is off.)
- Sets the Hayes address switches emulated by the internal modem as follows: Switches 1, 5, 6, and 7 are up or “on,” and Switches 2, 3, 4, and 8 are down or “off” (the settings required by the CROSSTALK™ application). You can change these settings if you wish (see the paragraph Changing the Hayes Switch Settings, below).

When using a battery pack, you should turn off the internal modem when it's no longer needed by using the MODE command as follows:

```
A> MODE MODEM = OFF
```

You can also change the emulated Hayes switch settings with the MODE command, as described below.

### **Changing Hayes Switch Settings**

If your application requires different settings from those required by CROSSTALK, you can reset the switches using the GRiD MS-DOS version of the MODE command. For example, the following command activates the internal modem and sets the switches to the Hayes factory setting:

MODE MODEM = ON,DUDUDDUD

The *D*'s and *U*'s in the above command stand for "down" and "up" respectively, indicating the position of the switch. The switches in the internal modem now indicate the following settings:

Switches 1, 3, 5, 6, and 8 are down (off)

Switches 2, 4, and 7 are up (on).

The meaning of each of the switch settings is given in Table 2-1.

Table 2-1. *Internal Modem Switch Settings*

Switch	Position <sup>1</sup>	Meaning
1	<b>Up</b>	Modem requires DTR active
	Down	Modem does not require DTR active
2	<b>Up</b>	Result codes sent as English words
	<b>Down</b>	Result codes sent as single digits
3	<b>Up</b>	No result codes are sent
	<b>Down</b>	Result codes are sent
4	<b>Up</b>	Echo characters when in command mode
	<b>Down</b>	No echo
5	<b>Up</b>	Auto answer on first ring
	Down	Don't answer
6	<b>Up</b>	Carrier detect real
	Down	Carrier detect forced
7	<b>Up</b>	Always up
8	<b>Up</b>	Disables command recognition
	<b>Down</b>	Enables command recognition

<sup>1</sup>Default settings are shown in bold.



MS-DOS restores the the initial (default) settings when you do either of the following:

- Issue the command `MODE MODEM = OFF`
- Restart MS-DOS.

You can automate the activating and deactivating process by using a batch file, as shown below.

### Using a Batch File to Activate the Internal Modem

Consider the following statements in the batch file `DOW.BAT` for use with the `CROSSTALK` communications application:

```
MODE MODEM = ON
XTALK
MODE MODEM = OFF
```

Entering `DOW` next to the system prompt and pressing `RETURN` results in the following:

- Activates the internal modem, making communications through a telephone line possible. This example uses the initial (default) switch settings, but different switch setting could have been explicitly specified.
- Displays the first screen of `CROSSTALK` and makes the `CROSSTALK` communications facilities available.
- Upon exiting from `CROSSTALK`, deactivates the internal modem.

**NOTE:** When using the batch command just described, the internal modem remains active until you exit `CROSSTALK`. Therefore, when you operate from a battery pack and need to conserve power, a batch file may not be the best solution. Instead, exit the application and activate (and subsequently deactivate) the internal modem only when you need it.

---

**Assignment of Device Letters** The settings of the address switches on the back of the GRiD Pocket Diskette Drive, or on the bottom of GRiD external storage drives, determine the letters—A, B, C, etc.—that MS-DOS assigns to your devices.

The two switches on each device can specify one of four different addresses. Each setting corresponds to a value that MS-DOS uses as the address, as shown in Table B-2.

**NOTE:** The switch settings on storage devices are read when the GRiDCase Plus starts up. If you change the switch settings after your GRiDCase Plus has started up, you must restart it for the new settings to take effect.

Table B-2. *Device Addresses*

Binary	Address Decimal	Switch Positions <sup>1</sup>
00	0	off, off
01	1	off, on
10	2	on, off
11	3	on, on

<sup>1</sup>An arrow on the switches indicates the "on" position.

**NOTE:** The Model 32170 Pocket Diskette Drive only has two valid switch settings (00 and 01).

The switch settings shown in the following paragraphs cover the combination of devices that are most often used.

**Configuration 1: 1 internal diskette drive**

Switch Settings	Device Letter	Drive
Not applicable	A, B	Internal diskette drive

**NOTE:** MS-DOS assigns a second "dummy" device letter to the internal diskette drive and another to the first external diskette drive, if present (shown in the next configuration). This allows operations for those commands that require both a source and target diskette. For example, on a single drive system, the following command

**COPY A:SAMPLE.DAT B:**

first reads into RAM the data file SAMPLE.DAT from the diskette currently in the diskette drive. MS-DOS then prompts you to insert a new diskette before actually copying the file to its destination diskette.

The following command

**DISKCOPY A: B:**

copies a 3 1/2 -inch source diskette to a target diskette in the internal diskette drive. MS-DOS prompts you to insert the source and target diskettes at the appropriate times.

**Configuration 2: 1 internal and 1 external diskette drive. Drive B is internal, Drive A is external**

Switch Settings	Device Letter	Drive
Not applicable	B, D	Internal diskette drive
0 (off,off)	A, C	External diskette drive

**Configuration 3: 1 internal and 1 external diskette drive. Drive A is internal, Drive B is external**

Switch Settings	Device Letter	Drive
Not applicable	A, C	Internal diskette drive
1 (off,on)	B, D	External diskette drive

**Configuration 4: 1 internal diskette drive and 1 hard disk**

Switch Settings	Device Letter	Drive
Not applicable	A, B	Internal diskette drive
0 (off,off)	C	Hard disk drive

**Configuration 5: 1 internal and 2 external diskette drives**

Switch Settings	Device Letter	Drive
Not applicable	A, D	Internal diskette drive
1 (off,on)	B, E	External diskette drive 1
2 (on,off)	C	External diskette drive 2

**NOTE:** If one of the external drives is a pocket diskette drive connected to the external floppy port on the side of the GRiDCase Plus, it must be configured as the first external drive (off,on). The only valid switch settings for the pocket floppy are (off,off) or (off,on).

