VI User's Guide

Rev. A

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Important Software Diskette Information

For your own protection, do not use this product until you have made a backup copy of your software diskette(s). The backup procedure is described in the user's guide for your computer.

Please read the DISKID file on your new software diskette. DISKID contains important information including:

- The part number of the diskette assembly.
- The software library disk number (for internal use only).
- The date of the DISKID file.
- A list of files on the diskette, with version number, date, and description for each one.
- Configuration information (when applicable).
- Notes giving special instructions for using the product.
- Information not contained in the current manual, including updates, any known bugs, additions, and deletions.

To read the DISKID file onscreen, follow these steps:

1. Load the operating system.
2. Remove your system diskette and insert your new software diskette.
3. Enter —

   type diskid(cr)

4. The contents of the DISKID file is displayed on the screen. If the file is large (more than 24 lines), the screen display will scroll. Type CTRL-S to freeze the screen display; type CTRL-S again to continue scrolling.

THIS INFORMATION IS FURNISHED TO COMPLY WITH FCC REQUIREMENTS.

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna
- Relocate the computing device with respect to the receiver
- Move the computing device away from the receiver
- Plug the computing device into a different outlet so that computing device and receiver are on different branch circuits

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: *How to Identify and Resolve Radio-TV Interference Problems.* This booklet is available from the US Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

WARNING: This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

All peripheral devices must be used with shielded interface cables. Failure to use shielded cables or certified peripheral devices could result in a violation of FCC rules for which the user would be responsible.

VDE NOTICE

The VI 30XX-2 Series Desk Top Business Computer is in compliance with Postal Regulation No. 1046/1984 and is RFI suppressed.

Preface

Your VI computer runs both VICTOR software and IBM PC-compatible software. Although it looks like one computer, the VI has two operating modes: the V mode and the I mode. In V mode, you can run VICTOR programs from either a VICTOR (V) format diskette or a PC (I) format diskette. VICTOR programs include programs written for microcomputers under the names VICTOR, VICTOR 9000, Vicki, VICTOR S1, and SIRIUS 1. In I mode, you can run programs for PC-compatible computers from either a VICTOR (V) format diskette or a PC (I) format diskette.

The VI operating system (DOS) is an enhanced implementation of MS-DOS 2.1. DOS has all the functionality of MS-DOS and includes additional features. The operating system files are divided into separate libraries (directories): one for V mode operations, one for I mode operations, and one for common operations.

The VI can read and write either IBM PC (I) format or VICTOR (V) format diskettes from either mode. Because V-format diskettes can store almost four times as much data as the I-format diskettes, you will want to store PC-compatible programs on V-format diskettes. Then you can run your PC-compatible application and associated data on the same diskette.

There are two models of the VI: the fixed disk model and the dual floppy model. The fixed disk model has either a 10-megabyte or a 30-megabyte storage capacity. By carefully setting up your fixed disk, you can operate in both modes with ease. Chapter 4 leads you through the initial set-up procedures for your fixed disk.

This User's Guide explains the hardware set-up and the procedures necessary for you to start using your VI. You learn how to boot up DOS, recognize the mode, and then start working with your files.

This manual is organized as follows:

Chapter 1, Getting Started, describes how to set up your computer.

Chapter 2, Using Your Computer, describes your VI system diskette and file structure. Then it explains how to load the operating system and enter the date and time. This chapter also explains how to use the VI keyboard in each mode and how to switch between modes.

Chapter 3, Working with DOS, explains how to use the DOS commands you will use regularly.

Chapter 4, Setting Up Your Fixed Disk, describes how to automatically set up your fixed disk with a single volume and a DOS partition.

Chapter 5, Fixed Disk Maintenance, explains how to back up and restore files on your fixed disk. It also explains how to customize your fixed disk set-up.

Appendix A lists system messages and their codes, and describes the boot ROM process.

Appendix B describes set-up and maintenance procedures for the VI, care of diskettes, and setting the color emulation switches.

Appendix C discusses troubleshooting options.

Appendix D illustrates the foreign keyboards.

Appendix E illustrates the character sets.

Appendix F describes how to attach peripheral devices.

Appendix G provides the display driver specifications for V mode.

Appendix H outlines the differences between DOS and PC DOS.

Appendix I lists the reserved filenames and device names.

Manual Conventions

This manual uses the following conventions:

- When a command format or example is shown, it is displayed in boldface on a separate line.
- In examples and command formats, pressing the Return key is shown as (cr), and typing a space is shown as (sp).
- Some examples show the screen, including what you type and the system's response. In these screen examples, what you type is underlined and all-lowercase. For example:

```
A>copy work.txt b:payroll.doc(cr)
```

- In the examples, the system prompt is shown as A>, unless specified otherwise. Your system prompt might have different or additional characters.
- In the text, names of programs, files, and commands appear in all-uppercase—for example, FORMAT.EXE, PIZZA.YUM, or COPY. You can enter filenames or commands in upper- or lowercase.
- The CTRL (Control) key acts as the "control" key on your computer. In text, "CTRL" represents the Control key. For example, CTRL-C represents typing the Control function of key C. In screen examples, the CTRL key is shown as a caret (^), such as ^C.

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Getting Started

The VI can run PC-compatible programs and VICTOR programs by operating in two modes: VICTOR (V) and IBM PC (I). Before you can work in either mode, you must set up your computer. This chapter introduces you to setting up your computer and preparing your disks to operate in both modes. Chapter 2 describes the two modes in detail.

Remove your VI from its shipping carton and set it up as described in Chapter 1.1.2. See Appendix B for the specific temperature and electrical requirements for the VI.

1.1 Two VI Models: Fixed Disk and Dual Floppy

Two models of the VI are available: the fixed disk model and the dual floppy model. This manual discusses the differences where applicable. You should assume that the discussions and instructions apply to both models unless otherwise noted.

1.1.1 Components

The VI is shipped with the following components:

- The system unit, which contains the disk drives and other internal components: the central processing unit (CPU), power supply, and memory boards.
- The screen, or display unit.
- The keyboard. The following keyboards are available: American, British, French, German, and Swedish. Refer to Appendix D for illustrations of the foreign models.

- Documentation:
  - —VI User's Guide
  - —DOS 2.1 Reference
  - —VBASICA
- Software:
  - —VBASICA
  - —DOS 2.1 Master
  - —DOS 2.1 Backup

Figures 1-1 and 1-2 illustrate the system unit, screen, and keyboard for each of the VI models.

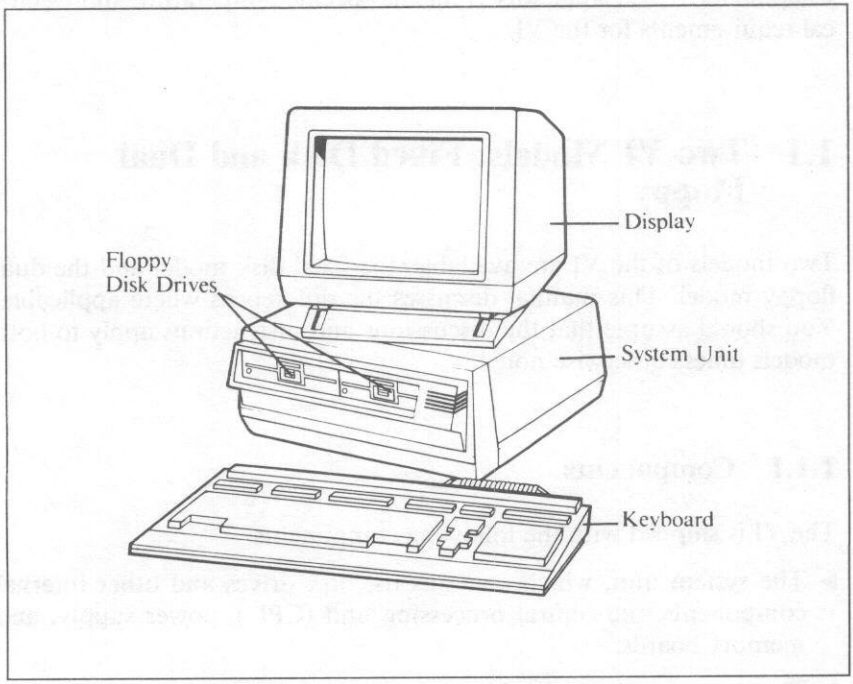

Figure 1-1: The Dual Floppy Disk Drive Model

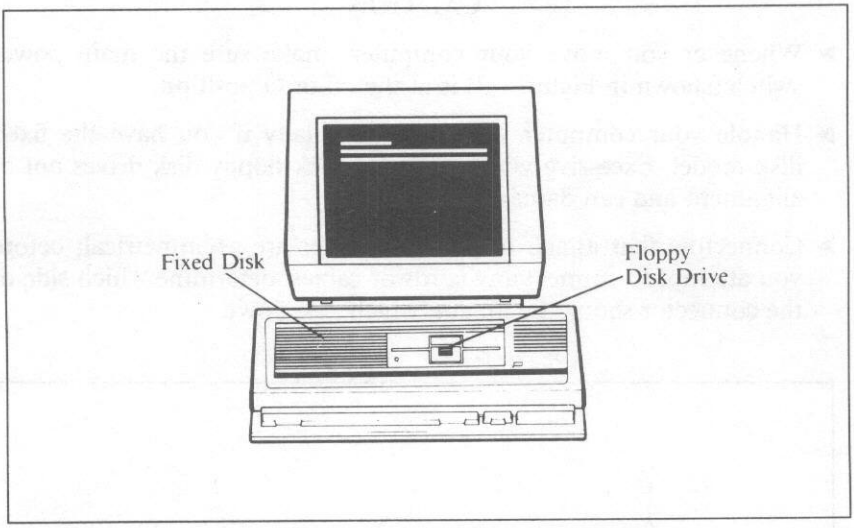

Figure 1-2: The Fixed Disk Model

CAUTION

- Whenever you move your computer, make sure the main power switch (shown in Figure 1-3) is at the off or O position.
- Handle your computer with care, especially if you have the fixed disk model. Excessive vibration can knock floppy disk drives out of alignment and can damage a fixed disk.
- Connectors that attach to your computer are asymmetrical; before you attempt to connect any cords or cables, determine which side of the connector should be up and which side down.

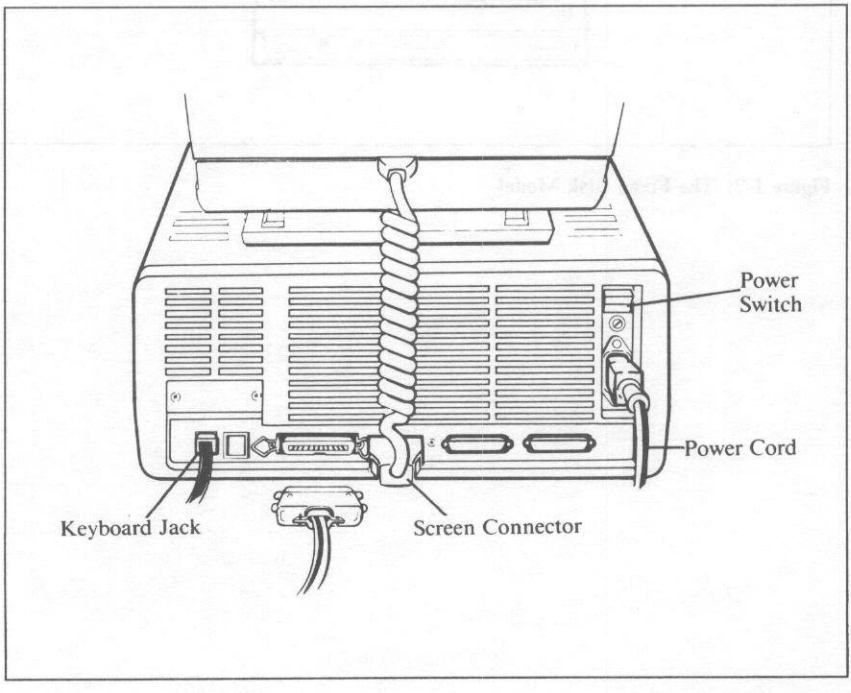

Figure 1-3: Back of System Unit

1.1.2 Setting Up Your Computer

To set up your computer, you need a level, sturdy work surface about two feet square. Follow these steps to assemble and install your VI:

1. Place the system unit on your desktop, with the VI label facing you.
2. Place the platform for the screen on top of the system unit. A hole in the platform bottom fits over a peg in the top of the unit.
3. Place the screen in the grooves on the platform (refer to Figure 1-4).
4. Plug the screen connector into the center jack in the back of the system unit (see Figure 1-3). To disconnect the plug later, press in the tabs on the sides of the plug while pulling it out (see Figure 1-5).
5. Plug the keyboard cord into the keyboard jack (see Figure 1-3). The cord can go around or under the system unit. Place the keyboard in a stable position within cord range.

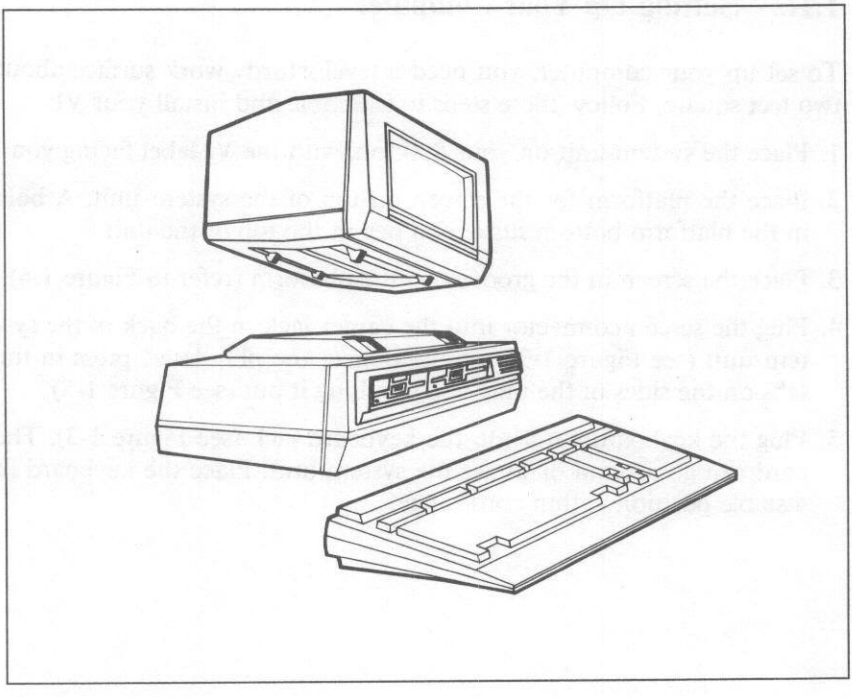

Figure 1-4: Positioning Computer Parts

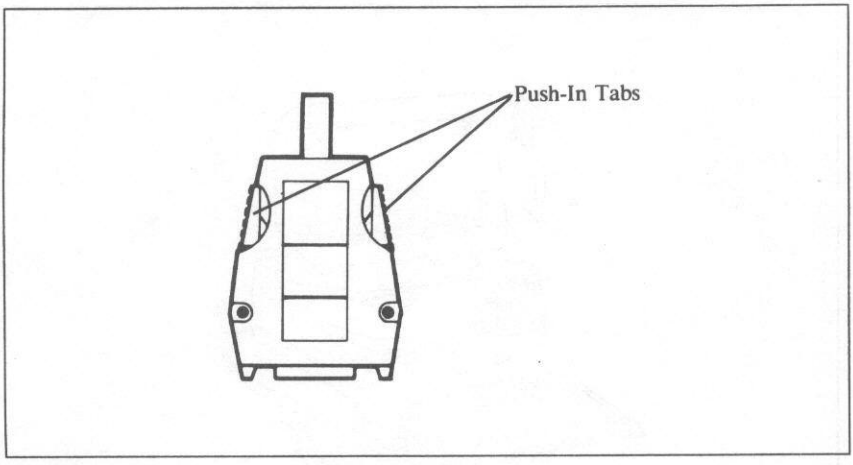

Figure 1-5: Screen Connector

6. Plug the power cord into the system unit (see Figure 1-3). The plug on the power cord can have two or three prongs; plug it into an appropriate wall outlet. Do not use any other power cord with your computer.
7. Adjust the angle of the screen for easy viewing. You can gently rotate the screen sideways or up and down, as shown in Figure 1-6.

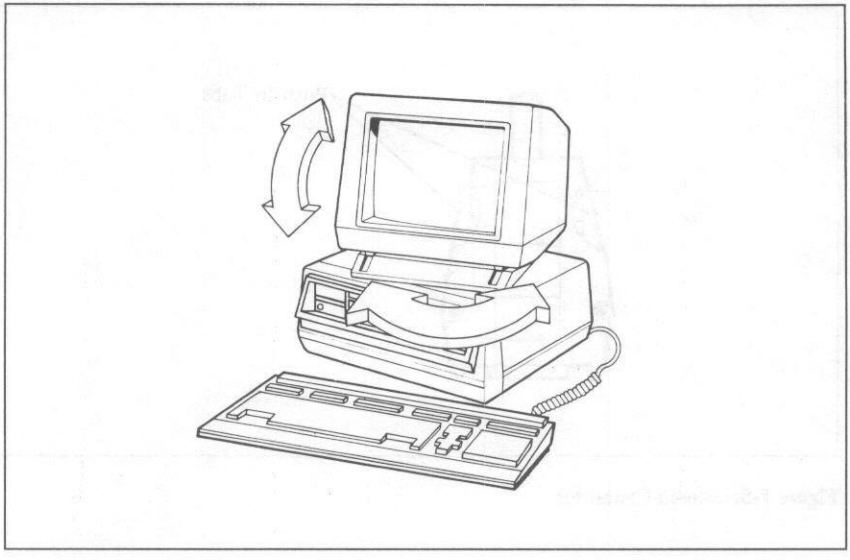

Figure 1-6: Adjusting the Display Unit

1.1.3 Turning Your System On

Before you turn the power on or off, ensure that the disk drives are empty and the drive doors are open. Follow these steps to turn on the power:

1. Open the doors to the floppy disk drive(s):
   - ▶ The door to a floppy disk drive is on the front of the system unit, as shown in Figure 1-7.
   - ▶ Each drive has a door, the latch in the center of the drive slot. Open the door by pushing in on the latch as shown in Figure 1-7.
2. Ensure that the drive is empty. Remove any floppy diskettes or cardboard head protectors. Cardboard head protectors are packed in the drives when the computer is shipped from the factory. Save these pieces of cardboard; reinsert them and close the drive doors when you move your computer.

Warning: Damaged or bent cardboard head protectors should be discarded and new ones obtained from your dealer.

3. Turn on the main power switch (see Figure 1-3) by pressing the rocker switch to the ON or | position.

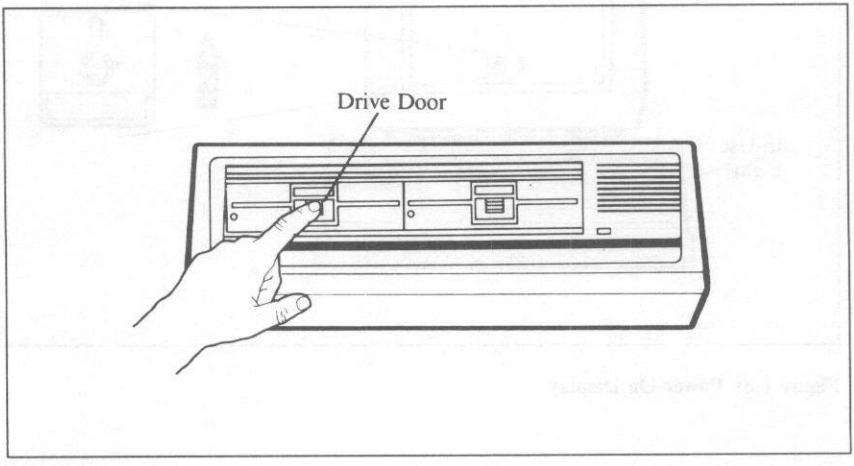

Figure 1-7: Opening a Drive Door

When you turn on the power, you should see the power-on symbol on the screen, as illustrated in Figure 1-8. This initial, power-on symbol is a flashing arrow and a diskette symbol, indicating that you should insert a system diskette in your computer.

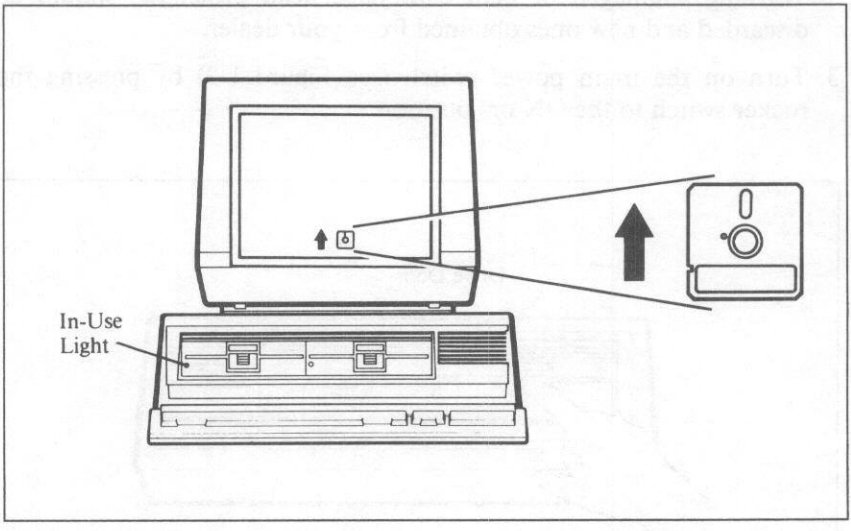

Figure 1-8: Power-On Display

1.1.4 Turning Your System Off

Follow these steps to turn off your system:

1. Remove diskette(s) from the drive(s) and store them safely. Before you remove a diskette from a drive, be sure that the in-use light for the drive is off. You can disregard any light on an empty drive (except that it could indicate a hardware problem).
2. Turn off the main power if you are leaving your computer for several hours.

Note: To protect your work, always remove and store your diskettes when you are finished using the VI.

1.2 The VI Keyboard

This section describes your keyboard and its design, and discusses the keyboard functions you can perform. Figure 1-9 shows the American standard keyboard; see Appendix D for illustrations of the keyboards designed for different languages. Each keyboard has special characters for that language, and might also have different key arrangements. Chapter 2 describes keyboard differences in V mode and in I mode.