**Configuration 6: 1 internal and 1 external diskette drive, and 1 external hard disk**

Switch Settings	Device Letter	Drive
Not applicable	A, D	Internal diskette drive
1 (off,on)	B, E	External diskette drive
0 (off,off)	C	Hard disk drive

**Configuration 7: 1 internal hard disk**

Switch Settings	Device Letter	Drive
Not applicable	C	Internal hard disk

**Configuration 8: 1 internal hard disk and 1 external diskette drive**

Switch Settings	Device Letter	Drive
Not applicable	C	Internal hard disk
0 (off,off)	A, B	External diskette drive

**Configuration 9: 1 internal and 1 external hard disk. Drive C is internal, Drive D is external**

Switch Settings	Device Letter	Drive
Not applicable	C	Internal hard disk
1 (off,on)	D	External hard disk

**Configuration 10: 1 internal and 1 external hard disk. Drive C is external, Drive D is internal**

Switch Settings	Device Letter	Drive
Not applicable	D	Internal hard disk
0 (off,off)	C	External hard disk

**Configuration 11: 1 internal and 1 external hard disk, and 1 external diskette drive**

Switch Settings	Device Letter	Drive
Not applicable	C	Internal hard disk
0 (off,off)	A, B	External diskette drive
1 (off,on)	D	External hard disk

**Configuration 12: 1 internal hard disk and 2 external floppy diskette drives**

Switch Settings	Device Letter	Drive
Not applicable	C	Internal hard disk
0 (off,off)	A, D	External diskette drive 1
1 (off,on)	B, E	External diskette drive 2

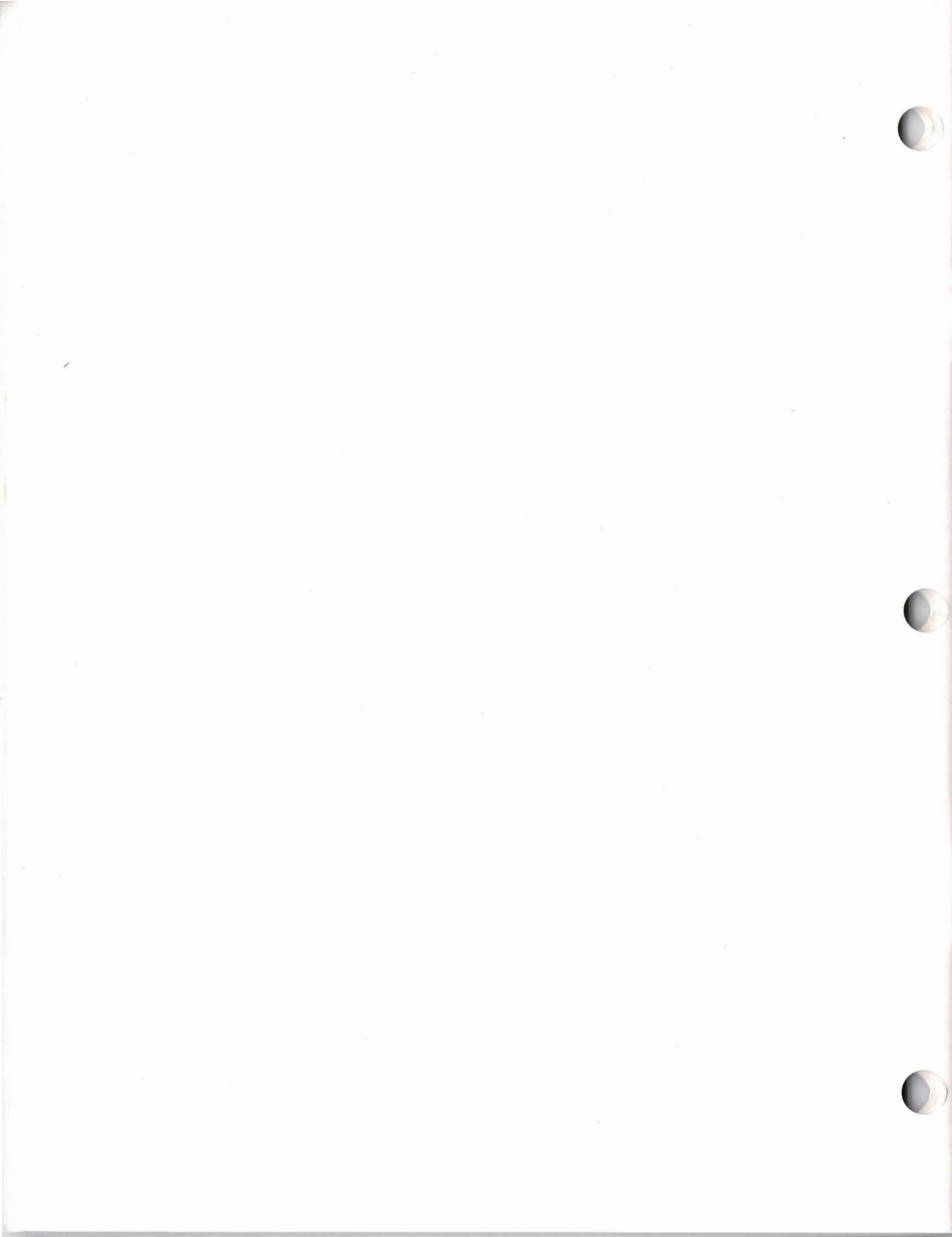
**NOTE:** The hard disk is assigned the first available (no lower than C) letter after all physical floppy diskette drives have been assigned letters. The first two floppies addressed are assigned two logical device letters after the hard disk's letter is assigned.