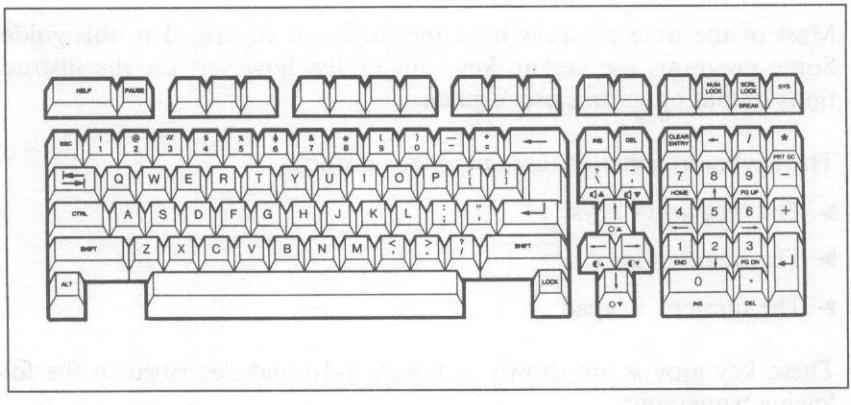

Figure 1-9: The VI Keyboard

To use the keyboard, first set up your computer, plug in the keyboard, and load the operating system. Pressing a key on the keyboard does two things:

- Displays a character on the screen (for most characters)
- Transmits code representing the key location to the CPU

Besides a physical keyboard, your computer uses an operating system's key value table—a part of DOS that tells the computer what character and code to generate for each keystroke and key location. Your computer also has a large character set, consisting of up to 256 characters, symbols, and graphics (see Appendix E). When you print out files, your printer might not reproduce all the characters in the screen display. This happens most often with typewriter-style printers (such as

daisy-wheel printers) because they have a limited character set (a daisy-wheel usually has less than a hundred characters). Some dot-matrix printers have a graphics mode in which they can produce any character by filling in portions of the character matrix with the appropriate pattern. Consult your printer manual for more information.

1.2.1 Key Functions

Most of the time the keys have the functions described in this guide. Some programs use certain keys differently, however; see the instructions in that program's user's guide.

The keyboard contains three main key groups:

- The typewriter keys
- The function keys
- The numeric keypad

These key groups are shown in Figure 1-10 and described in the following paragraphs.

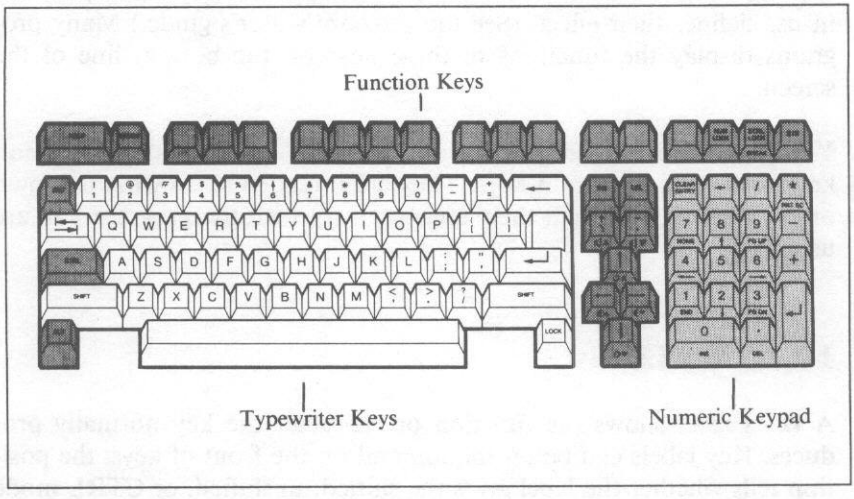

Figure 1-10: The VI Keyboard's Key Groups

You can type on the typewriter keys just as you type on a typewriter. You can correct most mistakes with the Backspace key (labeled with a left-arrow).

If you make a mistake in a DOS command, DOS displays an error message telling you that the command is "bad." You can retype the command correctly after this type of error message.

The CTRL (Control) key on the VI keyboard has a special function. The CTRL key is always used with a second key; it performs CTRL-key (Control) functions. To enter a CTRL-key function (such as CTRL-C), hold down the CTRL key and press the other key (in this case, the letter c or C). Most CTRL-key sequences perform functions defined by DOS or the program you are using.

DOS also has special CTRL-key functions that you can use to edit your commands to the operating system (see the *DOS 2.1 Reference*). For example, CTRL-S freezes the screen.

The top row of function keys are general function keys. The program in use defines their effect. (See the program's user's guide.) Many programs display the functions of these keys on the bottom line of the screen.

Your keyboard has ten general function keys. The remaining function keys are specific function keys. They are intended to do what is shown on their labels, although their use may vary with the program you are using.

1.2.2 Key Labels

A key's label shows the function or character the key normally produces. Key labels can be on the top and on the front of keys; the position tells whether the label gives the shifted, unshifted, or CTRL mode (see Figure 1-11). Remember, however, that the character produced is determined by the operating system's key value table, not by the key label, and can be different depending on the operating mode, I or V.

Keytop labels in the typewriter section show the character that the key produces. For alphabetic characters, only one key label exists; pressing the key unshifted produces lowercase, and pressing the key shifted (with the Shift key) produces uppercase. Pressing the key together with the CTRL key might produce a different character or a Control function that DOS or the current program defines.

A two-part label on top of the key (such as the labels on the number keys in the typewriter section) indicates that the key has different shifted and unshifted functions. For example, the key that produces the numeral 5 unshifted might produce the percent sign shifted.

Labels on the front of the key give the key's Control function (Figure 1-11). For example, the cursor movement keys have keyfront labels that show their Control functions as contrast and brightness control keys.

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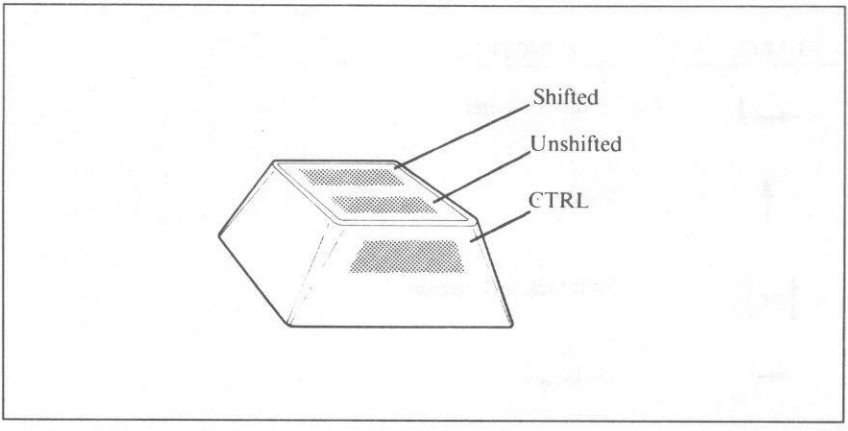
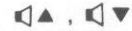


Figure 1-11: Key Label Positions: Unshifted, Shifted, and CTRL

Symbols are used as key labels on some keyboards. Table 1-1 defines the symbol labels. (Your keyboard might not use these symbols.)

Table 1-1: Symbols on Key Labels

LABEL	FUNCTION
	Return or Enter
	Shift
	Shift lock/lock release
	Backspace
	Tab
	Cursor control
	Brightness control
	Contrast control
	Audio control

1.2.3 Adjusting Brightness, Contrast, and Volume

You can adjust screen brightness, contrast, and audio volume after you load DOS.

- Brightness—You can increase screen brightness when other light sources make it difficult to see the screen.
- Contrast—You can control the onscreen contrast between high- and low-intensity characters when you are using an application that displays high-intensity characters. With the programs that do not support high-intensity characters, the contrast keys work like the opposite brightness key to increase or decrease overall screen brightness.
- Audio—In V mode you can adjust the volume for application programs that use sound, such as beeps.

Adjust brightness, contrast, or volume by pressing the key sequences shown in the following three figures.

Refer to Chapter 2 for other mode-specific keyboard operations.

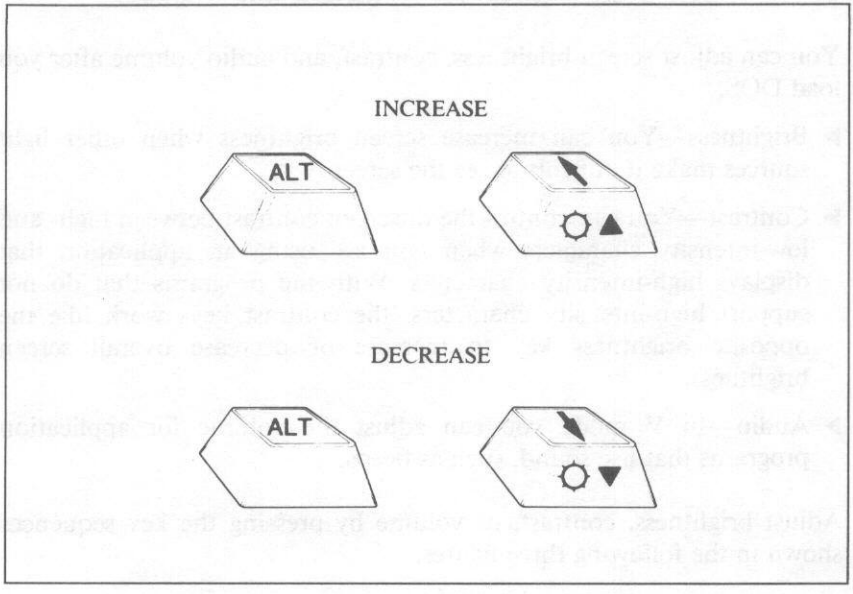


Figure 1-12: Key Sequence for Brightness—Both Modes

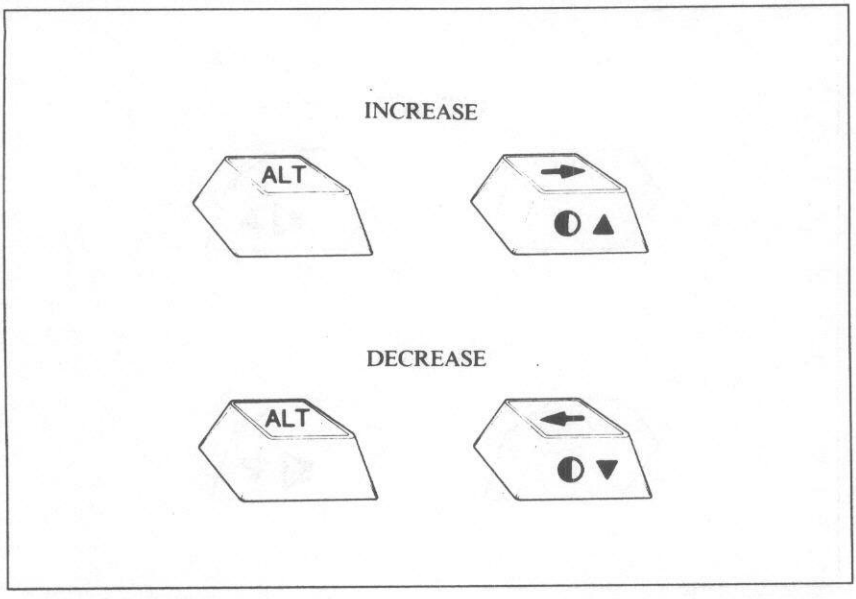


Figure 1-13: Key Sequence for Contrast—Both Modes

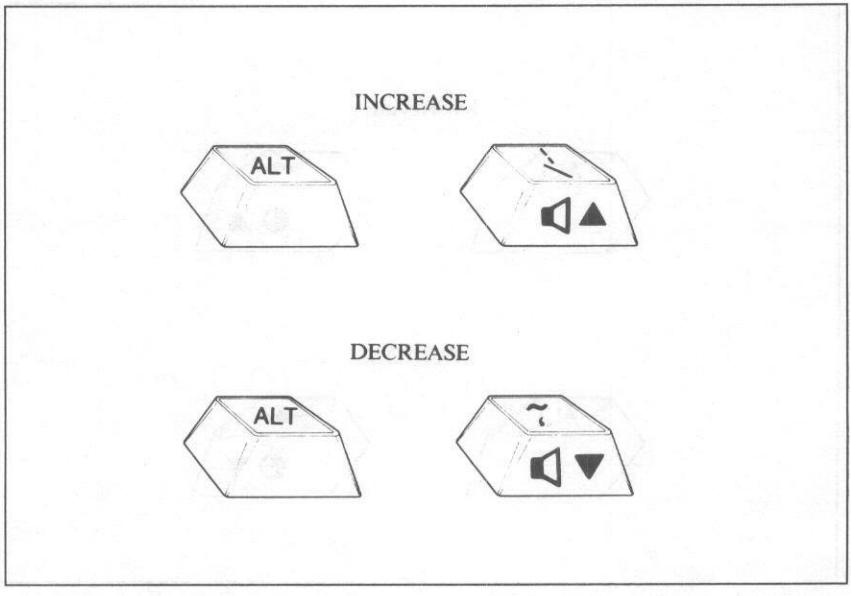


Figure 1-14: Key Sequence for Volume—V Mode Only

1.3 Screens

Your VI screen has a resolution of 800 pixels (addressable dots) horizontally by 400 pixels vertically.

1.3.1 Color Emulation in I Mode

I mode supports emulation of the IBM monochrome screen for text only and the IBM high-resolution (320 × 200 for color and 640 × 200 for black and white) screen for graphics and text.

The VI is manufactured with the switch set to support color emulation. The VI screen produces a display with one color on black. In I mode, with the color emulation switch on, the VI uses different

intensities and densities of one color to emulate multiple colors.

When the switch is set to color, the screen displays only PC-compatible programs written to run in color. When the switch is set to monochrome, the screen displays only those PC-compatible applications written to run in monochrome.

You can change the switch settings by following the instructions in Appendix B.

1.3.2 Optional Color Card

A color display adapter card is available for the VI; it supports PC-compatible color graphics in I mode. See the instructions included with the card for installation procedures.

1.4 Diskettes

The VI is available with two floppy disk drives, or with one floppy disk drive and one 10- or 30-megabyte fixed disk drive. Your VI floppy disk drives use 5¼" floppy diskettes to store the files you create. Figure 1-15 illustrates floppy disk construction.

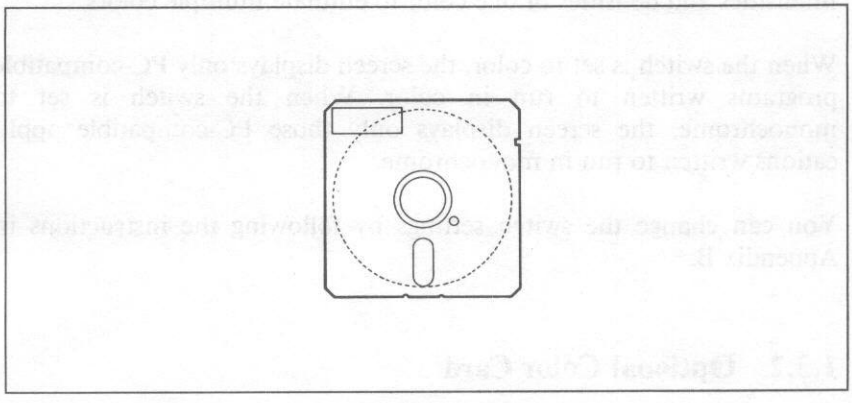


Figure 1-15: Floppy Disk Construction

Both the floppy drive and the fixed drive can work with both modes. VICTOR (V) format diskettes have a greater storage capacity than do PC-compatible (I) format diskettes. Table 1-2 illustrates the storage capacity of both kinds of diskettes. Refer to Chapter 3 for instructions on formatting your diskettes.

Table 1-2: V-Format Diskettes vs. I-Format Diskettes

	V-FORMAT	I-FORMAT
Single-sided	620K	160K (8 sectors/track) 180K (9 sectors/track)
Double-sided	1.2 Mbyte	320K (8 sectors/track) 360K (9 sectors/track)

Because of the large amount of data stored on VI diskettes, use only high-quality diskettes. Refer to Appendix B for more information on diskette care.

Note: Store your diskettes in a safe place, and away from magnets and heat. Do not store diskettes on a vent opening of the system unit or next to the screen. Use only a soft-tip felt pen to write on the labels. Any disk damage can destroy data.

With the fixed disk model you can divide the large storage area into smaller volumes, with each volume much like a floppy drive. For more details about the fixed disk, refer to Chapter 4.

1.4.1 Labeling Your Diskettes

Writing the contents of a diskette on its label helps you keep your data and programs in order. You can record some of the following on a diskette label:

- Format (V or I)
- Names and/or subjects of the files
- Dates when you create or update the files
- Name of the program used to create the files
- Mode in which to run programs
- Nature of the diskette (master, working, or backup)
  - —Master diskettes are original software diskettes from your VICTOR dealer. These diskettes should be write-protected (see the next section) and stored in a safe place; never edit or change them.
  - —Working diskettes can be copies of master diskettes for everyday use, or they can contain your working files. A working diskette can contain programs and/or data files.
  - —Backup diskettes are copies of your working diskettes. Backups should be updated regularly as protection against accidental loss of data. Backing up your floppy diskettes is described in Chapter 3; backing up the fixed disk using SEARCH is described in Chapter 5.

1.4.2 Write-Protecting Diskettes

Diskettes can be physically protected against accidental erasure or overwriting by write-protecting them. The VI cannot change the information on a write-protected diskette.

1

Each diskette has a write-protect notch (see Figure 1-16). Your VI can write on a diskette whose write-protect notch is open. If you cover the notch with an adhesive write-protect tab, the head cannot begin a write operation. If you try to write data to the diskette, the operating system gives you an error message indicating that the diskette is write-protected.

A sheet of write-protect tabs is usually packed in your diskette carton along with diskette labels for writing the filenames on the diskette.

To edit a file on a write-protected diskette, remove the adhesive tab and insert the diskette into a disk drive. After you complete your edit, replace the tab (or apply a new tab) for continued write-protection. Do not alter the files or programs on a master diskette.

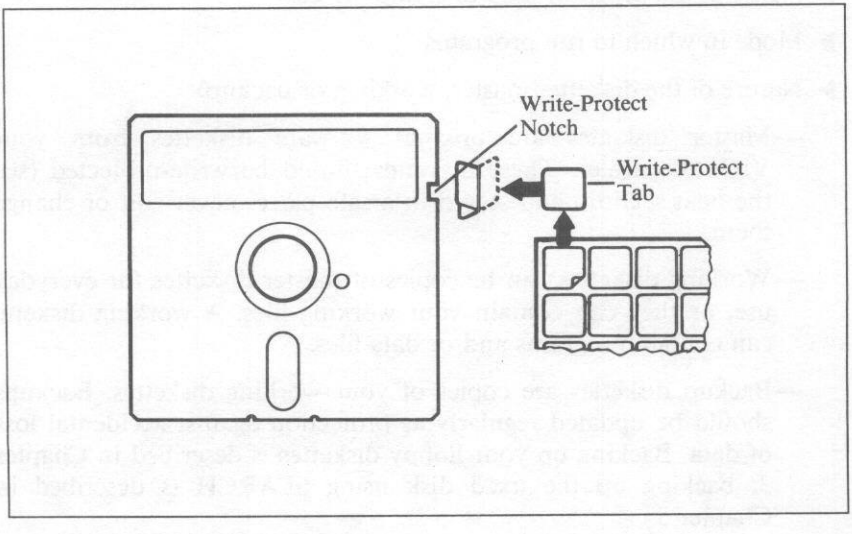


Figure 1-16: Write-Protecting a Diskette

2

Using Your Computer

This chapter shows you how to start using your computer. It describes the system diskette and shows you how to load the VI operating system and sign on. Then this chapter explains the differences between I mode and V mode and shows you how to switch between these two modes.

2.1 The System Diskette

Your VI computer is shipped with two distribution diskettes. These diskettes are your **system diskettes**. One is the **master** system diskette and the other is the **backup** system diskette. You should use the backup system diskette and store the master system diskette in a safe place in case the backup is ever damaged. If the backup is damaged, you will need to make a new backup copy of the master system diskette and then continue storing it. Chapter 3 explains how to make a backup of a diskette.

The system diskette contains the DOS operating system files. The DOS operating system is the program that controls how the VI runs programs and stores information on disk or in memory. Because the VI works in two different modes, the diskette has a set of operating system files for each mode as well as a set of common files. The organization of these files on the diskette is important to the smooth operation of your VI. You should not alter this file structure. So that you will not accidentally use the wrong operating system file for the mode you are in, the PATH command is set to limit your access to the correct file for each mode.

2.2 VI Files and Directories

The file system on your distribution diskette is organized in the tree-structured subdirectories of the DOS 2.1 operating system. The diskette is divided into five subdirectories, described later in this section.

The following types of disk files are used by DOS and are contained on your VI distribution diskette:

- System files—programs that run the VI and its devices, control other programs loaded into memory from disk, and process data entered from the keyboard. These files are hidden, that is, not shown when you view the directory of the disk.
- Command files (utility programs)—executable programs on disk. You can run the programs by typing the filename, followed by optional parameters. The terms "external command" and "utility program" both refer to command files. Utilities or external commands perform basic file and diskette management functions (such as formatting or copying diskettes) necessary for every application. As indicated on your VI distribution diskette, each utility is stored on disk with a filename extension of .COM or .EXE.
- Data/text files—a collection of alphanumeric characters that can be in document form, such as a memo. A data file can also be a list of data, such as a mail list, payroll statement, or the output of an application program.
- Batch files—sequences of DOS commands that perform specific tasks when you load them, with the filename extension .BAT.

Your distribution diskette is divided into the directories listed below. Chapter 3 describes how to review the contents of the diskette with the DIR command.

- The ROOT (\) consists of COMMAND.COM, CONFIG.SYS, CONFIG.BAT, files for both I and V modes, and the DISKID file. COMMAND.COM is a command processor that accepts commands from the keyboard and runs the programs that process them. CONFIG.SYS is a collection of system initialization information and instructions for setting the system configuration. CONFIG.BAT is a batch file containing configuration commands executed upon system reset to customize your operations.

- The V directory for the V mode (\VLIB) consists of the following VICTOR-compatible files:

  FORMAT.DAT
  FORMAT.EXE
  MODCON.EXE
  VBASICA.COM
  DISKCOPY.COM
  SDCOPY.COM

  Note: .DAT indicates a data file; .EXE and .COM are forms of executable files.

- The I directory for the I mode (\ILIB) consists of the following PC-compatible files:

  FORMAT.COM
  IBASICA.COM
  DISKCOPY.COM
  ANSI.SYS
  DISKCOMP.COM

- The Common directory (\COMNLIB) consists of many files—such as CHKDSK.COM, WC.EXE, and VISYS.EXE—that you can use in either mode.

- The Fixed Disk Installation directory (\FDINSTAL) consists of the batch files you can use to automatically set up your fixed disk with the utilities in the FD directory.

▶ The Fixed Disk directory (\FD) consists of these files:

FDISK.EXE
FDSETUP.EXE
FDFORMAT.EXE

The fixed disk files are explained in Chapter 4, and might not be on your system diskette if you have a dual floppy model VI.

2.3 Pathnames and Subdirectories

As shown in the example subdirectory system in Figure 2-1, the root directory branches into **subdirectories**. In turn, each subdirectory can have more subdirectories.