---

**Summary of Important Points** Here's a summary of the important points to remember from this chapter:

- You can transfer your files from IBM storage devices to GRiD storage devices using the PCMASTER and PCSLAVE commands. See Chapter 3 for details.
- The GRiD MS-DOS MODE command controls the modem, printer, external monitor, and other devices attached to your GRiDCase Plus. Proper use of this command extends battery life.
- Use the HELP command to learn about the MODE command and other commands and facilities. See the *MS-DOS Reference* manual for detailed information not found using HELP.
- Use the COPY command—not DISKCOPY—to duplicate 3 ½-inch diskettes to 5 ¼-inch diskettes, and vice versa.
- Use the RAMDISK utility to speed up application programs and minimize disk swapping. Install RAMDISK by adding the statement  
DEVICE = RAMDISK.SYS [disksize] [,#directory entries] to the CONFIG.SYS file on your start-up device.
- Use the NUMPAD utility to activate the NumLk function on your keyboard.
- Install GW-BASIC on your GRiDCase Plus before you use programs written for IBM's BASICA interpreter. Rename GWBASIC.EXE to BASIC.EXE, BASICA.EXE, or to the name of an interpreter if you use a batch file that references an interpreter.
- Use the GRiD MS-DOS MODE command to activate and deactivate the serial port and internal modem each time you use them. (The MODE command also sets the symbolic Hayes switches for the internal modem.) Create a batch file for this purpose when operating from an electrical outlet (versus a battery pack) and the conservation of power isn't a prime consideration.
- Remember that MS-DOS always assigns an extra device letter to the internal diskette drive and to the first external diskette drive, if one is attached. You use the second device letter in "one-drive" operations, such as copying one diskette to another diskette in the same disk drive.



---

## Chapter 3: Moving Application Programs to the GRiDCase Plus

This chapter is for readers who run application programs on an IBM PC, PC/XT, or PC/AT using 5 ¼-inch diskettes and want to run these same programs on the GRiDCase Plus. It describes two methods of moving programs and data files to the GRiDCase Plus:

- Executing programs you currently use on an IBM PC, PC/XT, or PC/AT from the original diskettes placed in the GRiD external 5 ¼-inch diskette drive.
- Copying programs and files from IBM PC, PC/XT, or PC/AT 5 ¼-inch diskette drives to the GRiDCase Plus internal 3 ½-inch diskette drive using the PC File Transfer Utilities (PCMASTER/PCSLAVE)—for use when an external 5 ¼-inch diskette drive isn't available.

Before using either procedure, read the caution about copy-protected application programs below.

---

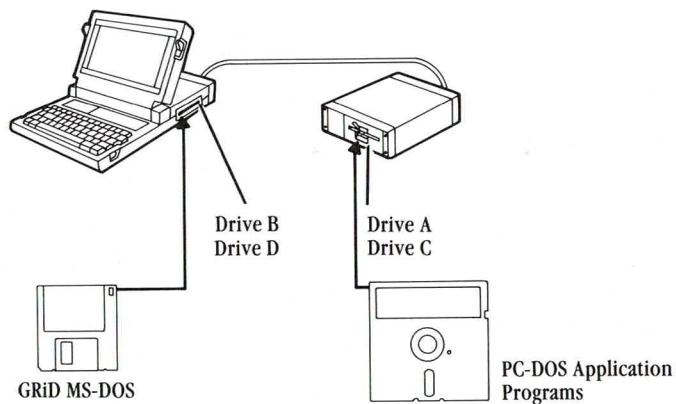
**A Caution About Copy-Protected Application Programs** You can take greatest advantage of the full portability of your GRiDCase Plus when your application program and data files reside on 3 ½-inch diskettes. This allows you to operate from the internal drive, and leave your external storage devices behind when you leave your work area.

You can make a backup copy of an application program from a 5 ¼-inch to a 3 ½-inch diskette if the program isn't copy-protected. A copy-protected program contains an encoded lock that makes duplication impossible. Attempting to duplicate a copy-protected program results in an error.

To find out if an application is copy protected, read the installation documents that comes with it. If it is protected, either try running the program diskette from an external GRiD device, as described below; or contact a GRiD representative to find out if a version of the program is available on 3 ½-inch diskettes.

**Using the External 5 ¼-inch Diskette Drive** This procedure shows how to run IBM PC, PC/XT, or PC/AT application programs on 5 ¼-inch diskettes from a GRiDCase Plus external drive. This procedure requires one external 5 ¼-inch diskette drive with the device letter assignments shown in Figure 3-1; however, other combinations of devices with different device letter assignments are possible.

Figure 3-1. *Running a Program from the GRiD Model 2202 5 ¼-inch Diskette Drive*



### To Run an Application Program from a GRiD External 5 ¼-inch Diskette

1. Set the switches on the bottom of the external drive to 00 (both switches are in the "down" position); this causes the external drive to be assigned device letter A.

**CAUTION:** Be sure to turn off power to the external drive and the GRiDCase Plus before changing the switch settings, otherwise damage to your equipment could result. In addition, MS-DOS recognizes the new settings only after a "cold" start—when you turn on the power switch of the computer.



2. Insert the application program diskette into the external drive and the MS-DOS system diskette into the internal drive.
3. Press the F key as you start up (boot) MS-DOS. Pressing the F key ensures that the GRiDCase Plus uses the MS-DOS system diskette in the internal drive—not PC-DOS, which might be on the application diskette in the external drive.

After start-up, the system prompt appears, indicating the internal drive:

B>

The following device letters, assigned by MS-DOS, are now in effect:

External drive: A, C

Internal drive: B, D

Have a formatted 3 ½ -inch diskette ready if you intend to copy program or data files to the GRiDCase Plus internal drive.

4. Change the default device to Drive A by entering:

B>A:

5. The system prompt appears, indicating the external drive:

A>

Enter the name you normally use to invoke your application program and try using it.

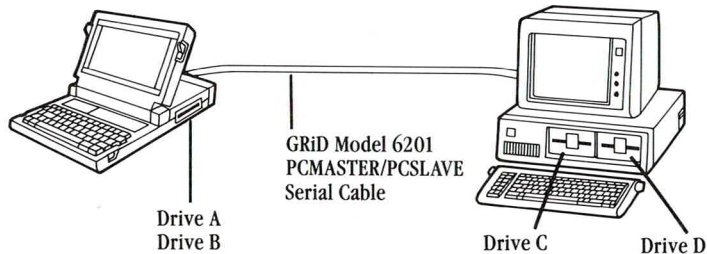
---

**Using the PC File Transfer Utilities** This procedure uses the PC File Transfer utilities (described in detail in Chapter 12 of the *MS-DOS Reference* manual) to move files from storage devices on an IBM Personal Computer to GRiDCase Plus storage devices. These utilities are most useful for transferring files when an external GRiD 5 ¼ -inch diskette drive is unavailable. You can also transfer files from your GRiDCase Plus to an IBM PC, PC/XT, or PC/AT.