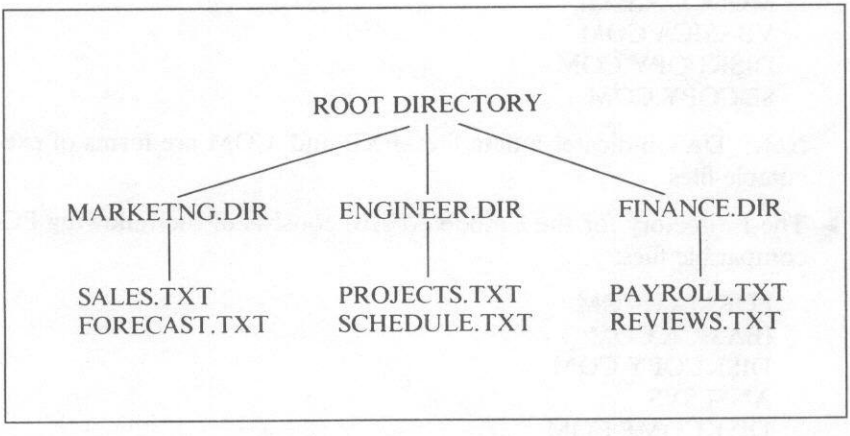


Figure 2-1: DOS Tree-Structured Subdirectory System

When you create a subdirectory, you give it a name. This name is similar to a filename—it can have up to eight characters with a three-character extension and it follows the same rules as for filenames.

A **pathname** is like an elaborate filename. It shows the name of the file and the name of the subdirectory containing that file. Files in subdirectories are referred to by their pathname, which is a list of the subdirectories containing the file, ending with the filename itself, and separated by the path delimiter character, usually a backslash (\). To find a file, use a pathname that names each subdirectory leading to the file. For example:

```
\LETTERS\HOME\JUNE12.MOM
```


The preceding example illustrates a path with a subdirectory called LETTERS. Within the subdirectory LETTERS is another subdirectory called HOME containing all the letters written to HOME. There is a file in HOME called JUNE12.MOM. The backslash preceding the first subdirectory name refers to the root directory.

Subdirectories let you organize your disk in a more sophisticated manner. Many subdirectories can be created on the diskette or fixed disk at the same time. Using pathnames, you can access a file without changing to that directory, or you can move files from one disk to another. You can use pathnames with almost all the DOS commands (such as DIR, CHKDSK, and COPY) by specifying a pathname preceding the filename in the command line.

For example, this command uses pathnames to copy a file from one subdirectory to another subdirectory:

```
copy a:\letters\home\june12.mom b:\communic\home\daily.mom(cr)
```

For explanations of such functions as listing a directory, making a subdirectory, moving into a directory, and removing a subdirectory, refer to the *DOS 2.1 Reference.*

2.4 Loading the Operating System

To start working on the VI, you first load the operating system into memory. The loading process is called **booting**; for more detailed information, see Appendix F. Chapter 2.4 shows you how to load the operating system for both the dual floppy disk model and the fixed disk model. Then it describes the sign-on message, the date and time prompts, and the VI system command prompts.

2.4.1 Booting the Dual Floppy Disk Model

Follow these steps to boot the dual floppy disk model:

1. Turn on the VI as described in Chapter 1. Ensure that the screen is displaying the power-on symbol, as shown in Figure 1-8. If the symbol does not appear, check the power switch and all the connections for the cables.
2. Insert the VI system diskette into the left floppy disk drive. The diskette must be label side up with the notched side on the left. The label side should be closest to you and is the last edge to go into the drive. Gently push the diskette into the drive until it clicks into place. Figure 2-2 illustrates how to insert the diskette.
3. Close the drive door. The VI automatically loads the operating system when the diskette is correctly inserted. Do not reopen the drive door until the operating system has fully loaded into memory and the operating system prompt appears. (The operating system prompt is different depending on the mode in which your VI is set; Chapter 2.4.5 describes the prompts for the two modes.)

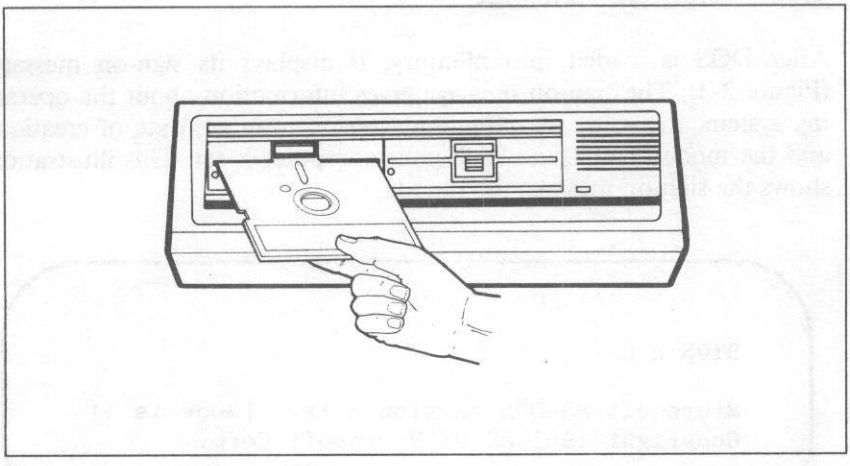


Figure 2-2: Inserting a Diskette

2.4.2 Booting the VI Fixed Disk

The first time you use the fixed disk model, you boot the operating system as described for the floppy disk system. Then you must set up your fixed disk by following the instructions in Chapter 4.

Once you have set up the fixed disk and have copied the operating system onto the fixed disk, you can follow these steps to boot your fixed disk system:

1. Open the floppy disk drive door.
2. Turn on the VI as described in Chapter 1. Ensure that the screen is displaying the power-on symbol, as shown in Figure 1-8. If the symbol does not appear, check the power switch and all the connections for the cables.

The VI automatically loads the operating system as soon as you turn on the power switch.

2.4.3 Sign-On Message

After DOS is loaded into memory, it displays its sign-on message (Figure 2-3). The sign-on message gives information about the operating system, including its name and version number, date of creation, and the mode, V or I, in which your computer is set. This illustration shows the sign-on message for I mode.


```
BIOS n.n

Microsoft MS-DOS version x.xx   [Mode is I]
Copyright 1981,82,83 Microsoft Corp.
```

Figure 2-3: Sign-On Message

2.4.4 Date and Time Stamping

Following the sign-on message, you are prompted for the date and time, as shown in Figure 2-4. Entering the current date and time updates the calendar and clock in the operating system. The calendar and clock stamp the date and time on your files each time you create or revise them, and the operating system records this information in your directory.

The operating system keeps the current date and time, until you turn off the power to the VI or reboot the system using the reset button. The operating system maintains the date and time if you reboot using the CTRL-ALT-DEL key sequence described in Chapter 2.6.

Figure 2-4 shows the date and time prompts; your responses are underlined. After you enter the date and time, the operating system command prompt appears.

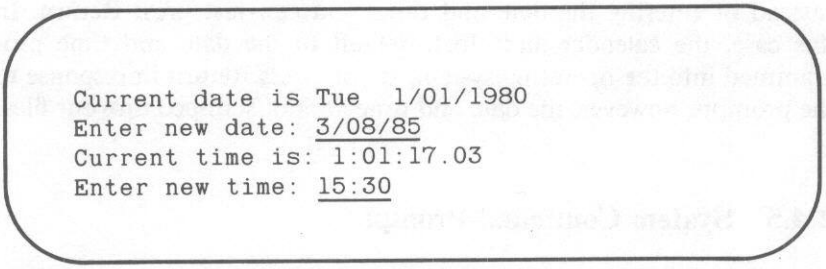


Figure 2-4: Time and Date Prompts

To set the current date, enter the month, day, and year:

mm/dd/yy or **mm-dd-yy** (for American OS)

dd/mm/yy or **dd-mm-yy** (for European OS)

For example, to enter the date in American format for March 8, 1985, type the following in response to the date prompt:

3/08/85

Enter the time using numbers for the hours and minutes (based on the 24-hour clock), as follows:

hh:mm:ss

Note that entering the minutes and seconds is optional.

To enter the time in American format as 3:30 PM, type the following in response to the time prompt:

```
15:30
```

Instead of entering the date and time, you can just press Return. In this case, the calendar and clock default to the date and time programmed into the operating system. If you press Return in response to the prompts, however, the date and time are not stamped on your files.

2.4.5 System Command Prompt

After the operating system boots and you have entered the date and time, the operating system displays its command prompt, followed by the screen cursor. When the command prompt appears, the operating system is ready to receive information from you; you can enter operating system commands or load an application program into memory. The cursor indicates where on the screen the information you type next will appear.

The VI command prompt differs depending on which mode you are in. Figures 2-5 and 2-6 shows the sign-on message, the date and time prompts, and the command prompts for V mode and I mode. The V mode command prompt appears in reverse video; the I mode command prompt is enclosed in braces. In the illustrations, the underscore (_) represents the cursor.

```
BIOS n.n

Microsoft MS-DOS version x.xx   [Mode is I]
Copyright 1981,82,83 Microsoft Corp.
Current date is Tue  1/01/1980
Enter new date: 3/08/85
Current time is:  1:01:17.03
Enter new time: 15:30

Command v. x.xx [ Mode is I ]

A>echo off

{ Mode I } A:\>_
```

Figure 2-5: Command Prompt for I Mode


```
BIOS n.n

Microsoft MS-DOS version x.xx   [Mode is V]
Copyright 1981,82,83 Microsoft Corp.

Command v. x.xx [ Mode is V ]

A>echo off

Current date is Tue  1/01/1980
Enter new date: 3/08/85
Current time is:  1:03:41.04
Enter new time: 15:30

Mode V  A:\>_
```

Figure 2-6: Command Prompt for V Mode

In Figures 2-5 and 2-6, **A:** indicates the default drive—that is, the drive where the operating system executes the command you enter or loads the application, unless you specify otherwise.

The **Mode I** or **Mode V** shown in the system prompt is the **mode identifier**. The mode identifier indicates the current mode, and is optional. It is controlled by the CONFIG.BAT file that is shipped on your distribution diskette. You can use the PROMPT command to change the system prompt or the mode identifier.

2.5 Keyboard Operation

Because you can operate your VI in two different modes, some of the keys on your keyboard behave differently depending on which mode you are in. Chapter 2.5.1 describes the way keys function in I mode, and Chapter 2.5.2 describes the way they function in V mode. Chapter 2.5.3 discusses the key numbers associated with particular keys on the V9000, the IBM PC, and the VI.

Figures 2-7 and 2-8 illustrate the VI keyboard. Figure 2-7 highlights the special keys used in I mode, and Figure 2-8 highlights the keys for V mode. You can use the figures to familiarize yourself with the locations of the keys as you read about their functions in each mode.

In discussing key functions, this section refers to different "key states." Key states are the various modes you can use—shifted, unshifted, control, and so on—to alter the way a key works. Most of the keys on your keyboard can perform several different functions, depending on the key state you select. The VI has the following key states:

- **Unshifted**—If you press a key in the unshifted state, you see the normal action of the key. For example, if you press the L key in the unshifted state, you see a lowercase "l" on the screen.
- **Shifted**—To press a key in the shifted state, either you simultaneously press one of the two SHIFT keys and a specific key, or you press a key with the LOCK (CAPS LOCK) key on. For example, if you press the L key in the shifted state, you see an uppercase "L".

- **ALT**—To press a key in the ALT state, you simultaneously press the ALT key (located on the lower left of the typewriter keys) and a specific key. The ALT key is a form of shifted state called "alternate shift." For example, if you press an ALT-L, this key might perform a function defined by your operating system or application program.
- **CTRL**—To press a key in the CTRL state, you simultaneously press the CTRL key (located to the left of the A key) and a specific key. The CTRL key is a form of shifted state called "control shift." For example, if you press a CTRL-L, this key might perform a function determined by the operating system or application program.
- **Toggle**—A toggle key acts like an on/off switch for a specific function. The first time you press a toggle key, you turn its function on; the next time you press that key you turn the function off. The VI has several toggle keys—for example, the CAPS LOCK key.

2.5.1 The VI Keyboard in I Mode

When you are in I mode on the VI, your keyboard behaves like a standard PC keyboard, with the few exceptions that will be discussed in this section.

Figure 2-7 illustrates the VI keyboard in I mode. The keys that have a special function in I mode are highlighted. These keys are listed below and are described in detail in this section; they have been grouped primarily by location and function for ease of discussion.

HELP	ALT	INS	0 (INS)
PAUSE	CTRL	DEL	. (DEL)
F1	LOCK	↑	1 (END)
F2	NUM LOCK	↓	3 (PG DN)
F3	SCRL LOCK (BREAK)	←	7 (HOME)
F4	SYS	→	9 (PG UP)
F5			* (PRT SC)
			CLEAR ENTRY

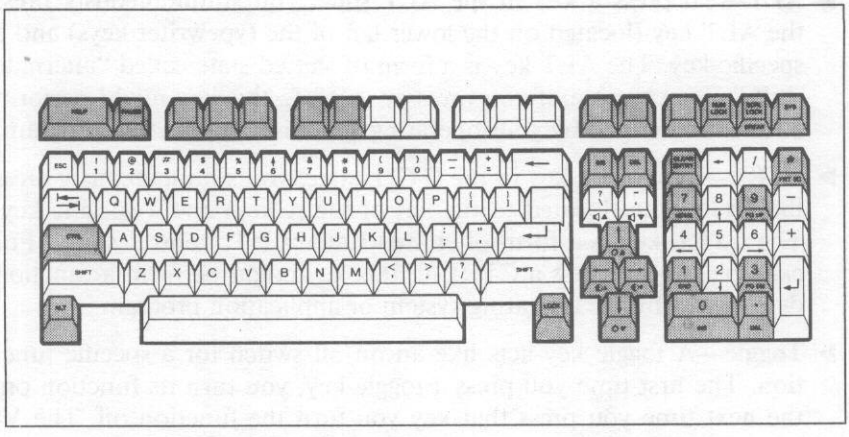


Figure 2-7: The VI Keyboard in I Mode

The Function Keys, HELP, and PAUSE

The **function keys F1 through F5** perform special command-line editing functions when you are at the operating system level (that is, at the DOS command prompt). Chapter 5 of the *DOS 2.1 Reference* describes command-line editing and provides detailed information on how the function keys operate in I mode and in V mode. Briefly, these keys work as follows in I mode:

- F1 copies one character from the template to the command line.
- F2 copies all the characters up to a specified character from the template to the command line.
- F3 copies all the remaining characters in the template to the command line.
- F4 skips over (does not copy) the characters in the template up to the character specified.
- F5 creates a new line in the template.

Function keys F6 through F10 do not function at the DOS system level in I mode; they might perform a function in some application programs.

Function keys F11, F12, and F13 are not recognized by DOS and do not function in I mode at all.

When you use any of the function keys in an application program, they behave as stated in that program's documentation.

The **HELP key** behaves like the F1 key:

- In most application programs, you press either the HELP key or the F1 key to obtain more information about a particular command.
- If you are at the operating system level, you press the HELP key or the F1 key to copy one character from the template to the command line. Chapter 5 in the *DOS 2.1 Reference* explains the template and command-line editing.

The **PAUSE key** has no effect at the operating system level; if you are at the DOS prompt and you press PAUSE, no character appears on the screen and nothing happens. Refer to your application program's documentation to learn how the PAUSE key functions in that program.

CTRL, ALT, LOCK, NUM LOCK, SCRL LOCK, and SYS

When you press certain alphabetic keys simultaneously with the **CTRL key**, the keys might perform functions in addition to their unshifted and shifted states. Table 2-1 lists some of these functions.

Table 2-1: Alphabetic Control Key Functions

KEY	CTRL FUNCTION
C	Ends current command
G	Bell
H	Backspace
I	Tab
J	Line feed
M	Carriage return
S	Screen scroll toggle

The **LOCK key** is a toggle key that works similarly to the CAPS LOCK key on a standard typewriter. If you press the LOCK key once, the alphabetic characters you type appear on your screen in uppercase. If you press the LOCK key again, the alphabetic characters are entered in lowercase.

If the LOCK key is on and you want to enter a lowercase letter, you can press the SHIFT key together with the key you want to appear in lowercase.

When the LOCK key is on, the number characters on the keyboard remain in the unshifted state. To enter the shifted state of the number keys, you must simultaneously press the SHIFT key, whether or not the LOCK key is on.

The **NUM LOCK key** is a toggle key that works only in I mode. If you press the NUM LOCK key once, you can enter the numbers from the numeric keypad. If you press NUM LOCK again, the keys return to their regular cursor control functions, shown on the keytop labels. (Table 2-2 lists the numeric keypad keys and their functions when the NUM LOCK toggle is off.)

If you press CTRL-NUM LOCK, you suspend the display of text. To resume displaying text, press any character key other than the NUM LOCK key.

If you are using an application program that supports the scroll lock function, press the **SCRL LOCK (BREAK) key** to lock the cursor in a character position. You can scroll the information on your screen, but the cursor will not move.

If you press the CTRL key and the SCRL LOCK key at the same time, you issue a CTRL-BREAK. CTRL-BREAK aborts the current command as it is running, and you return to the DOS system prompt.

The **SYS key** does not function at the operating system level; in some application programs, the SYS key returns a null character.

INS, DEL, and the Directional Arrow Keys

The **INS (insert) key** is a toggle key that switches the keyboard to insert mode. If you are at the DOS system prompt or in an application program that supports insert mode, you can enter characters in insert mode; characters already on the line move to the right. To exit insert mode, press the INS key again. If NUM LOCK is on and you press the INS key, the zero from the numeric keypad appears on the screen.

If you are at the system prompt or in an application program, the **DEL (delete) key** erases the character at the cursor. If NUM LOCK is on and you press the DEL key, the decimal point from the numeric keypad appears on the screen.

When you are using an application program, the **directional arrow keys** move the cursor in the direction indicated on the key. If NUM LOCK is on and you press one of these four keys, that key's number appears on the screen. For example, if you press the left arrow key, you see the number four on your screen; if you press the right arrow key, you see the number six on your screen.

You can adjust brightness and contrast on your VI by using these keys in the ALT state. See Chapter 1.2.3 for this procedure.

The Numeric Keypad

The **numeric keypad** consists of the eighteen keys on the far right of the keyboard. When NUM LOCK is on, these keys print numbers and mathematical symbols on the screen. If NUM LOCK is off and you are using an application program that supports the functions, the keys work as shown on their labels. Table 2-2 lists the keys and describes what they do.

Check your application program's documentation for the exact function, if any, that these keys perform.

Table 2-2: Numeric Keypad Functions

KEY	FUNCTION
. DEL	DEL erases the character at the cursor. Note the difference between DEL and the Backspace key, which deletes the character to the left of the cursor.
0 INS	INS toggles insert mode on and off. When you enter characters at the cursor, any characters already on the line move to the right. To exit insert mode, press the INS key again.
1 END	END moves the cursor to the last character on the line.
2 ↓	The down arrow key moves the cursor down one line.
3 PG DN	PG DN moves the cursor down or forward one screen.
4 ←	The left arrow key moves the cursor one character to the left.
6 →	The right arrow key moves the cursor one character to the right.
7 HOME	HOME moves the cursor to the first character of the top line on the screen.
8 ↑	The up arrow key moves the cursor up one line.
9 PG UP	PG UP moves the cursor up or back one screen.

Another important function of the 7 (HOME) key and the . (DEL) key is rebooting the system. To reboot the system and remain in I mode, press the following three keys at the same time:

CTRL-ALT-. (DEL)

To reboot the system and change to V mode, press these three keys at the same time:

CTRL-ALT-7 (HOME)

If you press the *** (PRT SC) key** in the unshifted state, the asterisk (multiplication symbol) appears on the screen. If you press CTRL-PRT SC, whatever you subsequently enter at the keyboard echoes to the printer. Pressing CTRL-PRT SC again toggles the function; what you enter next is displayed on the screen.

If you press SHIFT-PRT SC, the current contents of the screen (25 lines) is echoed to the printer. SHIFT-PRT SC is not a toggle key.

The **CLEAR ENTRY key** is not implemented in I mode; if you press the CLEAR ENTRY key on the numeric keypad, nothing happens.

2.5.2 The VI Keyboard in V Mode

When you are in V mode on the VI, your keyboard behaves like a standard VICTOR keyboard, with the few exceptions that will be discussed in this section.

Figure 2-8 illustrates the VI keyboard in V mode. The keys that have a special function in V mode are highlighted. These keys are listed below and are described in detail in this section; they have been grouped primarily by location and function for ease of discussion.

2

HELP	ALT	INS	0 (INS)
PAUSE	CTRL	DEL	. (DEL)
F1	LOCK	↑	7 (HOME)
F2	NUM LOCK	↓	* (PRT SC)
F3	SCRL LOCK (BREAK)	←	CLEAR ENTRY
F4	SYS	→	
F5			
F6			
F7			
F11			
F12			
F13			

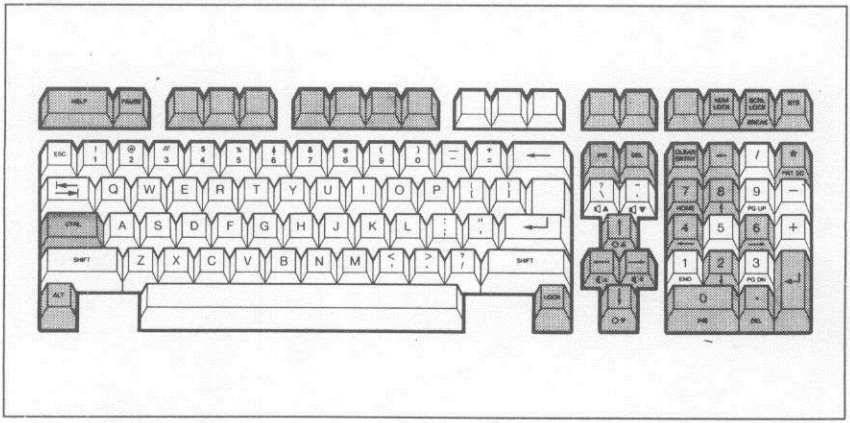


Figure 2-8: The VI Keyboard in V Mode

The Function Keys, HELP, and PAUSE

The **function keys F1 through F7** perform command-line editing functions at the operating system level (that is, at the DOS command prompt). Chapter 5 in the *DOS 2.1 Reference* describes command-line editing and gives detailed information on how the function keys operate in I mode and in V mode. Briefly, these keys work as follows in V mode:

- F1 enters/exits insert mode.
- F2 creates a new line in the template.
- F3 copies one character from the template to the command line.
- F4 skips over (does not copy) one character in the template.
- F5 skips over (does not copy) the characters in the template up to a specified character.
- F6 copies all the characters up to a specified character from the template to the command line.
- F7 copies all the remaining characters in the template to the command line.

The **F11 key** works with the SCRL LOCK key. When the SCRL LOCK toggle key is on, F11 scrolls the information on the screen one page forward and stops. F11 differs from PAUSE in that it does not freeze the screen at the moment you press the key, but completes the line first. If you press ALT-F11, the cursor moves down one page.

The **F12 key** works similarly to the F11 key. If you have SCRL LOCK on, F12 advances the information on the screen one line and stops. If you press ALT-F12, the cursor moves down one line.

The **F13 key** causes the information you input at the system prompt to appear on the screen in reverse video. If you press F13 in the shifted state, reverse video is turned off. If you press ALT-F13, the cursor moves one character space to the left, deleting the character in that position.

Function keys F8, F9, and F10 do not function at the DOS system level in V mode; they might perform a function in some application programs.

When you use any of the function keys in an application program, they behave as described in that program's documentation.

The **HELP key** functions like the F1 key:

- If you press the HELP key at the system prompt, it enters or exits insert mode.
- If you are in an application program that supports the HELP key, you can press the HELP key to obtain more information about a particular command.

The **PAUSE key** acts as a screen scroll toggle key, such as CTRL-S or ALT-S. Press the PAUSE key once to suspend screen scrolling; press PAUSE again to resume scrolling.

ALT, CTRL, LOCK, NUM LOCK, SCRL LOCK, and SYS

When you are in V mode and you press certain keys with either the **ALT key** or the **CTRL key**, the keys might perform differently from their shifted and unshifted functions. (In I mode, you can use only the CTRL key.) Table 2-1, "Alphabetic Control Key Functions," describes the alternate functions of some of the alphabetic keys.

The **LOCK key** works similarly to the CAPS LOCK key on a standard typewriter. If you press the LOCK key once, the alphabetic characters you type appear on your screen in uppercase. Press the LOCK key again to enter the alphabetic characters in lowercase.

When the LOCK key is on, the number characters on the top row of the keyboard remain in the unshifted state. To enter the shifted state of the number keys, you must simultaneously press the SHIFT key, whether or not the LOCK key is on.

The **NUM LOCK key** causes command-line input to be underlined. Press SHIFT-NUM LOCK to turn underlining off. Pressing ALT-NUM LOCK is the same as pressing the space bar.

The **SCRL LOCK (BREAK) key** is a toggle key that stops the screen from scrolling. With SCRL LOCK on, you can then press function key F11 to advance the screen one line, or function key F12 to advance the screen one page.

If you press SCRL LOCK and ALT at the same time, you issue an ALT-BREAK—this aborts the current command as it is running, and you return to the DOS system prompt.

In the unshifted state, the **SYS key** performs an ALT-X, canceling the line you just entered. The shifted SYS key clears the screen. Pressing ALT-SYS clears the screen and resets the keyboard to its state at the time you booted the system; for example, any toggles are turned off.

INS, DEL, and the Directional Arrow Keys

The **INS (insert) key** is a toggle that you can use in an application program. If your application program supports the insert function, pressing the INS key inserts a blank line on the current cursor line. The current line and all the following lines (if any) move down one line and the cursor is positioned at the beginning of the blank line. ALT-INS exits insert mode.

If you use the **DEL (delete) key** at the system prompt, it erases the last character you entered. If your application program supports the delete function, pressing the DEL key erases the character to the left of the cursor and moves the cursor one character position to the left.

The **directional arrow keys** move the cursor when you are in an application program that supports these keys. You can adjust brightness and contrast on your VI by using these keys in the ALT state. See Chapter 1.2.3 for this procedure.

The Numeric Keypad

The keys on the **numeric keypad** produce the number or symbol represented on the key in the unshifted, shifted, and ALT states, with the following exceptions.

The unshifted **CLEAR ENTRY key** produces an equals sign, and a superscript "2" in shifted and ALT states.

The unshifted **left arrow key** behaves like the Backspace or Delete key, but produces a percent sign in shifted and ALT states.

The unshifted and shifted **2, 4, 6, and 8 keys** produce the appropriate number. Pressing ALT-4 moves the cursor one character to the left; pressing ALT-6 moves the cursor one character to the right. Pressing ALT-8 moves the cursor up one line, and pressing ALT-2 moves the cursor down one line.

The *** (PRT SC) key** produces an asterisk (the multiplication symbol) in the unshifted and shifted states. If you have a screen-dump program that supports ALT-PRT SC, you might be able to print the contents of the screen on a printer.

The **Enter or Return key** on the numeric keypad performs a carriage return in the unshifted state, a plus sign when shifted, and a line feed in the ALT state. The unshifted and shifted **7 (HOME) key** produces the number seven; ALT-7 moves the cursor to the first character position on the first row of the screen.

The 7 (HOME) key and the . (DEL) key also reboot the system. To reboot the system and remain in V mode, press **ALT-CTRL-. (DEL)** at the same time. To reboot the system and change to I mode, press **CTRL-ALT-7 (HOME)** at the same time.

2.5.3 The VI Key Numbers

As you work with different application programs on the VI, you might encounter differences in key locations. This section provides you with the key numbers assigned to the V9000 keyboard, the VI keyboard, and the IBM PC keyboard so that you can easily locate keys on the VI.

Figures 2-9 and 2-10 illustrate keyboard layouts and key number assignments for the V9000 and the VI. Use these figures to familiarize yourself with the differences between the two keyboards. Key number 12 is highlighted in each figure as an example of differences in key locations.

For example, let's assume that you are running an application program in V mode and you want to use the "undo" key, which is assigned to key number 12. Usually an application program uses the MODCON utility to map in a keyboard file. However, if you do not have a VI keyboard file, or if the application reads the keys at a hardware level below MODCON, then you need to locate the key using Figures 2-9 and 2-10.

To perform the "undo" function on your V9000 keyboard, you normally press the second key from the left in the second row—key number 12 in Figure 2-9. But on the VI keyboard, key number 12 is the PAUSE key; you will use it to perform the "undo" function.

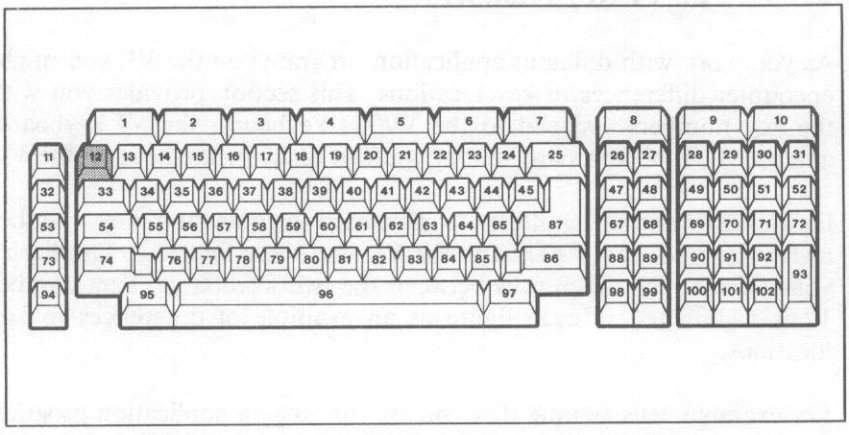


Figure 2-9: Key Numbers for the V9000 Keyboard

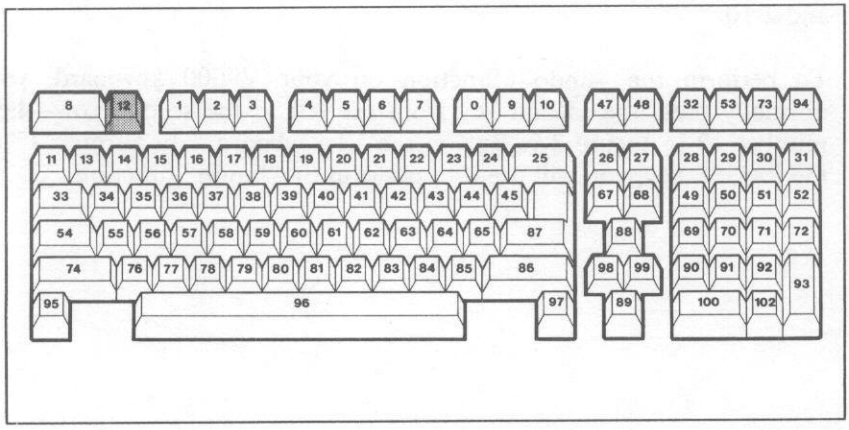


Figure 2-10: Key Numbers for the VI Keyboard in V Mode

If you are familiar with the IBM PC keyboard, Figures 2-11 and 2-12 should help you locate key positions on the VI keyboard in I mode.

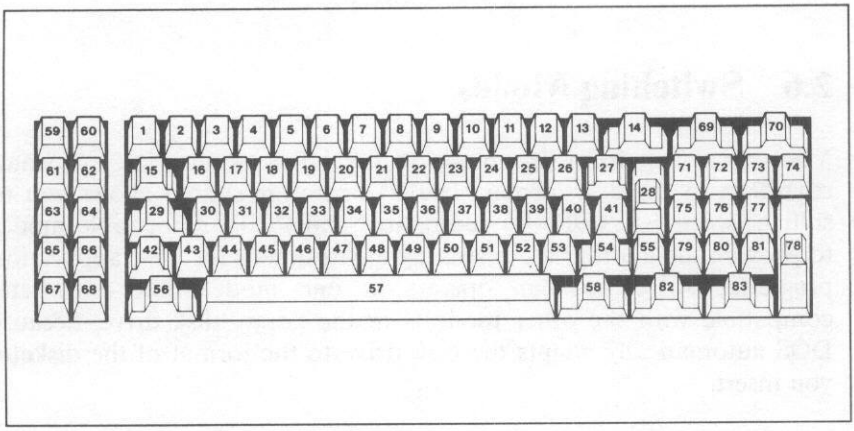


Figure 2-11: Key Numbers for the IBM PC Keyboard

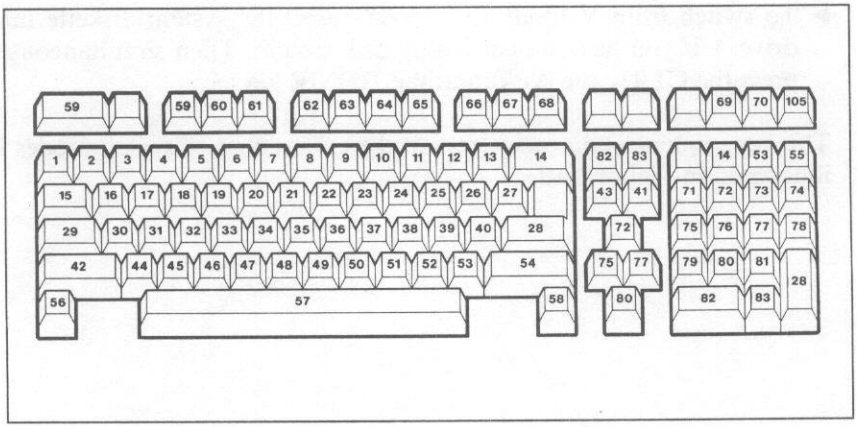


Figure 2-12: Key Numbers for the VI Keyboard in I Mode

Carefully review your application programs' documentation and refer to the preceding figures when you are in doubt concerning a particular key's number assignment.

2.6 Switching Modes

You can switch from one mode to the other as often as you want, regardless of the disk format. The VI operating system allows you to shift between VICTOR (V) compatible and PC (I) compatible modes to provide the appropriate operating environment for your application programs. Also, you can operate in one mode while a diskette compatible with the other mode is in the floppy disk drive, because DOS automatically adapts the disk drive to the format of the diskette you insert.

To switch modes, you must reboot the computer. Switching modes clears the screen and clears any program or data in memory.

- To switch from I mode to V mode, simultaneously press the **CTRL**, the **ALT**, and the **HOME** keys.
- To switch from V mode to I mode, insert the system diskette into drive A if you have a dual floppy disk system. Then simultaneously press the **CTRL**, the **ALT**, and the **HOME** keys.

The key sequence you use to reboot the computer and switch modes is illustrated in Figure 2-13.

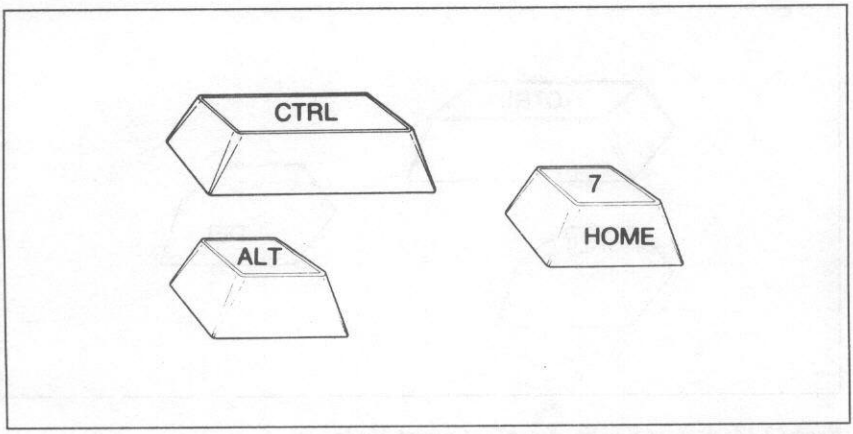


Figure 2-13: Reboot Key Sequence for Changing Modes

If you want to reboot the computer but stay in the same mode, simultaneously press the **CTRL**, the **ALT**, and the **DEL** keys (refer to Figure 2-14). If this procedure fails to reboot the computer, press the reset button at the back of the computer. If you press the reset button, you will have to enter the date and time again. Figure 2-15 shows the location of the reset button.

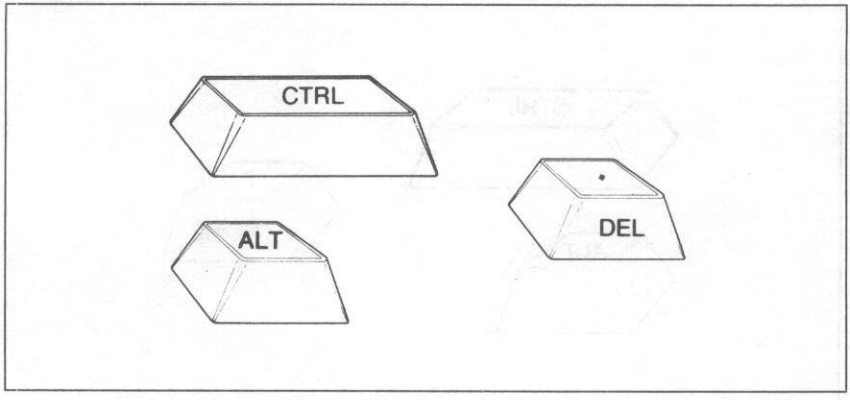


Figure 2-14: Reboot Key Sequence for Current Mode

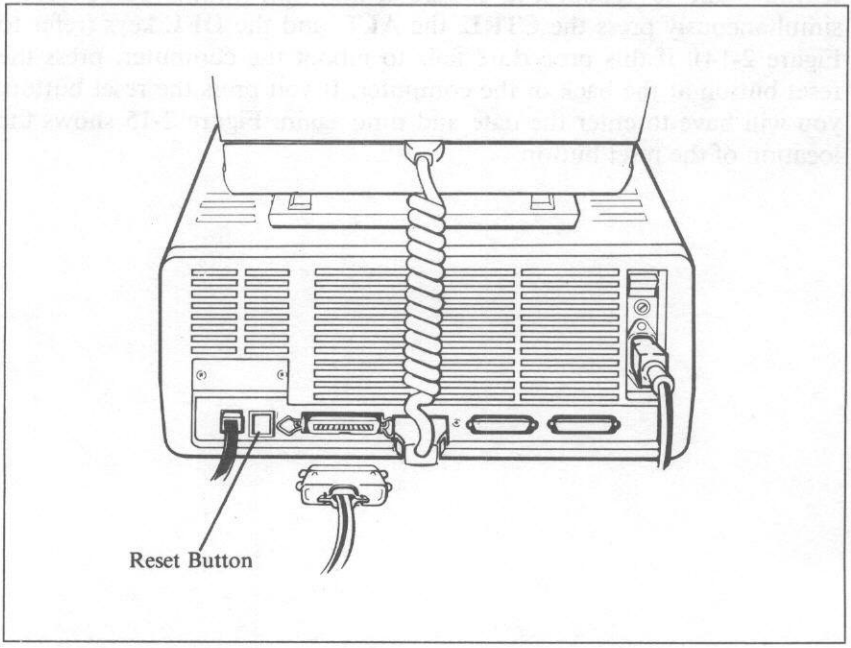


Figure 2-15: The Reset Button

3

Working with DOS

This chapter briefly describes how to use the DOS commands that you will use regularly. This chapter shows you how to:

- Display the contents of a directory
- Format a diskette
- Copy a diskette
- Copy files
- Display the contents of a file on the screen
- Erase a file
- Rename a file
- Check the files on a diskette
- Copy the DOS system files

For more detailed information on these commands and all the DOS commands you can use with your VI, refer to the *DOS 2.1 Reference.*

Each of the commands described in this chapter can be used in both VI modes: I and V. For most of the commands, you use the same procedure for both modes. For two commands, FORMAT and DISKCOPY, the procedure differs for I mode and V mode. Follow the directions for the appropriate mode when you use these commands.

Although the distribution diskette contains both versions of FORMAT and DISKCOPY, a path has been set up on the diskette so that you can use only the correct version of the utility for each mode.

3.1 External and Internal Commands

DOS has two types of commands: **external** and **internal**. External commands are those stored on a diskette as separate files with a .COM or .EXE extension; FORMAT is one example. External commands are also known as **utilities**. Internal commands exist within DOS as part of COMMAND.COM and are available for use after the operating system is loaded into memory (booted). COPY and DIR are examples of internal commands; you can use them as long as COMMAND.COM is in memory.

3.2 DIR: Display Directory

On each diskette and fixed disk volume, the operating system keeps a directory—a list of files on that diskette or volume. After you load the operating system, you can list the directory of your diskette(s) or fixed disk volume(s). You display the directory by entering the DIR command at the system prompt:

```
dir(cr)
```

The DIR command lists the directory for a diskette in a floppy disk drive or for a volume of the fixed disk. If you enter the DIR command when the system diskette is in the current drive, the screen displays the names of all the subdirectories, utilities, and other files in the directory of the system diskette.

The directory lists the current drive, the volume label, and the format of the diskette. Then each filename is shown, with its file size in bytes and the date and time it was created or last revised. Subdirectories are displayed with the < DIR > attribute.

The following example shows a sample directory listing:

```
Volume in drive A has no label
Diskette is  I  format.
Directory of  A:\

COMMAND  COM     17664    2-10-85   12:00p
ANSI     SYS      1665    2-10-85   12:00p
SALES             6018   12-22-84    7:22p
ACCTS    FEB      4286    4-02-85    9:45a
SUB1          <DIR>
      5 File(s)     596722 bytes free
```


You can look at the directory of a fixed disk volume other than the current volume, or the directory of a diskette in a drive other than the default drive, by naming the other volume or drive in the DIR command. For example, on a fixed disk model, this command displays the directory of volume D:

dir d:(cr)

In addition to listing all the files in a directory, you can find out if the directory contains a particular file by including the filename in the DIR command. For example, to see if a file named PAYROLL.MAR is in the directory on the default drive, enter the following command:

dir payroll.mar(cr)

If PAYROLL.MAR is in the directory, the operating system displays the filename PAYROLL.MAR, its file size, and date of creation. If the file is not in the directory, you receive a message indicating that DOS cannot find the file you designated. If you have not done so, you might have to specify a path to the correct directory:

dir money\payroll.mar(cr)

You can display all the files in the subdirectory MONEY with this command:

```
dir money(cr)
```

You can use two options with DIR: the paging option and the wide option. The paging option (/p) displays one screenful of the directory at a time. The wide option (/w) displays an abbreviated version of the directory (filenames only) in five columns across the screen so that you can see more filenames at a time.

3.3 FORMAT: Preparing New Diskettes for Use

To store the files you create, you need formatted diskettes. The external command FORMAT prepares a new, unused diskette for everyday use, or deletes all the files from a used diskette and reformats it.

FORMAT works differently in V mode than in I mode; therefore, two versions of FORMAT are on your diskettes. In V mode the diskette is formatted to store 620K bytes for single-sided and 1.2 Mbytes for double-sided. In I mode, the diskette is formatted to store only 160K bytes (8 sectors) or 180K bytes (9 sectors) for single-sided, and 320K bytes (8 sectors) or 360K bytes (9 sectors) for double-sided. It is recommended that you format your diskettes in V mode (V-format); you can store much more data on them, regardless of the mode in which you work.

To prepare a diskette, either new or used, to receive information, the FORMAT command first cleans off any information on the diskette. Thus, you can reuse diskettes that contain information you no longer need. **CAUTION**: Because you might lose valuable information, use the DIR command to see if there are any files on the diskette that you want to keep.

You can use FORMAT on systems with one or two floppy drives. FORMAT lays out the tracks and sectors on a diskette. A track is a

circular section of a diskette; FORMAT creates 80 tracks on each side for V format. A sector is a portion of a track; FORMAT sets up sectors of 512 bytes.

FORMAT puts special markers on the diskette so that when the VI operating system reads or writes a file to the diskette, it knows which sectors that file is written on. In a reserved area of the diskette, FORMAT sets up a directory that contains identification information about each file, for the operating system's use.

FORMAT also checks the diskette for defects. If any defects are found, they are marked so they cannot interfere with your programs.

3.3.1 Using FORMAT in I Mode

The format procedure is as follows:

1. With the operating system prompt displayed on the screen, insert your system (DOS) diskette in drive A.
2. Insert a new, blank diskette in drive B. Use DIR B: to check the contents of the diskette. Save any important files with the COPY command described in Chapter 3.6. If you use DIR with a new or unformatted diskette, DOS displays an error message on the screen; press the A key for Abort and continue the procedure.
3. At the operating system prompt, type:

   format b:(cr)

4. The screen displays this message:

```
Insert new disk in drive B:
and press any key when ready.
```

5. Press any key. The format begins and this message appears on your screen:

```
Formatting drive B: ....
```

6. When the diskette is formatted, your screen looks like this:

```
Format Complete

    362496 bytes total disk space
    362496 bytes available on disk

Format another? (Y/N)
```

7. Type N to return to the system prompt. The format is complete and you can remove your newly formatted diskette. If you want to format another diskette, type Y and follow the screen instructions.

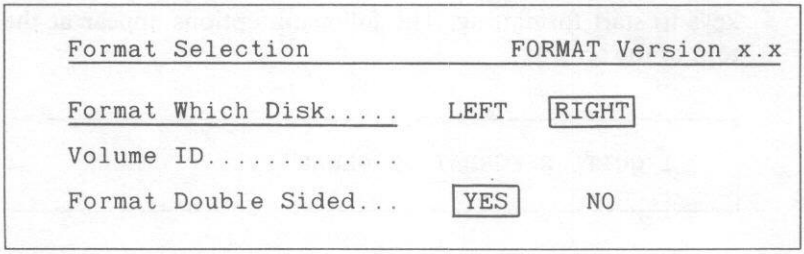
3.3.2 Using FORMAT in V Mode

1. With the operating system prompt displayed on the screen, insert your system diskette in drive A.
2. Insert a new, blank diskette in drive B. Use DIR B: to check the contents of the diskette. Save any important files with the COPY command described in Chapter 3.6. If you use DIR with a new or unformatted diskette, DOS displays an error message on the screen; press the A key for Abort and continue the procedure.