The PC File Transfer utilities consist of two programs, PCMASTER and PCSLAVE. The programs run concurrently, one on a GRiDCase and one on an IBM PC, PC/XT, or PC/AT connected by a cable attached to a serial port of each computer.

Figure 3-2 shows a typical PCMASTER/PCSLAVE configuration; the procedure that starts below assumes this configuration of storage devices, although many others are possible.

Figure 3-2. *Moving Files Using the PC File Transfer Utilities*



As shown in Figure 3-2, GRiD MS-DOS assigns the letters A and B to the GRiDCase Plus internal diskette drive, and C and D respectively to the drives on the IBM PC. (Normally, PC-DOS assigns A and B to these two drives.)

If the PC had one diskette drive (instead of two as shown in Figure 3-2) and a fixed disk, GRiD MS-DOS would have assigned Drive C to the diskette drive and Drive D to the fixed disk.

To use the transfer procedure, you need the following:

- The GRiD MS-DOS system diskette, which contains the PCMASTER.SYS file.
- The GRiD-supplied 5 ¼-inch diskette that contains the PCSLAVE.COM file.
- A PC-DOS boot diskette for your IBM PC, PC/XT, or PC/AT.
- One or more formatted 3 ½-inch diskettes, for copying files to the GRiDCase Plus internal drive.
- The GRiD Model 6201 PCMASTER/PCSLAVE Serial Cable, which connects the serial port of the two computers. (If a null-modem cable is available, you can try to use it instead, though all null modem cables may not work. See Chapter 12 of the *MS-DOS Reference* manual for details.)
- If you are using the standard serial port on an IBM PC/AT, you will need a 9 pin to 25 pin adapter cable, included with your PC/AT or available from your computer dealer.

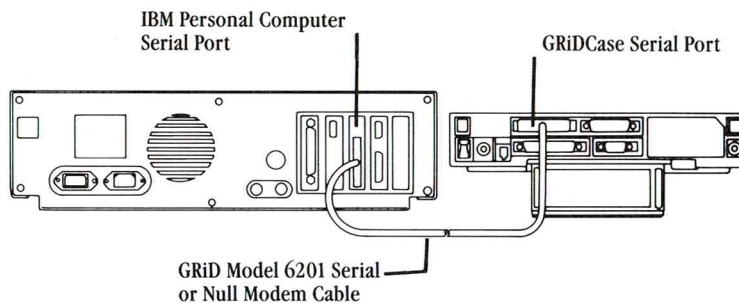
**WARNING:** The computer system that is running the most current version of MS-DOS must be the master station. For example, if you are using an IBM PC/AT running PC-DOS 3.1 and a GRiDCase Plus running MS-DOS 2.11, then the IBM PC/AT must be the master station.

Below are the steps to follow in transferring files from an IBM Personal Computer with two diskette drives, to diskettes in the GRiDCase Plus internal drive. In this example, the GRiDCase Plus is the master station and the IBM PC or PC/XT is the slave station. To reverse the master/slave stations, follow the same steps listed below, except perform all of the actions that you would normally perform at the GRiDCase Plus station on the IBM PC or PC/XT, and vice versa.

### To Run PC File Transfer

1. Turn off the power to both the IBM PC or PC/XT and the GRiDCase Plus.
2. Connect the serial ports of the two computers using the GRiD 6201 cable or your own null modem cable as shown in Figure 3-3.

Figure 3-3. PCMASTER/PCSLAVE Cable Connection



3. At the IBM PC or PC/XT:

- Insert the PC-DOS boot diskette into Drive C (see Figure 3-2) and start up PC-DOS by turning on the power.
- Replace the boot diskette with the 5 ¼ -inch diskette that contains PCSLAVE.COM.
- To indicate transfer through the COM1 serial port, enter the following command:

```
A>PCSLAVE
```

If you already have a device attached to the COM1 serial port, you can use the COM2 serial port. To indicate transfer through the COM2 serial port, enter the following command:

```
A>PCSLAVE 2
```

The following messages are displayed after you enter the command in either format:

```
Slave station ready
Enter commands at master station
Enter Ctrl-C upon completion
```

**NOTE:** It may take several seconds for the above messages to appear. Don't go to the next step until you see these messages.

4. At the GRiDCase Plus:

- Insert the MS-DOS system diskette into the internal drive and start up MS-DOS by turning on the power.

**NOTE:** Always start up MS-DOS at the master station *after* start-up of the slave station (Step 3). This allows MS-DOS to accurately assign letters to the storage devices at the slave station.

- Create a CONFIG.SYS file on the GRiDCase Plus start-up device that contains the following statement (or add the statement to an existing CONFIG.SYS file):

```
DEVICE = PCMASTER.SYS
```

(If this statement is already in CONFIG.SYS, disregard this step and go to Step 5.) For instructions on creating or modifying a CONFIG.SYS file, see Appendix A.

**NOTE:** If the IBM is the master station and you want to use the COM2 serial port, use the statement `DEVICE = PCMASTER.SYS 2`.



- Restart MS-DOS by turning the power off, then on. Because PCMASTER is installed in the CONFIG.SYS file, power to the serial port is automatically turned on. There is no need to turn on the serial port power with the MODE command.
5. At the IBM PC or PC/XT, insert into Drive D the source diskette containing the files to be copied (see Figure 3-2). If you have a fixed disk rather than a second diskette drive, Drive D refers to the fixed disk. Steps 6 and 7 that follow assume that Drive D is a diskette drive.
  6. At the GRiDCase Plus, you can specify any device on either the GRiDCase Plus (Drive A and B) or the IBM PC or PC/XT (Drives C and D) in all MS-DOS commands *except* the following:

```
FORMAT  
DISKCOPY  
DISKCOMP  
FDISK
```

You can execute the above commands successfully only when they relate to devices at the master station.

For example, if you wish to look at the directory in Drive D (see Figure 3-2), enter

```
A>DIR D:
```

and the directory of files appears on the GRiDCase Plus screen.

To copy *all* the files from the diskette in Drive D to the 3½-inch diskette in the GRiDCase Plus internal drive, insert, if necessary, a formatted target diskette, and then enter the following command:

```
A>COPY D:*.* A:
```

7. Continue copying files as required from Drive D. Upon completion of file transfer operations, go to the next step to disconnect the two computers.
8. At the IBM PC or PC/XT, press Ctrl-C after completing the file transfer.
9. At the GRiDCase Plus, continue normal operations. If you don't intend to use PCMASTER/PCSLAVE again, you may want to delete CONFIG.SYS or, if applicable, restore the original CONFIG.SYS file.  
If you do reinstall a former CONFIG.SYS file, you must restart MS-DOS before it takes effect.

### File Transfer Error Messages

During a file transfer, messages that require action on your part may appear. Here are the messages you can receive and what you must do.

**Message:** **Serial port specified does not exist on system**  
**What to Do:** You issued a PCSLAVE command. Either the serial port you specified doesn't exist, or your computer doesn't have a serial port. To use the COM1 serial port, enter either of the following commands:

PCSLAVE or  
PCSLAVE 1

To use the COM2 serial port, enter the following command:

PCSLAVE 2

**Message:** **Data error reading drive x**  
**Abort, retry, ignore?**

**What to Do:** First, make sure that the null modem cable connecting the serial ports of the two computers is firmly attached and try again (enter R, for *retry*).

**Message:** **Not ready error reading drive x**

**What to Do:** (*x* is a letter indicating the storage device.) Check the following:

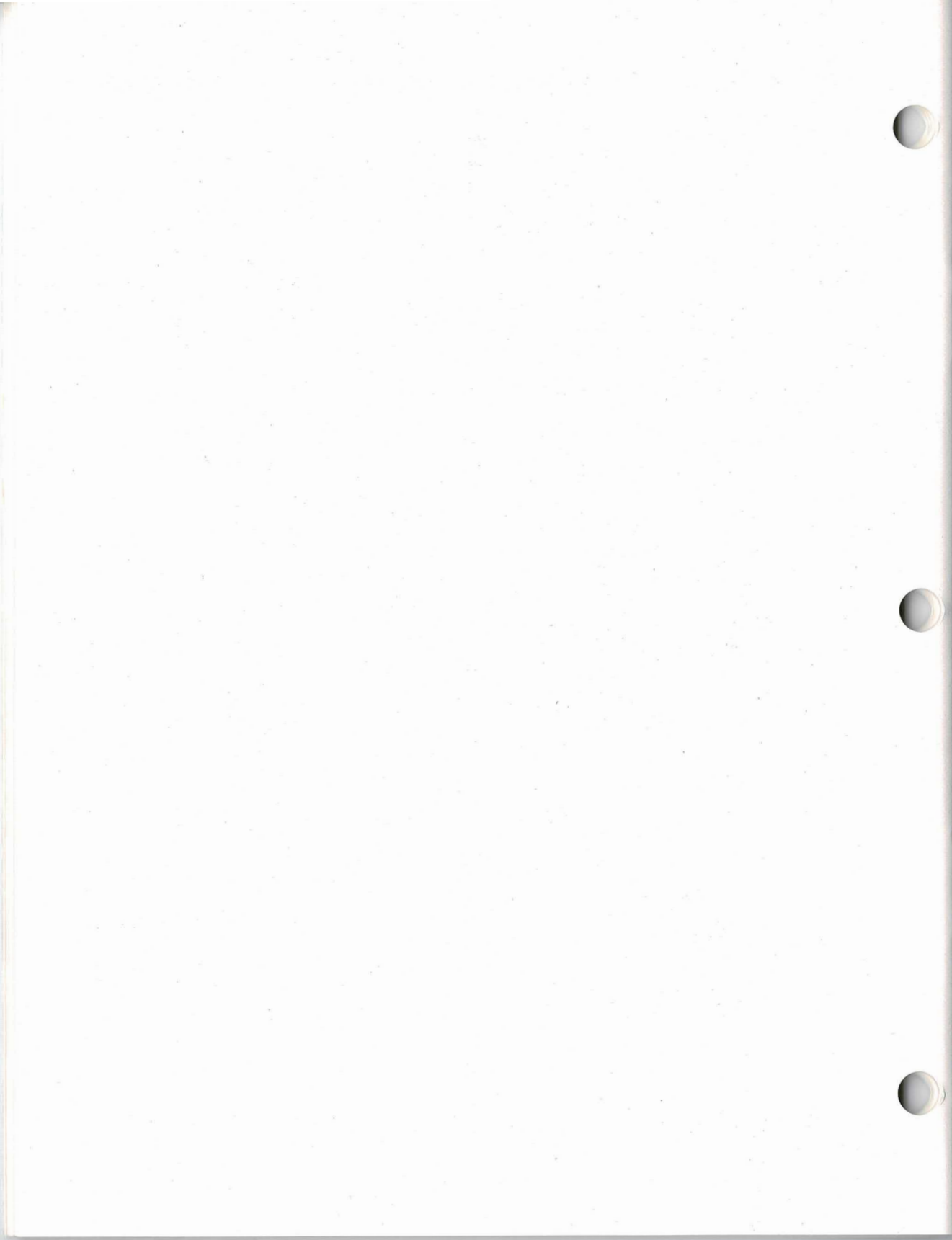
- Make sure the diskette is properly inserted.
- Make sure the diskette is in the drive that corresponds to the device letter you specified in the command. See the section Assignment of Device Letters in Chapter 2 to find out which device letters you should specify.

### File Transfer Troubleshooting

If you have problems with the file transfer utilities, be sure to check the following items.

- Ensure that you have the most current versions of PCMASTER.SYS and PCSLAVE.COM.
- Ensure that the system running the highest numbered version of MS-DOS or PC-DOS is the master station.