3. Type the following in response to the operating system prompt:

   format b:(cr)

4. The FORMAT selection menu appears:



   You use the left and right arrow keys to make selections, and the up and down arrow keys to move the underbar from one selection line to the next. Below the selections is the prompt line; as you move from step to step a new prompt tells you what to do.

5. The first selection, "Format Which Disk", is underlined, and RIGHT is highlighted, indicating that the diskette in the right drive will be formatted. If you want to format the diskette in the left drive, use the left arrow key to move the highlight.

6. Next you can designate a Volume ID. Move the underbar to the second line of the menu with the down arrow key and then type your Volume ID, using up to 11 characters. Use the Backspace key to edit the name if you make a mistake.

   The Volume ID writes a volume label on your diskette; this label appears at the beginning of your directory list when you issue the DIR command. You can use the Volume ID to indicate the contents of the diskette files, like the physical label you attach to the diskette. The label is optional, and FORMAT will format your diskette without a label.

7. Next, select single- or double-sided format. Use the down arrow key to move the underbar to "Format Double Sided". Then you can use the right and left arrow keys to select either YES to format the diskette double-sided, or NO to format the diskette single-sided. Your selection will be highlighted.

8. After you have made your selections, use the keyboard function keys to start formatting. The following options appear at the bottom of the screen:

```
1 QUIT  2 FORMAT  3 CLEAR          7 HELP
```


Press the function key that corresponds to your choice:

—F1 (Quit) exits to the operating system without formatting the diskette.

—F2 (Format) formats the diskette.

—F3 (Clear) deletes the directory of a previously formatted diskette. This option does not format the diskette; it erases all the files from a diskette that has already been formatted.

—F7 (Help) displays the help file FORMAT.DAT on the screen; this file explains the FORMAT program and the selection menu.

9. During the format process, FORMAT tells you which track is being formatted (nn represents the track number):

```
Now formatting track:  nn
```

10. When the format is complete, the following message appears:

```
Format right floppy drive complete:
1216512 bytes available on diskette.
```

Remove the diskette from the drive. You can either format another diskette, or you can select the F1 key to exit to the operating system.

If FORMAT cannot format a diskette and you get an error message, try the format again. If you still cannot format the diskette, discard the diskette and format a new diskette.

3.4 DISKCOPY: Backing Up a Diskette

DISKCOPY copies only floppy diskettes. You use this command with the dual floppy VI model; to back up the fixed disk, you use SEARCH, described in Chapter 5. If you have a fixed disk with only one floppy disk drive, you can make copies of diskettes with SDCOPY. Refer to Chapter 3.5 for more information on SDCOPY.

The DISKCOPY command copies everything on one diskette (source) onto another diskette (destination). DISKCOPY automatically formats the destination diskette while copying. Therefore, any data already on the destination diskette is lost when you use DISKCOPY.

Formatting and copying an entire diskette is time-consuming. DISKCOPY copies every byte in every sector, regardless of whether a file exists. The COPY command copies only existing files; therefore, if you do not have very many files on the disk, COPY is faster than DISKCOPY.

You should first use DISKCOPY to make a backup copy of your DOS diskette. Use this backup in your everyday work and store the master diskette in a safe place.

You can also use DISKCOPY to create backups of your working diskettes, which you can use if you accidentally damage or erase a file on the original diskette. Without a backup copy, a damaged or lost file can be very expensive to replace in terms of hours of data preparation or programming.

As a precaution, put a write-protect tab on the disk you want to copy from (the source) so that you don't DISKCOPY it accidentally. After you DISKCOPY the diskette, attach an adhesive label to the copy and, with a felt tip pen, write the date and pertinent information on the label. Do not use a ballpoint pen—you can damage the diskette by pressing too hard. You can write Backup on the label, if appropriate.

3.4.1 Using DISKCOPY in I Mode

Follow these steps:

1. Insert your DOS diskette in drive A.
2. At the DOS system prompt, type:

   diskcopy a: b:

   This command copies the diskette in drive A (the source diskette) to the diskette in drive B (the destination diskette). If you do not specify the source or destination, DISKCOPY prompts you with the following:

```
A:>
```

3. Press the Return key and the screen displays this message:

```
Insert the source diskette in drive A:
Insert the target diskette in drive B:
Strike any key when ready...
```

4. Remove your DOS diskette from drive A and replace it with the source diskette that you want to copy. If you want to back up the DOS diskette itself, leave it in drive A.
5. Insert your target diskette in drive B.
6. Press the space bar. A message similar to the following is displayed (the second line will be omitted if the target diskette is already formatted):

```
Copying 9 sectors per track, 2 side(s)
Formatting while copying
```

7. After the copy is made, the following message appears:

```
Copy complete
Copy more diskettes ? (Y/N)
```

8. Type N and the DOS prompt returns. You can now remove both diskettes.

3.4.2 Using DISKCOPY in V Mode

1. Insert your DOS diskette in drive A.
2. At the operating system prompt, type:

   diskcopy(cr)

3. The DISKCOPY sign-on message appears at the top of the screen. At the bottom of the screen, DISKCOPY asks you:


```
Copy from FLOPPY drive? (Left or Right;
press RETURN to end.)
```

   You can now remove your system diskette. Insert the diskette you want to copy from in the left drive; insert the destination diskette in the right drive.

4. Type l to indicate the left drive.
5. DISKCOPY displays:

```
Copy from Left FLOPPY drive to Right FLOPPY
drive. Press space bar when ready.
```

   Press the space bar to begin the copy. DISKCOPY tells you when the copy is complete and asks if you want to copy another diskette.

6. Repeat the procedure if you want to copy another diskette. To return to the operating system, remove both diskettes, insert your system diskette in the left drive, and press Return.

3.5 SDCOPY: Single-Drive Disk Copy

SDCOPY is an external command that copies the contents of one diskette onto another diskette in the same drive. Insert the source diskette into the drive and type:

sdcopy(cr)

at the operating system prompt. SDCOPY prompts you to insert the destination diskette into the drive. Remove the source diskette and then insert a formatted diskette into the floppy disk drive.

If you want to copy another diskette, type the SDCOPY command again.

3.6 COPY: Copying Individual Files

The COPY command copies a single file or a group of files from one diskette to another or from one diskette to the same diskette. COPY is an internal command that resides in the computer's memory. Therefore, the copy procedure is easy to access. Insert the source diskette with the file to be copied in drive A, and insert the target diskette to receive the file in drive B. Then use the COPY command as described below.

Before using COPY:

- Be sure the target diskette is formatted; you cannot use an unformatted diskette because COPY does not format the diskette as DISKCOPY does.

- Ensure that there is enough room on the diskette for the new file. COPY does not erase existing files on the target diskette (unless their names are the same as files you are copying), and the target diskette can become too full to copy the file to it. If you try to copy a file that does not fit on your target diskette, a message appears on the screen telling you there is no room on the diskette. Use DIR to determine the size of a file (in bytes) and the amount of free space available on your diskette.

COPY is a versatile command—it can change the name of a file while copying it, or copy a file back to the original diskette, provided you give the file a new name. COPY is most often used to copy a file from one diskette to another diskette. Using COPY to back up a single file is much faster than using DISKCOPY, which copies an entire disk.

To copy the file PIZZA.YUM from the diskette in drive A to the diskette in drive B, follow these steps:

1. Ensure that the DOS prompt (A >) is on your screen.
2. Insert the diskette with PIZZA.YUM in drive A.
3. Insert the target diskette in drive B.
4. At the DOS prompt, type:

   copy pizza.yum b:

   Enter spaces between the command, the filename, and the drive specifier of the target diskette.

   You can include the drive of your source file if you are not sure of the drive in which you are logged:

   copy a:pizza.yum b:

5. Press Return and the following message appears:

```
A>copy pizza.yum b:
        1 File(s) copied

A>_
```

The following examples show you other ways to use the COPY command.

To change the filename PIZZA.YUM to PIZZA.BAD when you copy it, type this command:

copy pizza.yum b:pizza.bad(cr)

Note that you do not enter a space between the drive specifier and the new filename.

You can copy a group of files instead of a single file with **wildcard characters**. DOS recognizes the wildcard characters, ? and *, as special characters when it sees either in a filename. The ? matches any character in that location in a filename; the * matches several characters. For example, *.DOC matches all files with extension .DOC.

To copy from drive A to drive B all the files with file extension .BAS in the current directory, type:

copy *.bas b:(cr)

To copy all the files on the source diskette to the destination diskette, type:

copy *.* b:(cr)

Note that the preceding use of COPY is similar to using the DISKCOPY command; however, you cannot use **COPY *.*** to format a diskette or copy the system files.

You can copy a file to the same diskette, but you must change the filename because you cannot have two files with the same name on the same diskette. You might want to make two copies of a file on the same diskette in order to make changes in a file and retain a copy of the old file. To do this, type:

copy phone.lst fonelist(cr)

In the preceding example, the drive specifier is not required because you are copying the file to the same diskette, and DOS assumes the default drive A.

If you try to copy the file to the same diskette without changing the filename, the screen displays the following message:

```
A>copy phone.lst(cr)
  File cannot be copied onto itself
        0 File(s) copied
```

To copy a file to the same diskette when it is not in the default drive, use drive specifiers with both the source and the target files:

copy b:phone.lst b:fonelist(cr)

3.7 TYPE: Displaying a Text File

With the TYPE command, you can display the contents of a text file on the screen. Text files contain text rather than program instructions, and are normally created with a word-processing program.

When you use TYPE to display a file, the file scrolls up the screen quickly. You might want to stop the scrolling of the file to review the contents. To stop the text from scrolling, press CTRL-S. To restart the scrolling, press CTRL-Q.

TYPE can display many kinds of files, but not always effectively. If a file contains machine instructions rather than text, and you use TYPE to examine it, your screen fills with unidentifiable symbols displayed haphazardly. You might hear a beeping sound from the speaker to the right of drive B. The system can "hang," not allowing you to enter any more commands, and you will have to reboot the system.

TYPE is an internal command; therefore, you do not need to use your system diskette. Insert the diskette containing the file you want to display in a disk drive. Then enter the TYPE command and the name of the file, and press Return.

For example, to display the contents of the file PHONE.LST, which is on a diskette in the B drive, enter the TYPE command and file specification as follows:

```
type b:phone.lst(cr)
```

3.8 ERASE: Removing Files

The internal command ERASE erases or deletes a file or files from your diskette. The command DEL performs the same function; if you want to you can use this shorter form. To execute this command, enter the word ERASE (or DEL) followed by the filename of the file you want to remove. If you do not specify a drive name, DOS assumes the default drive. For example, the following command erases the file BADFILE.TXT from the default drive A:

```
erase badfile.txt(cr)
```


Erasing unneeded files provides room for new information on your diskette, and also eliminates confusion caused by obsolete versions of a file.

WARNING: If you specify the name of a subdirectory, ERASE erases all the files in the subdirectory.

Before deleting a file, use the DIR command to look at the filenames and ensure that the file you are going to erase is the correct one. The date and time displayed in the directory help you determine which is the most recent file.

Be sure you are removing the file from the correct disk drive; an incorrect drive specifier or lack of one can cause you to delete a file from the wrong diskette or fixed disk volume. To avoid erasing a file in the wrong drive, leave the unused disk drive empty or the door open while using the ERASE command.

To delete an old address list with the filename ADDRESS.LST from a diskette in drive B, enter the ERASE command and filename as follows:

```
erase b:address.lst(cr)
```

When the prompt reappears, you can check if the file was removed by using the DIR command:

dir b:address.lst(cr)

When you enter this command and press the Return key, the screen displays this message:

```
Volume ID for Drive A: is WORK
Diskette is  V  format.
Directory of A:\

File not found

A>_
```


You can use the wildcard characters * and ? to delete groups of files at once, but exercise extreme caution. The command **ERASE *.***, for example, removes all the files in the current directory on the diskette. (If you do enter this command, DOS asks you if you are sure, to prevent you from accidentally deleting all the files.)

3.9 RENAME: Changing a Filename

The internal DOS command RENAME, or REN, permits you to rename a file. RENAME helps you prevent conflicts among filenames.

If you want to change a filename from THIS.ONE to THAT.ONE, and the file is on the diskette in drive B, enter the following:

ren b:this.one that.one(cr)

(Old) (New)

Note that the old filename is typed first, preceded by the drive specifier B:, and the new filename is typed last. Enter a space between the command and each of the filenames. You do not need the drive specifier in the new name; DOS already knows where the file is. When the system prompt reappears, the renaming is complete. You can use DIR to check that the filename is changed.

You can change a filename only on the same diskette or volume—not from one diskette to another (use COPY for that procedure).

3.10 CHKDSK: Checking the Diskette

The external command CHKDSK checks the condition of the file allocation table and directories, and displays a status report indicating the size (in bytes) allotted to the various types of information stored on your diskette. If CHKDSK finds any errors, it displays an error message before the status report. CHKDSK can fix errors if you include the /F option.

CHKDSK is an external command. To execute it, the file CHKDSK.COM must be on a diskette in a drive, or on a fixed disk volume, and you must be in that directory or tell DOS how to access it with a path. Insert the diskette containing CHKDSK in drive A, and put the diskette to be checked in drive B. (You can also check the diskette in drive A, or specify a fixed disk volume.) Follow this procedure:

1. Insert your DOS system diskette into drive A.
2. Insert the diskette to be checked into drive B.
3. After the prompt, type the following:

```
chkdsk b:
```

4. Press the Return key. DOS will display information similar to the following:

```
A>chkdsk b:(cr)
  Volume BOOKCH4      created Mar 5, 1985 2:13p

    362587 bytes total disk space
     21758 bytes in 2 hidden files
    315718 bytes in 34 user files
       508 bytes in bad sectors
     22030 bytes available on disk

    121874 bytes total memory
    105144 bytes free

A>_
```

"Volume BOOKCH4" is the volume label given to the diskette during the formatting process or by using VOL/C. The line "bytes in bad sectors" appears only when some bad sectors exist, and only for I-format diskettes.

Periodically check your diskettes with CHKDSK. Sometimes a disk begins developing a defect. With CHKDSK, you might be able to correct it before the defect damages your programs or data.

3.11 VISYS: Copying the System Files

The external DOS command VISYS copies the following special system files from a floppy diskette:

IDOS.SYS
VDOS.SYS
ICOMMAND.COM
VCOMMAND.COM

You must specify the source and the destination. If you are copying to the fixed disk, specify the active partition.

To copy the rest of the system files, use the COPY command or the SEARCH command.

VISYS copies from any volume to any other—for example, from fixed disk volume to diskette, if there is enough room on the diskette. The following command copies the special system files from A to C:

```
visys a: c:(cr)
```

4

Setting Up Your Fixed Disk

Your fixed disk is a data storage device that is mounted inside the computer. It has a storage capacity of either 10 or 30 megabytes (MB). In addition to offering greater storage capacity, the fixed disk increases the speed of the computer by reading and writing files faster than a floppy disk drive does.

Your fixed disk can store both VICTOR and PC-compatible programs at the same time. Also, you can divide it into as many as eight **volumes** with up to four **partitions** in each volume. A volume is like a floppy disk drive that contains a diskette. A partition is storage space in a volume that is reserved for a specific operating system.

This chapter shows you how to set up your fixed disk by running the FDINSTAL.BAT batch file. FDINSTAL runs the utilities that set up your fixed disk. By running FDINSTAL and following the instructions in this chapter, you will set up your fixed disk with one volume that contains a single partition for the VI operating system. See Chapter 5 to set up your fixed disk with a configuration other than this recommended one.

4.1 Using FDINSTAL

The FDINSTAL.BAT batch file executes several commands and then runs the following utilities one after the other:

- FDSETUP—sets the number of volumes and the size of each volume
- FDISK—creates the DOS partition in the volume
- FDFORMAT—prepares the DOS partition for file storage
- VISYS—copies the system files from the floppy disk

The FDINSTAL batch file and the utilities prompt you for one or more responses as they perform tasks. Follow the instructions in this chapter to select the correct responses. Allow about half an hour to complete the entire process.

After FDINSTAL runs these four utilities, it copies all of the files on your distribution diskette onto your fixed disk, maintaining the same directory structure as your distribution diskette directory. The screen lists the files as they are copied.

To use FDINSTAL, put your distribution diskette in the floppy disk drive. Enter I mode and then change directories to the FDINSTAL directory by typing:

4

cd fdinstal(cr)

after the system prompt.

Then, run FDINSTAL from the FDINSTAL directory by again typing:

fdinstal(cr)

The screen displays an introduction to using the FDINSTAL batch file. After you read the contents of the screen, press the Spacebar to continue.

If for some reason you want to exit FDINSTAL before you finish the entire process, change directories to the root directory, delete the AUTOEXEC.BAT file, and start over by booting from the system diskette.

follow instruction :

press a to for easiest method.

4.2 Running FDSETUP

After displaying the instructions, the FDINSTAL batch file executes several commands and then runs the FDSETUP utility. As FDSETUP begins, the screen displays the following:

```
VICTOR VI
FDSETUP Vx.x
Copyright (c) 1984
Set up Internal or External Drive (I or E)?
```

Enter **I** to indicate the internal fixed disk drive. The utility responds by indicating the status of your fixed disk drive, which currently has the volume label VI FORMAT and no volumes. The screen displays the following:

```
VICTOR VI
FDSETUP Vx.x
Copyright (c) 1984
Set Up Internal Drive

Current Fixed Disk Label : VI FORMAT
Volume      Cylinder count

Press Spacebar to continue, ESC to quit
```

Press the Spacebar to continue. The screen displays the following:

```
                Volume Set Up
Enter cylinder count of volume, then press Return

          Available cylinders = 305
              Volume # 1 (0) >
```

This message indicates the number of available cylinders in the first volume. A volume is measured in cylinders; a cylinder is 32,768 bytes. Each volume begins at a specific cylinder and occupies the number of cylinders you will specify. If you have a 10-MB fixed disk, the number of available cylinders is 305 (0–304). If you have a 30-MB fixed disk, the number of available cylinders is 915 (0–914).

Note: The screen displays shown in this chapter represent a 10-MB fixed disk. Thus, your screen will look slightly different if you have a 30-MB fixed disk.

FDSETUP now expects you to indicate the size of the first volume you want to set up. To set up the entire disk as a single volume, enter **305** for a 10-MB fixed disk or **915** for a 30-MB fixed disk. Then press the Return key. The size of the volume in kilobytes is added to the screen display:

```
          Volume size = 10370K

Press Spacebar to accept, Return to reject
```

Press the Spacebar. FDSETUP asks you to confirm the set-up:

```
                    Volume Set Up

           Volume              Cylinder count

             1                       305

                 Is this correct (Y/N)?
```

Press the **y** key. The following message appears as the FDSETUP utility finishes:

```
                     WRITE NEW LABEL
      OK: SYSTEM MUST BE REBOOTED TO LOAD THIS SETUP
{ Mode I } A:\fd>copy \fdinstal\fdl \autoexec.bat
        1 File(s) copied

{ Mode I } A:\fd>. PLEASE REBOOT NOW
{ Mode I } A:\fd>
```

Reboot your computer now by simultaneously pressing the **CTRL**, the **ALT**, and the **DEL** keys.

4.3 Running FDISK

After you reboot your computer, the FDINSTAL batch file displays instructions for using the FDISK utility, which creates a DOS partition in the volume you set up with FDSETUP. After you read these instructions, press the Spacebar. The screen displays the FDISK menu:

```
                VICTOR VI
        Fixed Disk Partition Utility
             Copyright (c) 1984

        FDISK OPTIONS

        Choose one of the following:

           1.  Create DOS partition
           2.  Change active partition
           3.  Delete DOS partition
           4.  Display partition data

        Enter choice: [ ]

        Press ESC to return to DOS
```

The first task FDISK must perform is to create a DOS partition. Type **1** to choose the first menu item. The screen displays the following:

```
                VICTOR VI
        Fixed Disk Partition Utility
             Copyright (c) 1984

        Create DOS partition

        Do you wish to use the entire volume
        for DOS (Y/N)?

        Press ESC to return to menu
```


Press the **y** key to create a DOS partition that uses the entire volume. The screen displays the following:

```
                VICTOR VI
        Fixed Disk Partition Utility
             Copyright (c) 1984

                Create DOS partition

    Partition   Status   Type   Start   End   Size
        1          N      DOS      0     304    305

    Number of cylinders used = 305 out of 305

    [ ] Press ESC to return to menu
```

Press the ESC key to return to the FDISK menu. You have created the DOS partition and the FDISK menu reappears on the screen:

```
                VICTOR VI
        Fixed Disk Partition Utility
              Copyright (c) 1984

        FDISK OPTIONS

        Choose one of the following:

           1.  Create DOS partition
           2.  Change active partition
           3.  Delete DOS partition
           4.  Display partition data

        Enter choice: [ ]

        Press ESC to return to DOS
```


Now specify that your DOS partition is the active partition. Press the **2** key to select menu item 2. The screen displays the following:

```
                VICTOR VI
        Fixed Disk Partition Utility
              Copyright (c) 1984

        Change active partition

Partition  Status  Type  Start  End  Size
    1         N     DOS     0   304   305

Number of cylinders used = 305 out of 305

Enter the number of the partition
to make active:

Press ESC to return to menu
```

Press the **1** key to select Partition 1 as the active partition. The screen display changes as follows:

```
The current active partition is 1

Enter the number of the partition
to make active:

[ ] Press ESC to return to menu
```

Press the ESC key to return to the FDISK menu. After the FDISK menu reappears, press the ESC key to exit the FDISK utility. The following message appears on the screen:

```
      You must REBOOT to install any changes
      made to the fixed disk configuration

{ Mode I } A:\fd>copy \fdinstal\fd2 \autoexec.bat
          1 File(s) copied

{ Mode I } A:\fd>. PLEASE REBOOT NOW
{ Mode I } A:\fd>
```

Reboot your computer by simultaneously pressing the **CTRL**, the **ALT**, and the **DEL** keys.

4.4 Running FDFORMAT

After you reboot your computer, FDINSTAL executes several commands and then runs the FDFORMAT utility to prepare your DOS partition for use. FDFORMAT displays the following message:

```
Press any key to begin formatting.....
```

Press the Spacebar to begin formatting the fixed disk partition. The following message appears on the screen several times as FDFORMAT continues:

```
Formatting...
```

When FDFORMAT finishes, the message **Format complete** appears on the screen, followed by a status message. These messages disappear quickly, so you might not see them.

4.5 Copying the DOS Files

After the FDFORMAT utility formats the fixed disk partition, the FDINSTAL batch file runs the VISYS utility, which copies the DOS files onto the fixed disk. Then FDINSTAL copies the rest of the system diskette onto the fixed disk.

After all the files are copied to the fixed disk, the screen displays the following message:

```
Fixed Disk Installation complete ...
Now boot from fixed disk
{ Mode I } A:\>
```

Open the floppy disk drive door. Then boot your computer by simultaneously pressing the **CTRL**, the **ALT**, and the **DEL** keys. Your computer boots up from the fixed disk.