- Ensure that you are using a GRiD Model 6201 cable, or equivalent, such as an INMAC null modem serial cable. Refer to Chapter 12 of the *MS-DOS Reference* manual for cable details.
- If more than one serial port exists on the IBM PC system, ensure that the card switches are set correctly and the cable is plugged into the correct serial port.
- Ensure that the serial port specified in the PCSLAVE command is the port that the cable is plugged into.
- At the PCMASTER station, ensure that the CONFIG.SYS file on the boot device contains the statement DEVICE = PCMASTER.SYS [1 | 2]. Also, ensure that the serial port configuration hasn't been changed from the system default. (This can be changed by the MODE command, printer drivers, or communications programs.) You can reset the serial port by rebooting.
- Some programs bypass the file system and access disks directly. Trying to access a slave device from the master station does not work when using one of these programs. For example, FORMAT, FDISK, DISKCOPY, and DISKCOMP will not recognize devices at the slave station.





---

## Chapter 4: Installation Guidelines

This chapter provides installation guidelines for the MS-DOS application programs listed in the Contents of this booklet.

---

**How to Use this Chapter** If the application you wish to install is listed in the Contents, read the section "About the Table of Special Instructions;" then, read the applicable section listed in the Contents.

If the application program is not listed in the Contents, do the following:

- Try to install the application program as instructed in the documentation provided with the software package.
- If this isn't successful, read through Table 4-1, below. Determine which, if any, of the special instructions apply to your application program and try the installation procedure again using them.
- Contact a local GRiD representative, who may have updated information that wasn't available for this edition of the booklet. GRiD Systems continually updates this list as we test installation procedures for additional application programs.

---

**About the Table of Special Instructions** The information on individual application programs given later in the chapter refers to guideline numbers (G1, G2, G3, etc.) to use during the installation process. When you see such a reference, go to Table 4-1 and follow the instructions that correspond to the guideline number. For example, if you see

Backup: See G1.

you would read the information opposite G1 in Table 4-1. Then, as indicated by G1, set both switches on your external diskette drive to 00 (off,off) and turn on the GRiDCase Plus.

Table 4-1. *Special Instructions*

---

Guideline Number	What To Do
G1	<p><b>Before turning on the GRiDCase Plus:</b> Have MS-DOS assign Drive A to the external 5 ¼ -inch floppy diskette device by doing the following:</p> <ul style="list-style-type: none"><li>□ Make sure that the power to both the GRiDCase Plus and the external diskette drive is turned off.</li><li>□ Set the address switches on the bottom of the external diskette drive to 00 (off, off).</li><li>□ Insert an MS-DOS system diskette into a drive.</li><li>□ Turn on the GRiDCase Plus.</li></ul> <p>After start-up, MS-DOS assigns the device letter A to the external drive. If your internal drive is a floppy, MS-DOS assigns the device letter B to it. If your internal drive is a hard disk, MS-DOS assigns the device letter C to it.</p> <p>MS-DOS assigns a second device letter to the internal (if present) and external floppy drives; the second letter is determined by the number of attached devices. If only one external diskette drive is attached, and your internal drive is a hard disk, MS-DOS assigns device letters A and B to the floppy drive. If your internal drive is a floppy drive device letters will be assigned as follows:</p> <p>Internal drive: B, D</p> <p>External drive: A, C</p> <p>If additional drives are attached, see Assignment of Device letters in Chapter 2 to determine the device letter assignments.</p>

---

**Guideline  
Number**

**What To Do**

G2

**Before turning on the GRiDCase Plus:** Have MS-DOS assign Drive B to the external 5 ¼-inch floppy diskette device by doing the following:

- Make sure that the power to both the GRiDCase Plus and the external diskette drive is turned off.
- Set the address switches on the bottom of the external diskette drive to 01 (off, on).
- Insert an MS-DOS system diskette into a drive.
- Turn on the GRiDCase Plus.

MS-DOS assigns a second device letter to the internal (if present) and external floppy drives; the second letter is determined by the number of attached devices. If only one external diskette drive is attached, and your internal drive is a hard disk, MS-DOS assigns device letters A and B to the floppy drive. If your internal drive is a floppy drive device letters will be assigned as follows:

Internal drive: B, D  
External drive: A, C

If additional drives are attached, see Assignment of Device Letters in Chapter 2 to determine the device letter assignments.

G3

**During installation:** Ignore the following message if displayed:

No room for system on destination disk

MS-DOS displays this message because the installation procedure, using the SYS command, tried to place the MS-DOS system files on an application program diskette, and insufficient space was available. The application program reserves only enough space for PC-DOS, which is smaller than GRiD MS-DOS.

**Before executing the application program:** Use the MS-DOS system diskette supplied by GRiD to start up MS-DOS, then insert your application program diskette.

If your program is not copy-protected, and the licensing agreement with the vendor permits making back-up copies, then you can make a bootable 3 ½-inch (or additional 5 ¼-inch) diskette using both the FORMAT/S and COPY commands.



---

<b>Guideline Number</b>	<b>What To Do</b>
G4	<b>Before executing the application program:</b> Because the application program is copy-protected, you must always run it from the external 5 ¼-inch floppy diskette drive.
G5	<b>During installation:</b> Don't use the DISKCOPY command when copying 5 ¼-inch to 3 ½-inch diskettes as instructed by the user manual. (See When To Use COPY Instead of DISKCOPY in Chapter 2 for the reasons why this is desirable.) Instead, use the FORMAT command first to format a blank diskette:  A > FORMAT B:/S  Then, use the COPY command to duplicate the application program files to the newly formatted diskette:  A > COPY A:.* * B:  The above example assumes that Drive A is the external diskette drive with the application program files, and that Drive B is the internal diskette drive containing a blank, formatted diskette. If your system has the internal hard disk option, you should instead use the command:  A > COPY A:.* * C:
G6	<b>Before executing the application program:</b> Change the name of the GWBASIC.EXE file to BASICA.COM as follows:  A > REN GWBASIC.EXE BASICA.COM

---



---

**Guideline  
Number****What To Do**

---

G7

**Before executing the application program:** Activate the internal modem as follows:

```
A > MODE MODEM = ON
```

The internal modem, which acts like a Hayes Smartmodem, has symbolic software switches that correspond to the Hayes hardware switches. See Changing Hayes Switch Settings in Chapter 2 for initial settings of the switches and how to change them.