5

Fixed Disk Maintenance

This chapter shows you how to back up your fixed disk onto diskettes and how to copy the contents of the diskettes back onto the fixed disk. This chapter also explains how to use the fixed disk utilities to customize your fixed disk set-up.

5.1 Backing Up the Fixed Disk

Backing up your fixed disk regularly is a good practice because it ensures access to your files if your fixed disk is ever damaged. The SEARCH utility provides an efficient way to back up your fixed disk.

To create a backup file containing all the data on your disk, use SEARCH with the **/TARC** (tape archive create) switch, followed by the name you want to give the backup file.

For example, to back up files from volumes C, D, and E, insert a blank, formatted diskette in drive A and enter:

```
search c:\ d:\ e:\ /tarc a:backup(cr)
```

This command finds all the files on those volumes, and backs them up on a single file named BACKUP on drive A.

If your diskette runs out of space, SEARCH displays a message asking if you want to continue. Respond by typing **y**, and press the Return key. SEARCH then prompts you to remove the diskette. Remove it and insert a blank, formatted diskette in the floppy disk drive. Then enter the drive and filename of the backup file. The utility continues the backup operation using the newly inserted diskette.

5.2 Restoring Files from a Backup Diskette

To restore files from a backup file named BACKUP in drive A, enter:

```
search /tarx a:backup /cp \ /vt(cr)
```

where:

/tarx	restores or extracts files from the backup (tape archive) file
/cp	copies files from the backup file
\	begins copying from the root directory
/v	returns files to their original volume
/t	puts files in their original tree structure of subdirectories

If the tape archive file occupies more than one diskette, you might get an error message on the last file. If this happens, SEARCH asks you if you want to continue or abort. If you choose to continue and enter the filename, you must also specify the drive name—SEARCH does not remember it. In this case, insert the next backup diskette, and repeat the entire **SEARCH /tarx** command. The file in error on the previous diskette will be intact at the beginning of the next backup diskette.

5.3 Customizing Your Fixed Disk

Chapter 4 shows you how to set up your fixed disk with a single volume that consists entirely of a DOS partition. This set-up allows you to store only DOS files on your fixed disk because only one operating system can access a given partition.

If you want to increase the number of volumes on your fixed disk or use more than one operating system with your fixed disk, you must customize your fixed disk. Chapter 5.3 shows you how to use the fixed disk utilities to set up your fixed disk with a custom configuration.

Here are some guidelines that you should note before you begin:

- The VI FDISK utility creates a DOS partition. To create a partition for another operating system, you must use the utility provided with that operating system.
- If your fixed disk has more than two volumes, your VI will not boot PC DOS.
- Only one partition can be selected as the **active** or **boot partition**. Your VI boots from this partition when it boots from the fixed disk.
- The VI cannot boot the VICTOR operating systems for the Vicki and V9000 computers.
- When you set up the partition for use with DOS, you can choose the location and size of the partition. You can also delete the DOS partition if, for example, you want to create it again in a different size or location on the fixed disk.
- If your fixed disk has already been set up, use the SEARCH utility to archive your files before you begin. Chapter 5.1 explains how to use SEARCH.

5.3.1 Setting Up Your Fixed Disk

To set up your fixed disk, you must first run FDSETUP to specify the number of volumes you will have on the fixed disk.

You must be in I mode to use FDSETUP. Enter I mode and then use the DIR command to review the contents of the system diskette. It should contain these directories and files:

```
VCOMMAND    .COM
ICOMMAND    .COM
VLIB        <DIR>
ILIB        <DIR>
COMNLIB     <DIR>
FD          <DIR>
VCONFIG     .SYS
ICONFIG     .SYS
VCONFIG     .BAT
ICONFIG     .BAT
FDINSTAL    <DIR>
```


Now use the CHDIR command to change to the FD subdirectory:

```
cd fd(cr)
```

Use DIR to ensure that the following files are in the FD subdirectory:

```
FDISK
FDFORMAT
FDSETUP
```

To start FDSETUP, type the following command in response to the operating system prompt:

fdsetup(cr)

The screen displays the following:

```
                    VICTOR VI
                  FDSETUP Vx.x
                Copyright (c) 1984

        Set Up Internal or External Drive (I or E)?
```

Enter **I** to indicate the internal fixed disk. The screen displays the following:

```
                    VICTOR VI
                  FDSETUP Vx.x
                Copyright (c) 1984

                Set Up Internal Drive

          Current Fixed Disk Label : VI FORMAT

              Volume          Cylinder count

          Press Spacebar to continue, ESC to quit
```

If your fixed disk has previously been set up, the number of each existing volume appears on the screen below the **Volume** heading. The number of cylinders for each volume appears below the **Cylinder count** heading. For example, if you have a 10-MB fixed disk that has been set up with the FDINSTAL batch file as discussed in Chapter 4, the screen should indicate that Volume 1 has 305 cylinders:

```
                VICTOR VI
              FDSETUP Vx.x
            Copyright (c) 1984

            Set Up Internal Drive

        Current Fixed Disk Label : VI FORMAT

          Volume      Cylinder count
            #1              305

        Press Spacebar to continue, ESC to quit
```


Press the Spacebar to continue. The screen displays the following:

```
                Volume Set Up
    Enter cylinder count of volume, then press Return

              Available cylinders = xxx
                Volume # 1 (xxx) >
```

FDSETUP expects you to enter the number of cylinders in the first volume. A cylinder is 32,768 bytes. A volume begins on a specific cylinder and occupies the number of cylinders that you specify.

If you have a 10-MB fixed disk, the screen indicates that there are 305 available cylinders. If you have a 30-MB fixed disk, the screen indicates that there are 915 available cylinders. The number of cylinders currently allocated to Volume 1 appears in parentheses.

Enter the number of cylinders you want to allocate to Volume 1. Then press the Return key. If you enter the number **100**, for example, the following message is added to the screen display:

```
Volume size  = 3400K
Press Spacebar to accept, Return to reject
```

If you have entered the volume size you want, press the Spacebar. FDSETUP displays the number of available cylinders for the next volume and the number of cylinders previously allocated to that volume:

```
Available cylinders = xxx
     Volume # 2 (xxx) >
```

Enter the number of cylinders for Volume 2 and press the Return key. FDSETUP displays the size in bytes of the newly created volume and gives you the opportunity to accept or reject the new size.

You can continue to create volumes as long as there is space on the fixed disk. If space remains, but you do not want to create another volume, press **0** followed by the Return key.

After you finish allocating volume space, FDSETUP displays the volume numbers and cylinder counts. If you have allocated two 100-cylinder volumes and one 105-cylinder volume, the screen displays the following:

```
                Volume Set Up
          Volume     Cylinder count

            1              100
            2              100
            3              105

          Is this correct (Y/N)?
```

Press the **y** key to confirm the volume set-up. The following message appears as FDSETUP finishes:

```
                    WRITE NEW LABEL
OK: SYSTEM MUST BE REBOOTED TO LOAD THIS SETUP
```

Reboot your computer by simultaneously pressing the **CTRL**, the **ALT**, and the **DEL** keys.

5.3.2 Creating a DOS Partition

After you set up the volumes on your fixed disk, you must create a DOS partition for each volume in which you want to store DOS files. You also must select the partition from which you will boot DOS. The partition is called the **active** or **boot partition.**

To run the FDISK utility, type the following command from the **FD** directory:

fdisk(cr)

The screen displays the following:

```
                VICTOR VI
        Fixed Disk Partition Utility
             Copyright (c) 1984

FDISK OPTIONS   ** VOLUME 1 **

Choose one of the following:

   1.   Create DOS partition
   2.   Change active partition
   3.   Delete DOS partition
   4.   Display partition data
   5.   Change selected volume

Enter choice: [ ]

Press ESC to return to DOS
```

Note: If you have set up your fixed disk with only one volume, your screen does not display the ** **VOLUME** ** indicator or Menu Item 5.

From the FDISK menu, you can change the volume for which you will create a partition. To select a different volume, type:

5(cr)

FDISK prompts you to select a volume number. If you have created three volumes, the screen displays the following message:

```
Enter volume number (1-3):
```

Enter a volume number and press the Return key. You return to the FDISK menu and the screen indicates which volume you have selected. Note, however, that the instructions in this chapter assume that you are creating a DOS partition for Volume 1.

If you want to find out the status of partitions on your fixed disk, select the fourth menu item and press the Return key. If Volume 1 is 100 cylinders with no partitions defined, the screen displays the following:

```
                VICTOR VI
        Fixed Disk Partition Utility
             Copyright (c) 1984

Display Partition Data   ** Volume 1 **

No partitions defined

Number of cylinders used = 0 out of 100

[ ] Press ESC to return to menu
```

Press ESC to return to the FDISK menu. Create a partition now by selecting the first menu item. The screen displays the following:

```
                VICTOR VI
          Fixed Disk Partition Utility
               Copyright (c) 1984

        Create DOS Partition ** Volume 1 **

        Do you wish to use the entire volume
        for DOS (Y/N)?

        Press ESC to return to menu
```

If you want to use the entire volume for the DOS partition, press **y**. If you want to reserve space in this volume for another operating system, press **n**. If you press **n**, FDISK indicates the number of cylinders available for the partition and prompts you for the size of the partition:

```
                VICTOR VI
          Fixed Disk Partition Utility
               Copyright (c) 1984

        Create DOS Partition ** Volume 1 **

        No partitions defined

        Number of cylinders used = 0 out of xxx

        Input partition size......<xxx>

        Press ESC to return to menu
```

Press the Return key if you want to use the rest of the volume as the partition. Otherwise, enter the number of cylinders and then press the Return key. If you enter the wrong number, you can correct your mistake before you press the Return key. Use the Backspace key to erase the wrong number. Then enter the correct number.

If you enter a number, the screen prompts you to indicate the starting cylinder:

```
Input starting cylinder ... <0>
```

If the starting cylinder is 0, press the Return key. Otherwise enter a number and press the Return key. The screen displays the status of the partition. If you have created an 80-cylinder partition in a 100-cylinder volume, the screen might look like this:

```
                VICTOR VI
          Fixed Disk Partition Utility
               Copyright (c) 1984

     Create DOS Partition ** Volume 1 **

Partition  Status  Type  Start  End  Size
   1         N     DOS     0     79    80

Number of cylinders used = 0 out of 100

Input partition size......<80>
Input starting cylinder....<0>

Press ESC to return to menu
```

After you create the DOS partitions on your fixed disk, you should select the active or boot partition. By selecting this partition, you can copy your VI operating system onto the fixed disk and boot from the fixed disk.

To select the active partition, press **2** from the FDISK menu. If you have created only an 80-cylinder partition in Volume 1, the screen displays the following:

```
                    VICTOR VI
            Fixed Disk Partition Utility
                 Copyright (c) 1984

Partition   Status   Type   Start   End   Size
   1          N      DOS      0     79     80

Enter the number of the partition
to make active:

Press ESC to return to menu
```


If you type **1**, followed by the Return key, this message is added to the screen display:

```
The current active partition is 1
```

Also, the **Status** category changes from **N** to **A** to indicate that Partition 1 is the active partition.

If you want to delete a DOS partition, select the third FDISK menu item. The screen displays a warning that all data in the partition will be destroyed. If you press the **y** key to confirm that you want to delete the partition, FDISK displays the **Display Partition Data** message which indicates the status of partitions for the volume.

When you finish creating partitions with FDISK, it prompts you to reboot your computer:

```
        You must REBOOT to install any changes
        made to the fixed disk configuration
{ Mode I } A:\fd>
```

Reboot your computer by simultaneously pressing the **CTRL**, the **ALT**, and the **DEL** keys.

5.3.3 Formatting the Fixed Disk

After you set up your fixed disk, you must format it. To format the fixed disk, you must be in I mode in the FD subdirectory. The FDFORMAT command with the V switch formats the volume containing the active or boot partition. The FDFORMAT command without any switch formats non-active DOS partitions. To format Volume C, if Volume C contains the boot partition, type:

fdformat c:/v(cr)

The FDFORMAT command prompts you to select a volume ID for this volume:

```
Input an 11-character volume I.D. for this volume:
```

Enter the volume ID and press the Return key. FDFORMAT prompts you again:

```
Press any key to begin formatting.....
```

Press the Spacebar to begin formatting. The following message appears several times as the partition is formatted:

```
Formatting.....
```

When FDFORMAT finishes formatting the partition, a **Format Complete** message appears on the screen, followed by a status message. The status message indicates the number of bytes in the volume, the number of bad bytes in the volume, and the number of usable bytes in the volume.

To format another DOS partition in another volume, you can run FDFORMAT again.

5.3.4 Copying Files to the Fixed Disk

After you format the boot partition, copy the contents of the system diskette onto the fixed disk. First use the VISYS command to copy special operating system files to the boot partition. If the boot partition is in Volume C, type:

```
visys a: c:(cr)
```

Next, use the SEARCH command to copy the rest of the system files to Volume C. Type:

```
search a: /cp c: /t(cr)
```

The contents of the system diskette are copied to Volume C.

After you copy the contents of the system diskette onto the fixed disk, remove the system diskette from the floppy disk drive and leave the drive door open. Then, reboot your computer from the fixed disk by simultaneously pressing the **CTRL**, the **ALT**, and the **DEL** keys.

If you have used SEARCH to back up your fixed disk onto diskettes, you can now use SEARCH to copy the contents of the diskettes back onto the fixed disk. Otherwise, use the COPY command to copy files onto your fixed disk.

A

System Messages and Codes

This appendix lists system messages and codes that you might see while operating your computer. It also provides more information on the booting process that was introduced in Chapter 2, including the boot ROM symbols and their meanings. Error messages that can appear during the booting process are listed in Appendixes A.2 and A.3. The boot ROM displays these messages in response to diagnostic errors and loading errors. Appendix A.4 lists fixed disk error messages.

A.1 Boot ROM Functions

Booting is the process of loading the operating system into memory. At the start of the booting process, the computer's internal memory (RAM) is empty. No data or programs are in RAM to direct the booting process. Instead, your computer uses a type of permanent memory whose only function is to execute its stored program or read its data into RAM. This type of memory is called Read-Only Memory (ROM).

Your computer has a boot ROM that reads the operating system into RAM and performs system tests during the booting process. The boot ROM contains only this predefined routine, and cannot be used for any other function.

The boot ROM performs these functions:

- Determines the size of RAM.
- Identifies the device (floppy drive or fixed disk) from which the operating system can be loaded. Devices are checked in this order: left floppy drive (A), right floppy drive (B), fixed disk.

The boot ROM begins the booting process when you turn on power to your computer or when you press the reset button. During the first

step of the booting process, the power-on display and memory-test message appear. This display occurs with all system configurations and remains on the screen until the operating system starts loading into memory. During this first part of the booting process, the boot ROM also tests the floppy disk drive's interface by flashing the in-use lights on and off.

The boot process completes when you insert a system diskette, and the boot ROM loads DOS into RAM.

During the booting process, the boot ROM displays symbols and numbers at the bottom of the screen. The symbols and numbers give you information about your system, such as the memory size, the type of device the boot ROM is currently testing for DOS, and the code for any error that occurs. The symbols and their meanings are listed in Table A-1. Table A-2 defines the error codes.

Table A-1: Boot ROM Display Symbols

SYMBOL	MEANING
M	Memory: Memory test/sizing procedure is being executed.
nnnK	Memory (RAM) size in kilobytes.
	Clock: Wait for the process indicated by the accompanying symbol to complete.
	Flashing Arrow: Appears with the floppy disk symbol, meaning that you should insert a diskette in a disk drive.
	Floppy Disk: Boot ROM is trying to read DOS from a floppy disk. When this symbol appears with the clock, DOS is loading from diskette.
0-9	Indicates the floppy drive or Network server from which DOS is loading. For floppy drives, 0 is the left drive, and 1 is the right drive. A Network server number can be 0–9.
	Network: Boot ROM is reading DOS from a Network server's boot volume.
	Fixed Disk: Boot ROM is trying to read DOS from the fixed disk.
X	Error: Appears with a two-digit code to indicate a loading error. The source of the error might be indicated by an accompanying symbol, such as the floppy disk.

A.2 Loading Errors

If an error occurs while the boot ROM is loading DOS, the screen displays:

- An X
- A symbol representing the device attempting the boot
- A two-digit error code defining the type of error

The symbol displayed represents either a floppy disk or a fixed disk. The boot ROM display symbols are illustrated in Table A-1.

If you get a floppy disk error when you try to load DOS from a diskette, remove the diskette to escape from the error situation. Check that the diskette is a system diskette and that it is not write-protected. Try inserting it again or use another system diskette.

A.3 Diagnostic Errors

At power-up, the boot ROM tests the size of the installed memory (RAM) and runs diagnostic tests on parts of the system. If a test fails, you see an error message, described in the next two sections.

A.3.1 Memory Test and Error Codes

The boot ROM tests memory size when you power up the computer and when you press the reset button. If an error is found in the first 16K of memory, the boot process cannot continue. If a memory error occurs between 16K and 128K (or between 128K boundaries), a memory error message is displayed. The message tells you the error's location and the size of usable memory, in this format:

M nnnK mm

where: M stands for memory test
nnnK is the size of usable memory in kilobytes
mm is a code identifying the memory error as:

- 03 Unreproduceable error
- 3x Error at bit x
- 4x Error at bit x and other bits

A computer with a memory error might still operate, depending on the size of usable memory. Contact your dealer for help in correcting memory errors.

After you insert a system diskette, the boot ROM compares the size of the operating system on the diskette with the size of RAM. If the installed memory is insufficient to load DOS, the following error message appears with the diskette symbol:

M X nnnK

where nnnK is the size of usable memory in kilobytes. If this message appears, you must either load an operating system that requires less memory or acquire more memory.

A.3.2 Diagnostic Test and Error Codes

The boot ROM runs diagnostic tests on the hardware in the system and tells you if any of the tested components are nonfunctional. If any diagnostic test fails, you see this error message:

Xnxy0

- If n = 1, the PIC (Programmable Interrupt Controller) is nonfunctional.
- If x = 2, the parallel port is nonfunctional.
- If y = 3, the keyboard is nonfunctional.
- If n, x, or y is 0, that component is functional.

Contact your dealer for assistance in correcting any hardware problem.

Table A-2 lists and describes the boot ROM error codes for each device. If you get a network error when you try to load the network operating system, note the server number and the error code displayed. Give this information to your network system administrator, who can tell you how to correct the error.

If you get a fixed disk error when booting up from a fixed disk, make sure your fixed disk is configured with a boot volume, and the boot volume contains an operating system. You might have to run VISYS to install DOS in the boot volume.

Table A-2: Boot ROM Error Codes

ERROR CODE	MEANING
FLOPPY DISK ERRORS	
01	No sync
02	No header ID after sync
03	Checksum error in header
04	Requested track doesn't match track header
05	No match on sector, error count expired
06	No data ID after header
07	Checksum error in data
08	Sync present too long
09	Door opened during operation
0A	GCR error
20	Internal error: Invalid device unit requested
21	Internal error: Invalid sector requested
99	Floppy label indicates no operating system on diskette
NETWORK ERRORS (SERVER NETWORK)	
Boot ROM-Detected Errors	
40	Transporter took too long to send message
41	Could not recover from retry of error 80 or 82
42	Transporter took too long to set up to receive
43	No response from server
44	Bad server number in response
45	Bad sequence number in response
46	Bad message type received
47	Server cannot send a boot
69	Internal error
Transporter-Detected Errors	
80	Message not acknowledged by server
81	Message too large for server's buffer
82	Server's socket not initialized (or busy)
83	Control length mismatch between station and server
84	Invalid socket number (consider this an X69 error)
85	Server's socket is in use
86	Invalid destination address (consider this an X69 error)

ERROR CODE	MEANING
Server-Detected Errors	
10	No boot operating system on server's system volume
11	I/O error in server seeking for label
12	I/O error in server reading label
13	Bad ID on label on server's boot operating system file
14	Bad blocking information in server's boot operating system file
15	Station requested a bad block size (consider this an X69 error)
16	I/O error in server seeking to read an operating system block
17	I/O error in server reading an operating system block
18	Unexpected end of file in reading operating system
19	Bad handle received from station (consider this an X69 error)
1A	Bad request received from station (consider this an X69 error)
FIXED DISK ERRORS	
01	No index detected from disk drive
02	No seek-complete signal from disk drive
03	Write fault from disk drive
04	Drive not ready after it was selected
06	Track 00 not found
10	ID field read error
11	Uncorrectable data error
12	Address mark not found
14	Target sector not found
15	Seek error (incorrect cylinder and/or track)
18	Correctable data error
19	Bad-track flag detected
1A	Format error
20	Invalid command
21	Illegal disk address
30	RAM diagnostic failure
31	Program memory checksum error
32	ECC diagnostic failure
3D	Internal error: invalid command
3F	Time out on disk operation
40	Internal error: bad operation
41	Fixed disk I/O error: bad region information in label
4F	Internal error: invalid block count
98	Bad fixed disk label
99	Label indicates no operating system on disk

A.4 Fixed Disk Error Messages

These error messages can appear when you are using FDSETUP.

***** ERROR: select I or E only**

This error is generated when the selected fixed disk unit is other than I(nternal) or E(xternal). Enter I or E when you are prompted for the unit to set up.

***** ERROR: size must be from 1 to N *****

This error is generated when the virtual drive cylinder count entered is less than 1 or greater than the maximum number of cylinders available. Enter a number greater than 0 and less than the number of cylinders available.

***** ERROR: bad cylinder LA = N**

This error is generated when a bad track is found at cylinder 0 of the virtual drive defined. This track is skipped and the next cylinder is tested until a good track is found for cylinder 0 of the virtual drive. This is a diagnostic message and no user action is required.

***** ERROR WRITING DISK LABEL TO DRIVE *****

This error is generated when the new drive label cannot be written to the label sector. There is a system hardware error, and you cannot correct the error. Contact your dealer.

***** ERROR: can not read fixed disk label *****

The system generates this error if the drive label cannot be read. This error can occur if the drive is not formatted.

***** UNKNOWN DISK LABEL TYPE : XX *****

This error is generated when the label read is of an unknown type. This error occurs if the drive is not formatted correctly or if the label sector was overwritten.

***** ERROR: can not save Victor Label**

This error is generated when the backup VICTOR label cannot be written on the drive. This is a **fatal error**; contact your dealer.

The following error messages can appear when you are using FDISK:

No fixed disk present.

Incorrect DOS version.

Parameter Request Error.

Error Reading Fixed Disk.

Error Writing to Fixed Disk.

No space on volume to create a DOS partition.

Current volume already has a DOS partition.

Partition too large. Please input a smaller value.

Not enough room. Please input a different value.

The following messages can appear when you are using FDFORMAT:

Error: No drive specified

Error: Invalid drive specification

A

Error: Invalid parameter " xxx ".

The "/S" function is not supported by the fixed disk FORMAT. To transfer system files, use the VISYS command.

Error: Function " xxx " not supported by fixed disk FORMAT.

Set-Up and Maintenance

This appendix lists the environmental and electrical requirements for the VI, and then describes maintenance procedures, care of diskettes, and changing the settings of the color emulation switches.

B.1 Environmental and Electrical Requirements

Environmental Requirements

- VI model with dual floppy drives: 40–95 degrees Fahrenheit (5–35 degrees Centigrade)
- VI model with internal fixed disk: 60–90 degrees Fahrenheit (15–32 degrees Centigrade)
- 5–80% relative humidity (non-condensing)

Keep your computer out of direct sunlight; overheating can damage the components.

Electrical Requirements

	U.S. and Canada	International
Voltage:	95–137 Volts AC at 47–63 Hz	190–270 Volts AC at 47–63 Hz
Current:	1.5 Amp	0.75 Amp

B.2 Maintaining Your VI

Your VI requires no regular maintenance on your part. To protect your computer from dust and dirt, which can damage parts of the system, follow these instructions:

Screen: Clean the screen with the cleaning cloth supplied with your computer. Do not use cleaning solution on the screen. Residue from the solution builds up on the mesh covering the screen and obscures screen images.

System Unit: Clean the computer cabinet with a soft cloth dampened with a mild household cleaner.

Keyboard: Dust the keyboard with a feather duster, or wipe it with a soft cloth when the keyboard is disconnected or when the power is off.

CAUTION

- Never spray water or cleaning solution into the drives or onto the back of the cabinet or keyboard.
- Keep cigarette smoke and ashes away from your computer. Smoke and ash particles can damage diskettes and parts of the disk drives.
- Keep liquids and small items such as paper clips away from the keyboard. Spills can damage the keyboard.

B.3 Care of Diskettes

Handle your diskettes carefully. Follow these guidelines:

- Do not bend diskettes. If the surface of the diskette is marred, your VI might be unable to read or write data on the diskette.
- Do not touch the exposed surfaces, and hold the diskette by the label. Tiny particles of dust, smoke, or dirt from your fingers can destroy your data, losing many hours of your work. Figure B-1 illustrates the parts of the diskette.
- Because data is stored as magnetic pulses, keep diskettes away from magnetic fields, such as those generated by magnetic paper clip holders or ringing telephones. Interference from magnetic fields can destroy your data.
- Write on the diskette label with a soft felt-tip pen, using light pressure. Do not use a ballpoint pen or pencil. Never write on the diskette envelope with the diskette inside.
- Store diskettes away from sources of heat.
- Because of the high storage capacity of V-format diskettes, use only high-quality diskettes.

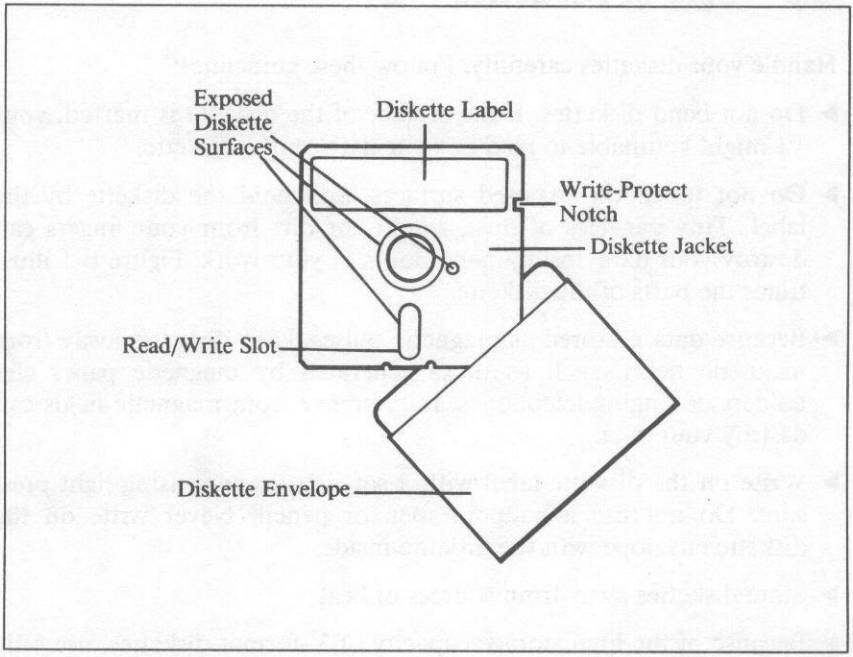


Figure B-1: Floppy Diskette

B.4 Changing the Color Emulation Switch Settings

The VI is distributed with the color emulation switches on the Drive Controller Assembly (DCA) board set to emulate IBM color. The settings are the same for both models of the VI, but the DCA boards are different for each model. The switches are set as follows:

1 On (IBM)
2 Off (Color)
3 On (Do Color Emulation)

The switch settings are taken from the values in Table B-1.

Table B-1: Switch Settings

SWITCH	ON	OFF
1	IBM	VICTOR
2	Monochrome	Color
3	Do Color Emulation	Don't Do Color Emulation
4 (Reserved)		

You might need to change the switch settings to work with other applications. For example, if you set switch 2 to On (Monochrome), the screen displays only PC-compatible applications written to run in monochrome mode. If the switch is set to color, the screen displays only PC-compatible programs written to run in color. Therefore, if you set the switch to monochrome and you try to run a color-based application, the application runs but with no display.

To change the switch settings, first turn off the power to the VI and remove the system unit cover. Then locate the color emulation switches on the Drive Controller Assembly (DCA) board. The DCA boards are different for each model. Figure B-2 illustrates the location of the switches for the dual floppy model, and Figure B-3 illustrates the location of the switches for the fixed disk model.

Change the switch settings to the combination you want. Some combinations of the settings do not work—for example, 2 off and 3 off. After you change the switch settings, put the system unit cover on. Then turn on the power and boot the system.

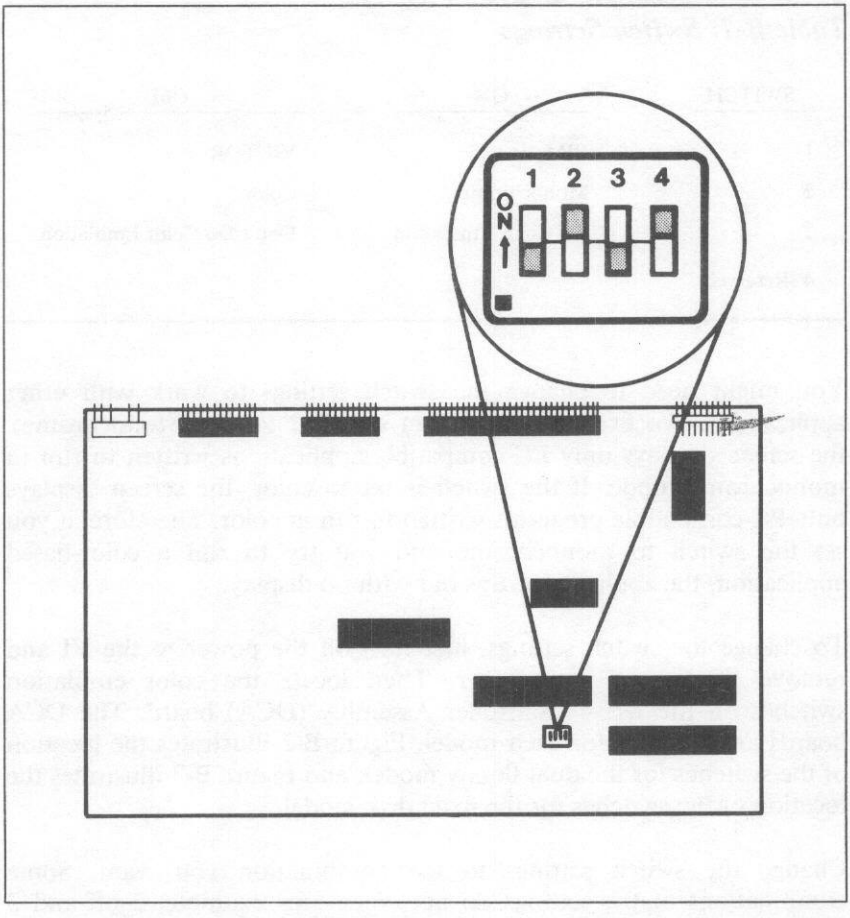


Figure B-2: Drive Controller Assembly (DCA) Board for the Dual Floppy Model

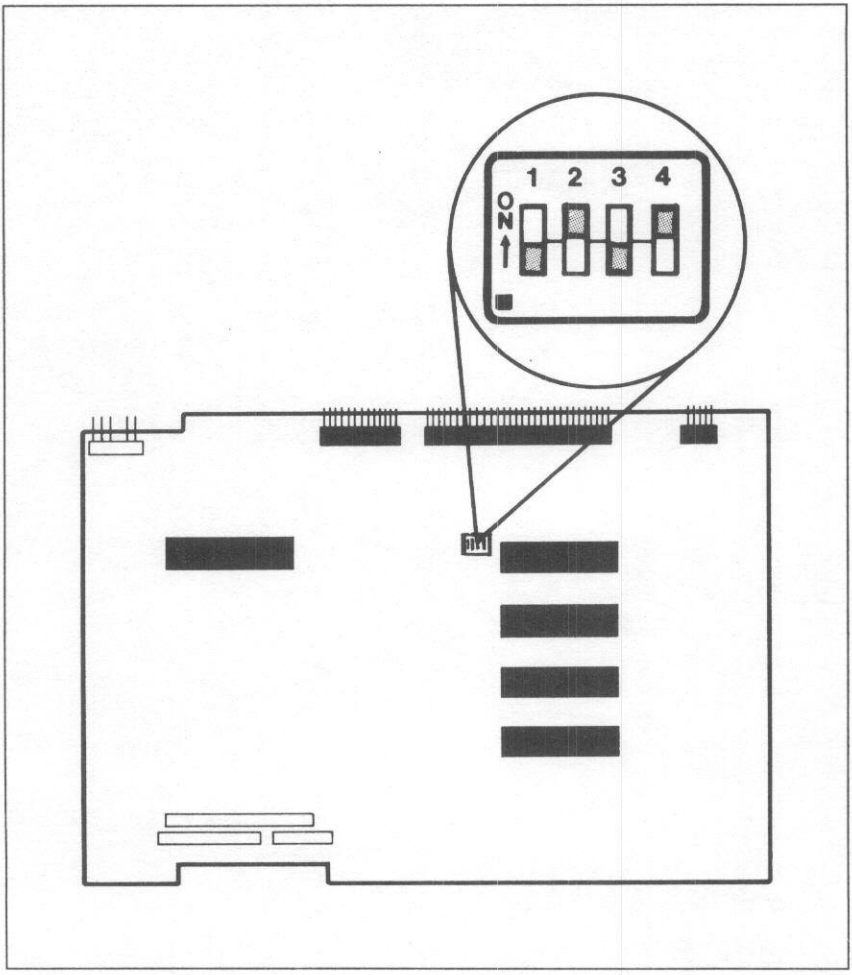
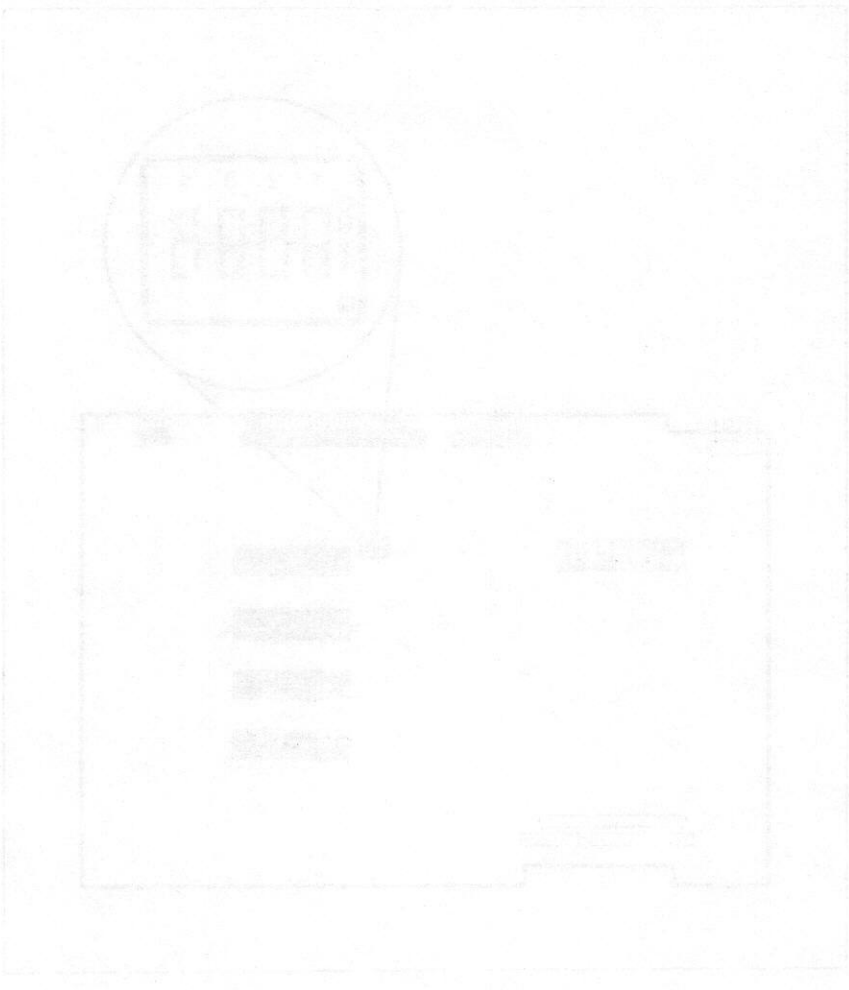


Figure B-3: Drive Controller Assembly (DCA) Board for the Fixed Disk Model



Troubleshooting

This appendix can help you identify problems you have with your computer. Appendix C.1 and C.2 describe how to solve general problems, such as those not accompanied by onscreen error messages. Appendix C.3 and C.4 explain how to replace the fuse and how to prepare for a service call.

C.1 General Problem Solving

When a problem arises, consider the following questions:

- Was an error message displayed?
- If so, refer to Appendix A. If not, refer to Appendix C.2.
- Is your VI making unusual noises?

  Unusual noises can indicate problems with the VI's power supply, the fan motor, or the disk drives. Call your service representative.
- Is the in-use light functioning, and is it on or off?

  If the light doesn't work (does not light up when disk access is attempted), your system might need service. If a light is on, the system might be "hanging"; press the reset button.
- What were you doing when the problem started?

  Note the type of operation you attempted and the program you were using (name and version number, if possible). Refer to the program's user's guide; it should explain how to deal with any error messages the program displays.

C.2 Problems and Solutions

This section describes how to solve problems when no error message is displayed on the screen.

▶ **The screen is blank and there is no fan noise.**

1. Check that the power cord is connected correctly.
2. Check that the wall socket has power. Plug in another device, such as a lamp.
3. Replace the fuse as described in Appendix C.3.

C

▶ **The screen is blank or very dim, but there is no fan noise.**

1. Check all connections.
2. Try to increase the screen's brightness with the key sequences described in Chapter 1.3.3. If you cannot increase the screen's brightness, the system might be "hanging"; press the reset button.

▶ **DOS does not load and there is no drive noise.**

Call your service representative.

▶ **DOS does not load but there is drive noise.**

1. Check that screen brightness is adjusted properly.
2. Try to boot with a backup system diskette.

▶ **When you load an application program, there is drive activity but the computer waits before the first frame of the program.**

Some application programs require that you first load a programming language module. Check that you loaded the correct module.

▶ **The display freezes and the computer does not respond to your commands.**

1. Type CTRL-C once or twice.
2. Type CTRL-Q once or twice.
3. Check that the keyboard is connected properly.
4. Press the reset button.

▶ **You get repeated inconsistent or erratic results.**

You might have a worn or damaged diskette or memory. Retry the operation or try it with your backup diskette.

▶ **The bell sounds.**

1. You pressed a key that cannot be used in the current operation.
2. The system might be hanging; press the reset button.

C.3 Replacing the Fuse

If the fuse burns out, your computer will not start (power up), and will power down if it is on at the time. Your service representative can change the fuse for you, or you can change it yourself. The fuse holder is on the rear of the system unit, just above the power cord receptacle.

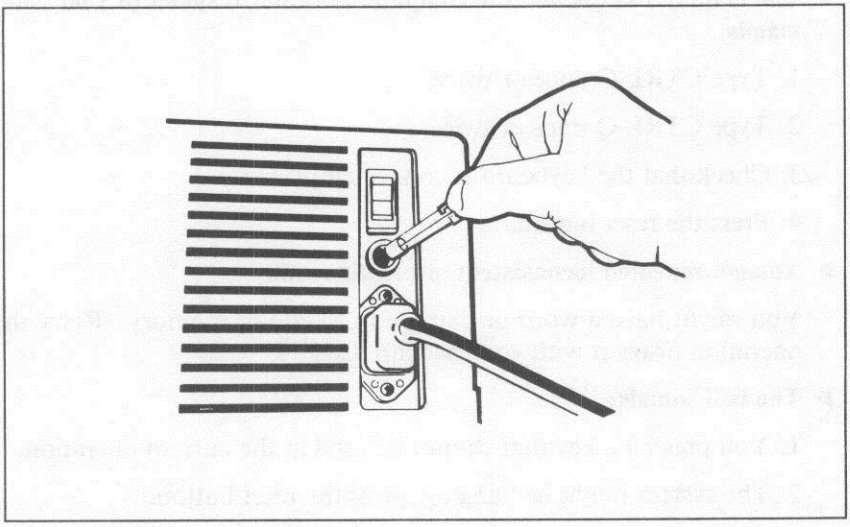


Figure C-1: Replacing the Fuse

To replace the fuse, follow these steps:

1. Turn off the power for the system unit.
2. Disconnect the power cord.
3. Open the fuse holder with a coin or screwdriver.
4. Replace the old fuse with a new fuse. Use only fuses from your dealer for your VI.
5. Close the fuse holder.
6. Reconnect the power cord.
7. Turn on the power.

C.4 Preparing for a Service Call

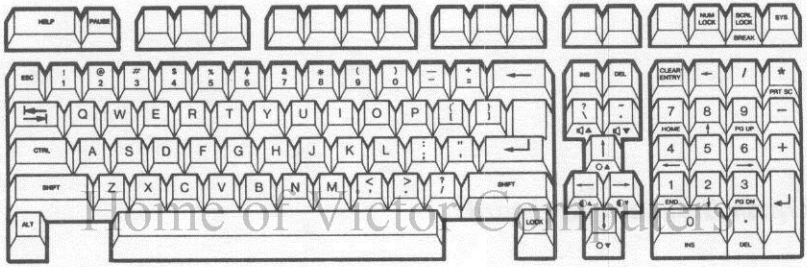
If you have a problem that requires a computer technician, have the following information available:

- A complete description of the problem, including error messages you received.
- The program and data diskettes you were using when the problem occurred. Do not make any changes to these diskettes.
- The model and serial numbers for the keyboard, screen, and system unit.

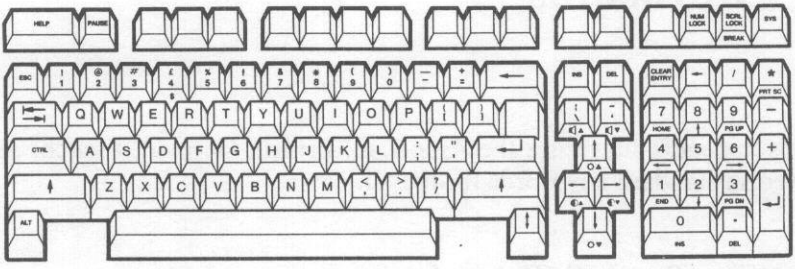
VI Keyboards

This appendix illustrates the American, British, German, French, and Swedish standard keyboards for the VI.