After you use the application program, deactivate the internal modem as follows:

```
A > MODE MODEM = OFF
```

See Chapter 2 for information on using a batch file to automate this procedure.

---

G8

**Before executing the application program:** Assign Drive B to Drive A as follows:

```
A > ASSIGN B = A
```

The application expects a diskette in Drive B. After you issue the above command, the program uses Drive A as though it were Drive B.

To cancel the assignment of Drive A to Drive B, either restart your system or enter:

```
A > ASSIGN
```

---

G9

**During installation:** The application program and the data files you create with the program must reside on the same diskette.

---

G10

Text designated as bold doesn't appear highlighted, but does appear in a type font different from normal text. Such text appears highlighted on an external color monitor connected to the GRiDCase Plus.

---

**Guidelines for Specific Application Programs** The following descriptions apply specifically to MS-DOS application programs and their installation on the GRiDCase Plus. Each description gives instructions unique to the application program and refers you to Table 4-1 for other instructions.

**CROSSTALK (v. 3.61)**

- Publisher:** Microstuff
- Backup:** See G2. Follow the instructions in the section "Preparing Your System" in Chapter 3 in the user manual.
- Install:** Use the MODE command to set the Hayes Smartmodem switches emulated by the internal modem. See Chapter 2 for details.
- Execution:** See G7

**DBaseII (v. 2.41)**

- Publisher:** Ashton-Tate
- Backup:** See G5. Copy the installation files from the utility diskette onto the same 3 1/2-inch diskette as the system files.
- Install:** Type "install" and choose the option to install on an IBM (Option N).

**DBaseIII Plus (V. 1.1)**

- Publisher:** Ashton-Tate
- Backup:** Make one 3 1/2-inch diskette copy of each 5 1/4-inch diskette, and use the 3 1/2-inch diskettes as your working disks.
- Install:** Obtain an unprotected version of DBaseIII Plus and follow the install procedures as outlined in the DBaseII Plus Manual. Existing DBaseIII Plus users should contact Ashton-Tate for an unprotected version of the software. New users may obtain this unprotected version from GRiD.

**Enable (v. 1.1)**

- Publisher:** The Software Group
- Install:** Follow the install procedures as outlined in the Enable Manual.

**Framework II (v. 1.1)**

- Publisher:** Ashton-Tate
- Backup:** Make one 3 ½ -inch diskette copy of each 5 ¼ -inch diskette, and use the 3 ½ -inch diskettes as your working disks.
- Install:** The following procedure prepares Framework II for execution on GRiDCase Plus.

**To install Framework II****For GRiDCase Plus Systems with an Internal Floppy Disk:**

1. Turn off your computer. Designate the internal drive as Drive A and the external drive as Drive B by following Procedure G2 in Table 4-1.
2. Copy the Framework 5 ¼ -inch Setup diskette to a 3 ½ -inch diskette by following Procedure G5 in Table 4-1.
3. Insert the Framework 5 ¼ -inch Setup diskette into Drive B (the external drive) and enter:

B> SETUP

4. Follow the prompts for first time installation. For the screen type, choose Option 4 (All other IBM drivers), and for the following prompt, choose Option 3 (IBM color graphics adapter). Select the printer driver corresponding to your printer.
5. The Setup program prompts you to insert the System 1 Disk into Drive B (the external drive). Insert the System 1 Disk into Drive B (external) and insert the MS-DOS diskette into Drive A (internal) and follow the instructions. Note Guideline G3 in Table 4-1.
6. Insert your 3 ½ -inch Setup Disk into Drive A (internal) and press the spacebar to finish installation.

**For GRiDCase Plus Systems with an Internal Hard Disk:**

1. Obtain an unprotected version of Framework II and follow the install procedures with the same options as for the floppy version of GRiDCase Plus.

Execution: See G1. (If you have just installed Framework II you must turn off your system, change the external device switch settings, and re-start MS-DOS).

**Lotus 1-2-3 (v. 2)**

Publisher: Lotus

Backup: See G1 and G5.

Install: The following procedure prepares Lotus 1-2-3 for execution on the GRiDCase Plus.

**To Install Lotus 1-2-3**

**For GRiDCase Plus Systems with an Internal Floppy Disk:**

1. Turn off your computer. Designate the internal drive as Drive B and the external drive as Drive A by following Procedure G1 in Table 4-1.
2. Insert the Lotus Install diskette into Drive A (the external drive) and enter:

A>INSTALL

3. Select the First Time Installation option. Install the display as a Compaq single-color monitor. Install any other devices you plan to use, and save your settings by following the menu prompts.
4. The Install program will prompt you to insert the 1-2-3 System diskette into Drive A, and after that, the PrintGraph diskette. Follow the program instructions and then exit to DOS.



5. Insert the Lotus 1-2-3 System diskette into the external drive and start Lotus by entering:

A> LOTUS

**For GRiDCase Plus Systems with an Internal Hard Disk:**

1. Turn off your computer. Designate the internal drive as Drive B and the external drive as Drive A by following Procedure G1 in Table 4-1.
2. Insert the Lotus Install diskette into Drive A (the external drive) and enter:

A> INSTALL

3. Follow the instructions for Hard Disk system installation.

Execution: See G1 and G4.

**Sidekick (v. 1.11C—Unprotected)**

Publisher: Borland International

Backup: See G5.

Install: Follow the instructions in Appendix B in the user manual. Respond as follows:

- Choose black and white unless you're using a color monitor.
- Modem should be set to COM1.
- Answer *Yes* to the question on the blinking display.

Execution: See G7.

**Symphony (v. 1.1)**

Publisher: Lotus

Backup: See G1 and G5.

Install: The following procedure prepares Lotus Symphony (v. 1.1) for execution on the GRiDCase Plus.

**To Install Lotus Symphony**

**For GRiDCase Plus Systems with an Internal Floppy Disk:**

1. Turn off your computer. Designate the internal drive as Drive B and the external drive as Drive A by following Procedure G1 in Table 4-1.
2. Insert the Lotus 5 ¼ -inch Install diskette into Drive A (the external drive) and enter:

A > INSTALL

3. Select the First Time Installation option. Install the display as a Compaq single-color monitor. Install any other devices you plan to use, and save your settings by following the menu prompts.
4. The Install program will prompt you to insert the Symphony System diskette into Drive A, and after that, the PrintGraph diskette. Follow the program instructions and then exit to DOS.
5. Insert the Lotus Symphony System diskette into the external drive and start Lotus by entering:

A > ACCESS

**For GRiDCase Plus Systems with an Internal Hard Disk:**

1. Turn off your computer. Designate the internal drive as Drive C and the external drive as Drive A by following Procedure G1 in Table 4-1.
2. Insert the Lotus Install diskette into Drive A (the external drive) and enter:

A > INSTALL

3. Follow the instructions for Hard Disk system installation.

Execution: See G1 and G4.

**WordStar (v. 3.3)**

Publisher: MicroPro

Backup: No special procedures.

Install: Follow the procedures in the user documentation.

# Appendix A: Creating a CONFIG.SYS File

This appendix gives a procedure for creating a CONFIG.SYS file using the COPY command.

## To Create a CONFIG.SYS File

1. If you have an existing CONFIG.SYS file, save it as follows:

```
A> COPY CONFIG.SYS filespec
```

where *filespec* is any name you specify for the file to save the original CONFIG.SYS file.

2. Enter the COPY command as shown below and press RETURN.

```
A> COPY CON CONFIG.SYS
```

This statement makes MS-DOS place all characters you enter from the keyboard in the CONFIG.SYS file.

3. Enter any statements that you want to insert into the CONFIG.SYS file (note that the system prompt will *not* appear after Step 2). Press RETURN after each statement, including the last one.

Examples are:

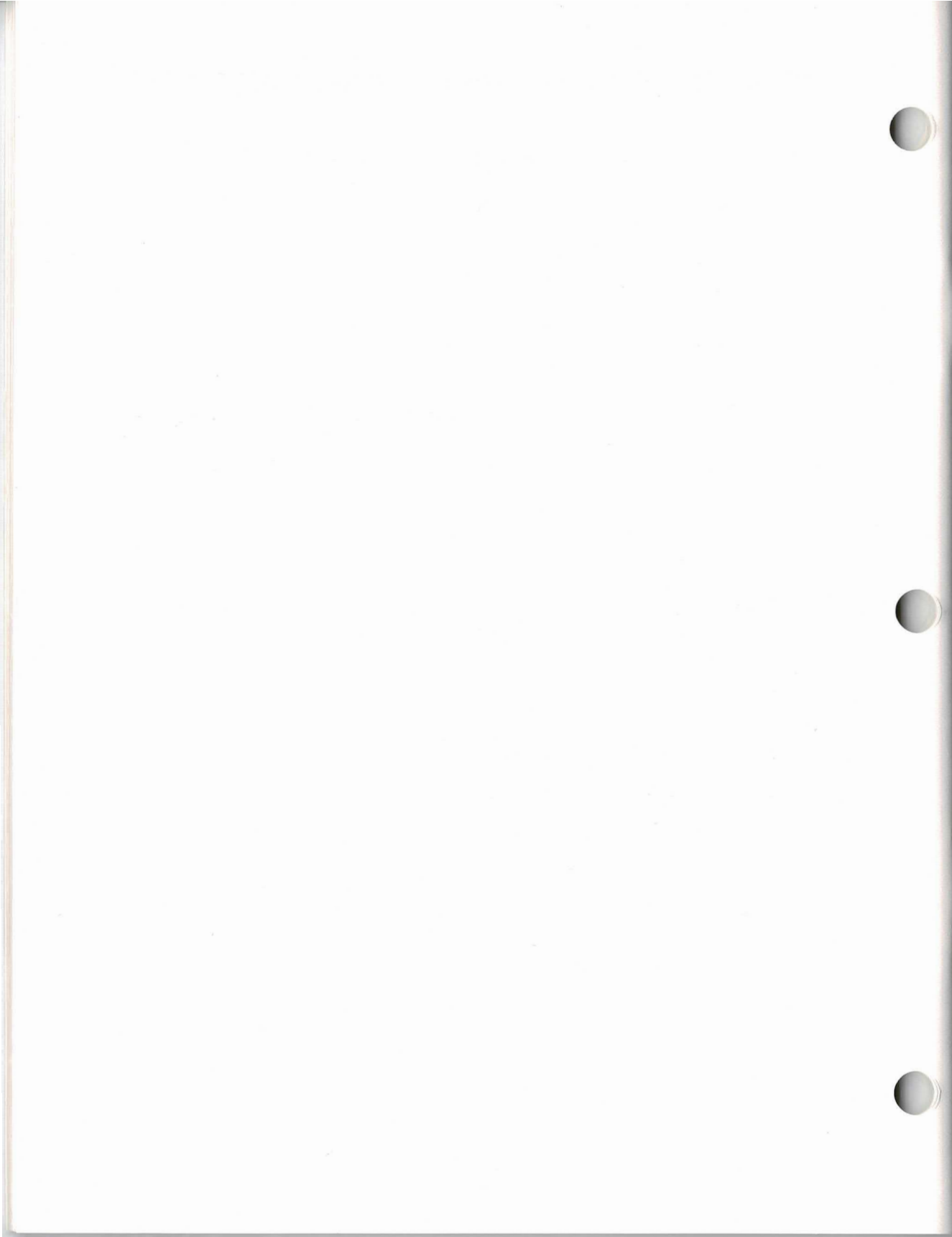
```
DEVICE = RAMDISK.SYS  
DEVICE = PCMASTER.SYS
```

4. Enter Ctrl-Z and press RETURN.

Pressing Ctrl-Z halts the insertion of characters into the CONFIG.SYS file, saves the file, and returns you to the system prompt.

After you complete the above steps, you can display the CONFIG.SYS file using the TYPE command to check the accuracy of your entries.

**NOTE:** You must now re-start your system for the new statements in the CONFIG.SYS file to be recognized.





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