American Standard Keyboard

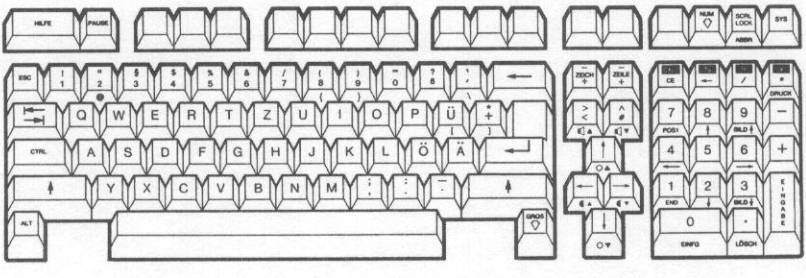


British Standard Keyboard

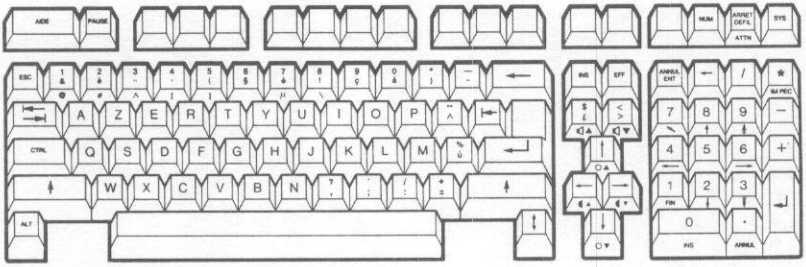


D

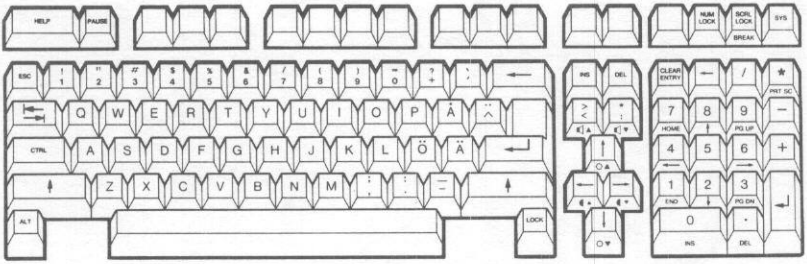
German Standard Keyboard



French Standard Keyboard

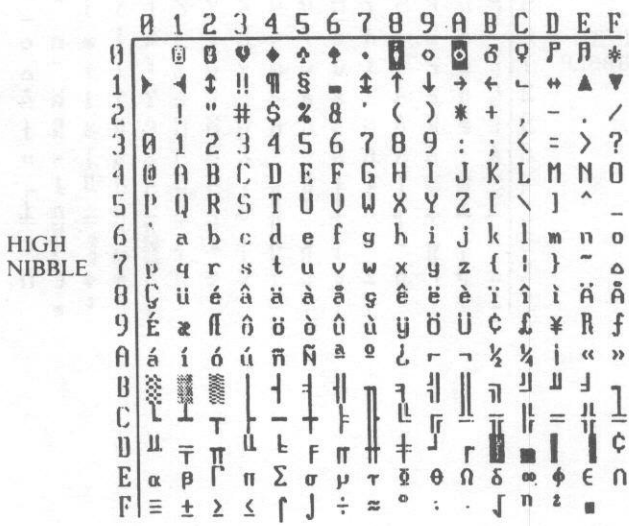


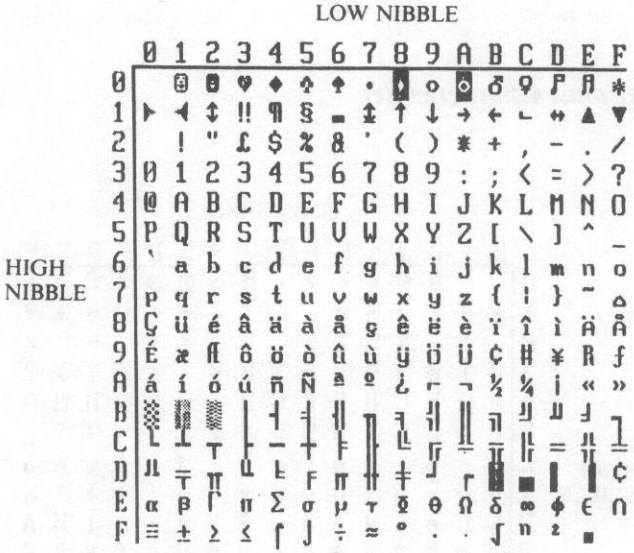
Swedish Standard Keyboard



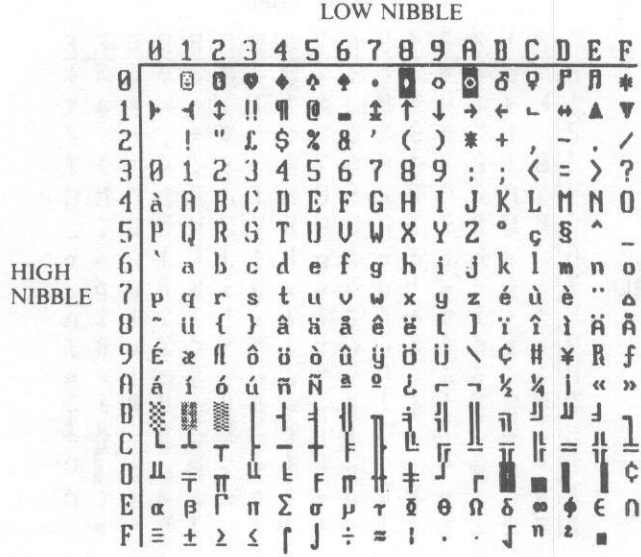
Character Sets

International Character Set

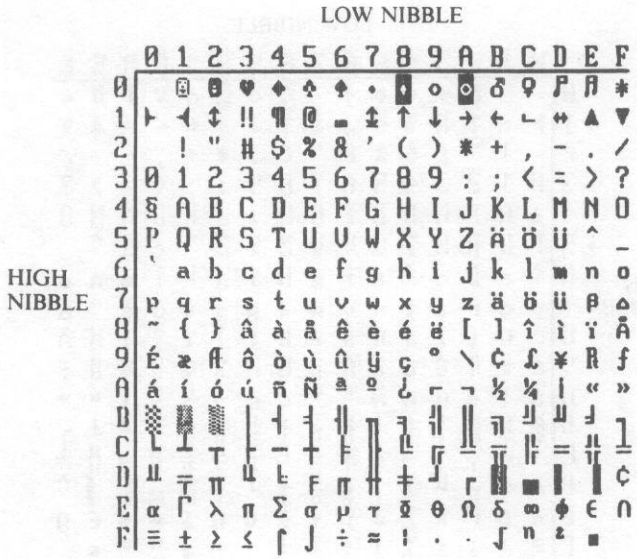



LOW NIBBLE
0 1 2 3 4 5 6 7 8 9 A B C D E F
HIGH NIBBLE
0 1 2 3 4 5 6 7

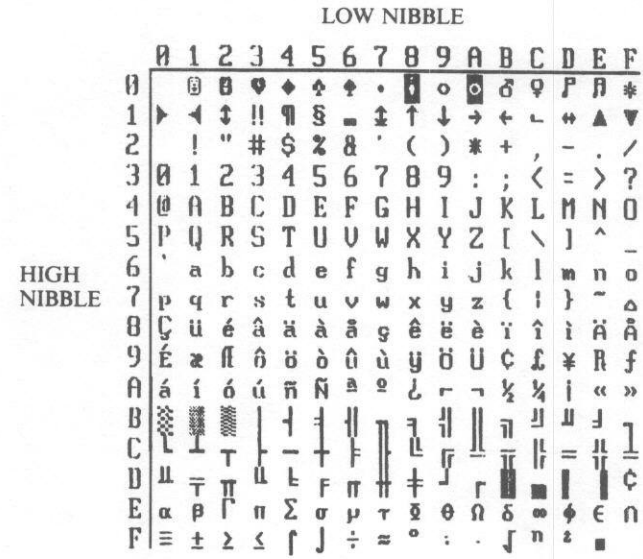
French Character Set



German Character Set



Swedish Character Set



Attaching Peripheral Devices

This appendix gives step-by-step instructions for attaching peripheral devices to your computer. Instructions are also included for constructing a cable to connect a device to your computer.

F.1 General Procedure

To attach a peripheral device to your computer, use the procedure described here. This procedure uses a printer as an example of a peripheral device.

1. Obtain a serial or parallel cable and connectors that enable your computer to "talk to" the printer. A standard Centronics cable works for almost any parallel interface device. Serial device cables (RS-232C), however, might have different wiring patterns. If you do not have a working cable, you must construct one to match the requirements of the printer and the computer (see Appendix F.2).
2. Connect the cable to the printer and to the computer. Serial cables and some parallel cables have distinct ends for the computer and for the device. IEEE-488 cables can piggy-back to connect several devices to the parallel port.
3. Adjust the settings on the printer to match the requirements of your computer. Printer settings are usually made via dip switches on the front of or inside the printer.
   a. You might have to set the parity, stop bits, flow control method, and baud rate. These settings control the rate and type of data transmission. The default values the operating system uses are given in the DISKID file on your operating system distribution diskette.

b. The VI supports three built-in device drivers (COM1, COM2, and PRN) and any additional user-defined device drivers.

   To alter the settings of the built-in drivers, COM1, COM2, and PRN, use the MODE command, which is described in the *DOS 2.1 Reference.*

   To add user-defined drivers, edit the CONFIG.SYS file with a text editor, as described in the *DOS 2.1 Reference.* When editing the CONFIG.SYS file, specify all parameters on the command line.

4. Configure the operating system to send list output to the port where the device is connected. To do this, use the CLST command in V mode. With CLST you can check the current assignment for the list device, or you can assign the list device output to a different physical port. Refer to the *DOS 2.1 Reference* for information on the CLST command.

F.2 Connectors and Pin Assignments

This section describes the connectors for serial and for parallel peripheral devices. Step-by-step instructions describe how to construct serial and parallel cables. The pin assignments that determine the wiring pattern in the cable are listed for serial, parallel, IEEE-488, and MODEM devices. If your dealer can provide you with a working cable, you do not need to refer to this section.

F.2.1 Serial Interface Connection

Your dealer can supply you with a tested cable for several standard serial printers. If you do not have a working serial cable, you can construct one as follows:

1. For the cable, you need a length of multiconductor cable to reach from your computer to the device (maximum length 50 feet).

Depending on your application, you need from 5- to 25-conductor cable. If you are uncertain about your needs, use a 25-conductor cable.

2. For the connector to your computer, you need one D25 male connector. See Figure F-1.
3. For the connector to the printer or other device, you need a D25 connector (male or female, to fit the connector on the device).
4. Locate the port layout in your printer manual and compare it to the pin assignments for your computer's serial port, listed in Table F-1.

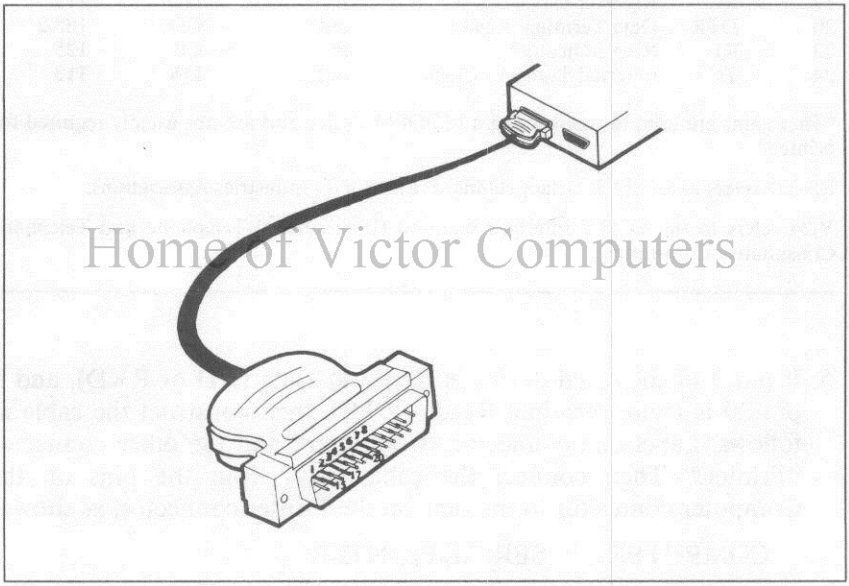


Figure F-1: Serial Connector

Table F-1: Serial Interface Pin Numbers

PIN	SIGNAL		SOURCE	RS-232	V.24
1	FG	Frame Ground		AA	101
2	TD	Transmitted Data	out	BA	103
3	RD	Received Data	in	BB	104
4	RTS	Request To Send	out	CA	105
5	CTS	Clear To Send	in	CB	106
6	DSR	Data Set Ready*	in	CC	107
7	SG	Signal Ground		AB	102
8	DCD	Data Carrier Detect	in	CF	109
15	TC	Transmitter Clock*	in	DB	114
17	RC	Receiver Clock*	in	DD	115
20	DTR	Data Terminal Ready	out	CD	108.2
22	RI	Ring Indicator*	in	CE	125
24	TC	External Transmit Clock	out	DA	113

*These pins are used for connecting a MODEM device and are not usually required for printers.

RS-232 refers to an EIA interface standard (Electronics Industries Association).

V.24 refers to the CCITT interface standard (International Telephone and Telephone Consultative Committee).

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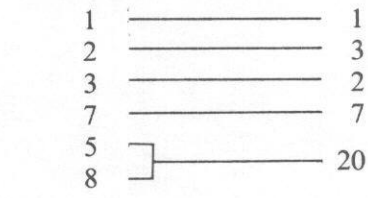
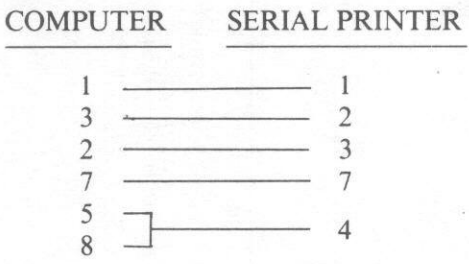
5. If pin 3 of the serial device is Received Data (RD or RXD), and if pin 20 is Data Terminal Ready (DTR), then construct the cable as follows. Label one connector "Computer" and the other connector "Printer." Then connect the cable wires from the pins on the Computer connector to the pins on the Printer connector, as shown:



6. If pin 3 of the serial device is Received Data (RD or RXD), and pin 20 is not Data Terminal Ready (DTR), construct the cable as follows. Label one connector "Computer" and the other "Printer." Connect the cable wires from the pins on the Computer connector to the pins on the Printer connector, as shown:



F.2.2 Parallel Interface Connection

If you do not have a working parallel (Centronics) cable, you can construct one as follows:

1. For the cable, you need a length of 488 cable to reach from the computer to the printer.
2. For the end of the cable that attaches to your computer, you need a male Centronics-compatible Amphenol 57-30360 type connector.
3. For the end of the cable that attaches to your printer or other device, use the type of connector suggested by the manufacturer. The connector is likely to be the same at both ends of the cable.
4. Locate the port layout and pin assignments in your printer manual, and compare them with the pin numbers and signal assignments for the parallel port of your computer, listed in Table F-2.

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Table F-2: Parallel Interface Pin Numbers

PIN	SIGNAL
1	Data Strobe
2	Data 1
3	Data 2
4	Data 3
5	Data 4
6	Data 5
7	Data 6
8	Data 7
9	Data 8
10	ACK
11	Busy
17	Pshield
12, 18, 30, 31	Not connected
Remaining	GND

5. If the pin numbers and signal requirements for the printer are the same as for the computer, construct the cable as follows:

COMPUTER		DEVICE
1	———	1
2	———	2
3	———	3
4	———	4
5	———	5
6	———	6
7	———	7
8	———	8
9	———	9
10	———	10
11	———	11
16	———	16

Because this cable is constructed with one-for-one pin assignments, you can attach either end to your computer or printer.

6. If the printer has the same signals as your computer, but on different pins, follow these steps to construct a cable:

   a. Label one connector "Computer" and the other "Printer."

   b. Connect pin 1 at the Computer connector to the Data strobe pin on the Printer connector.

   c. Connect pins 2 through 9 at the Computer connector to Data 1 through Data 8 (which might be labeled Data 0 through Data 7) at the Printer connector.

   d. Connect pin 10 at the Computer connector to the ACK pin at the Printer connector.

   e. Connect pin 11 at the Computer connector to the Busy pin at the Printer connector.

   f. Attach the "Computer" end of the parallel cable to your computer, and attach the "Printer" end to the parallel device.

F.2.3 IEEE-488 Interface Connection

The IEEE-488 cable attaches to the parallel port on your computer. Use the pin assignments listed in Table F-3 to construct an IEEE-488 cable. In the table, the pin number refers to the actual computer port connector. The IEEE-488 pin number refers to the standard IEEE-488 pin-out as it must attach to the parallel port.

Table F-3: IEEE-488 Pin Assignments

PIN NUMBER	IEEE SIGNAL	IEEE PIN NUMBER
1	DAV	6 **a
19	GND	18 **a
2	DIO1	1
3	DIO2	2
4	DIO3	3
5	DIO4	4
6	DIO5	13
7	DIO6	14
8	DIO7	15
9	DIO8	16
10	NRFD	7 **b
28	GND	19 **b
11	SRQ	10 **c
29	GND	22 **c
13	NDAC	8 **d
33	GND	20 **d
15	EOI	5
17	shield	12
34	REN	17
35	ATN	11 **e
16	GND	23 **e
36	IFC	9 **f
27	GND	21 **f
20	GND	24

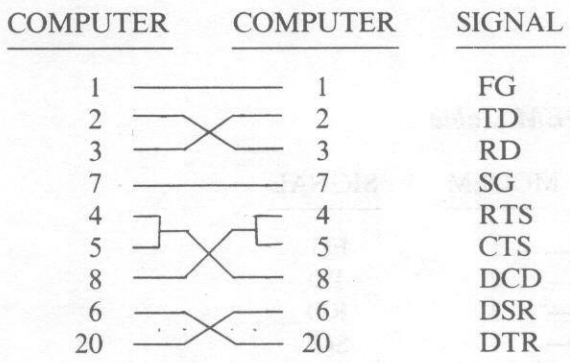
**Bind these wires together as twisted pairs. The letter following the asterisks indicates the destination of the twisted pair.

F

F.2.4 MODEM Device Connection

A MODEM (modulator/demodulator) device attaches to the serial port of your computer. Your dealer can supply you with a tested cable for use with some types of MODEM devices. This section gives the pin assignments for three types of MODEM cables: a null MODEM cable for connecting one computer to another (async only); a MODEM cable using asynchronous transmission; and a MODEM cable using synchronous transmission.

Null MODEM Cable



(Signals are crossed in cable because no MODEM is used.)

Asynchronous MODEM Cable

COMPUTER		MODEM	SIGNAL
1	———	1	FG
2	———	2	TD
3	———	3	RD
4	———	4	RTS
5	———	5	CTS
6	———	6	DSR
7	———	7	SG
8	———	8	DCD
20	———	20	DTR

Synchronous MODEM Cable

COMPUTER		MODEM	SIGNAL
1	———	1	FG
2	———	2	TD
3	———	3	RD
7	———	7	SG
4	———	4	RTS
5	———	5	CTS
8	———	8	DCD
6	———	6	DSR
15	———	15	TC
17	———	17	RC
20	———	20	DTR

V Mode Display Driver Specifications

G.1 Introduction

The software in the BIOS display interface receives ASCII characters and either displays them or uses them for display control. The characters that are not displayed are the ASCII control characters (hex 00 through hex 1F and hex 7F), except ESC 8. These characters might, however, affect the display. Most of the control characters act independently. But for some actions, more than one control character is required to specify the action. To do this, you use the ASCII escape code (hex 1B) followed by one or more characters. The control characters and the escape sequences are described in Appendix G.2 and G.3.

The display controls are accessed from high-level languages by using the PRINT or equivalent statements. For example, in VBASICA this command turns on reverse video:

```
PRINT CHR$(27) + CHR$(112)
```


NOTE: Decimal 27 equals hex 1B (Escape) and decimal 112 is hex 70. (See Table G-8.)

G.2 Control Characters

- Bell (CTRL-G, hex 07): Sends a series of signals that make the sound of a bell. Not really a display control character. Can also be used with the optional CODEC.
- Backspace (CTRL-H, hex 08): Moves the cursor one column to the left. If the cursor is at column 1, it moves to column 80 of the previous row (unless the cursor is at column 1, row 1, in which case it moves to column 80, row 1).
- Horizontal Tab (CTRL-I, hex 09): Moves the cursor to the next tab stop. Tab stops are fixed at columns 9, 17, 25, 33, 41, 49, 57, 65, and 72 through 80. If the cursor is at column 80, it remains there.
- Line Feed (CTRL-J, hex 0A): Moves the cursor down one row. If the cursor is at row 24, then the display scrolls up one row. (Line feed can also be treated as a Return. See ESC x9.)
- Carriage Return (CTRL-M, hex 0D): Moves the cursor to column 1 of the current row. (Return can also be treated as a line feed. See ESC x8.)
- Shift In (CTRL-N, hex 0E): Shifts to character set 1 (G1).
- Shift Out (CTRL-0, hex 0F): Shifts to character set 0 (G0).

G.3 Control Sequences

Table G-1: Control Sequences

CONTROL SEQUENCE	HEX CODE
CTRL-@	00
CTRL-A	01
CTRL-B	02
CTRL-C	03
CTRL-D	04
CTRL-E	05
CTRL-F	06
CTRL-G (Bell)	07
CTRL-H (Backspace)	08
CTRL-I (Tab)	09
CTRL-J (Line Feed)	0A
CTRL-K	0B
CTRL-L	0C
CTRL-M (Carriage Return)	0D
CTRL-N	0E
CTRL-O	0F
CTRL-P	10
CTRL-Q	11
CTRL-R	12
CTRL-S	13
CTRL-T	14
CTRL-U	15
CTRL-V	16
CTRL-W	17
CTRL-X	18
CTRL-Y	19
CTRL-Z	1A
CTRL-[(Escape)	1B
CTRL-\	1C
CTRL-]	1D
CTRL-^	1E

G.4 Escape Sequences

Table G-2: Cursor Functions

ESCAPE SEQUENCE	ASCII CODE GENERATED (HEXADECIMAL)	SEQUENCE DEFINITION
ESC A	1B, 41	Moves the cursor up one line.
ESC B	1B, 42	Moves the cursor down one line without changing columns.
ESC C	1B, 43	Moves the cursor one character position to the right.
ESC D	1B, 44	Moves the cursor one character position to the left.
ESC H	1B, 48	Moves the cursor to the home position (upper left corner of screen).
ESC I	1B, 49	Moves the cursor up one line, and stays in the same column.
ESC n	1B, 6E	Reports the cursor position.
ESC j	1B, 6A	The display driver saves the cursor position.
ESC k	1B, 6B	Returns the cursor to the previously saved cursor position.
ESC Y[l][c]	1B, 59	Moves the cursor via direct cursor addressing, where [l] is the line number (from 1 to 25) and [c] is the column number (from 1 to 80). No movement occurs if l and/or c are invalid. Table G-3 gives the printing characters you can use to represent the cursor coordinates in this escape sequence. You use two characters—one for the line number (1–25) and one for the column number (1–80)—to address a cursor position on the screen. You can also use hex values: lines are 1 to 19 hex; columns are 1 to 50 hex. You must add the proper line and column numbers to 1F hex.

Table G-3: Characters for Direct Cursor Addressing

LINE OR COLUMN	CHARACTER	LINE OR COLUMN	CHARACTER
1	(space)	41	H
2	!	42	I
3	"	43	J
4	#	44	K
5	$	45	L
6	%	46	M
7	&	47	N
8	'	48	O
9	(	49	P
10	)	50	Q
11	*	51	R
12	+	52	S
13	,	53	T
14	-	54	U
15	.	55	V
16	/	56	W
17	0	57	X
18	1	58	Y
19	2	59	Z
20	3	60	[
21	4	61	\
22	5	62	]
23	6	63	^
24	7	64	_
25	8	65	`
26	9	66	a
27	:	67	b
28	;	68	c
29	<	69	d
30	=	70	e
31	>	71	f
32	?	72	g
33	@	73	h
34	A	74	i
35	B	75	j
36	C	76	k
37	D	77	l
38	E	78	m
39	F	79	n
40	G	80	o

Table G-4: Editing Functions

ESCAPE SEQUENCE	ASCII CODE GENERATED (HEXADECIMAL)	SEQUENCE DEFINITION
ESC E	1B, 45	Erases the entire screen.
ESC b	1B, 62	Erases from the start of the screen up to (and including) the cursor position.
ESC J	1B, 4A	Erases from the cursor position to the end of the page.
ESC I	1B, 6C	Erases entire line.
ESC o	1B, 6F	Erases from the beginning of line up to (and including) the cursor position.
ESC K	1B, 4B	Erases from cursor position to the end of the line.
ESC L	1B, 4C	Inserts a blank line. The current line and all following lines scroll down one line. The cursor moves to the beginning of the blank line.
ESC M	1B, 4D	Moves cursor to beginning of line, deletes the line, and then scrolls all following lines up one line. A blank line is inserted at line 24.
ESC N	1B, 4E	Deletes character at cursor position and shifts the rest of the line one character position to the left.
ESC @	1B, 40	Enters the Insert Character mode. This lets you insert characters into screen text. As each new character is inserted, the character at the end of the line is lost.
ESC O	1B, 4F	Exits Insert Character mode.

Table G-5: Configuration Functions

ESCAPE SEQUENCE	ASCII CODE GENERATED (HEXADECIMAL)	SEQUENCE DEFINITION
ESC x[P1...Px]	1B, 78	Sets mode(s) according to the parameters you name (P1...Px), as follows: P Mode 1 Enable 25th line. 3 Hold screen mode on. 4 Use block cursor. 5 Cursor off. 8 Automatic line feed after a Return. 9 Automatic Return after a line feed. A Turn beeper on. B Increase screen brightness. C Increase screen contrast.
ESC y[P1...Px]	1B, 79	Resets mode(s) according to the parameters you name (P1...Px), as follows: P Mode 1 Disable 25th line. 3 Hold screen mode off. 4 Use underscore cursor. 5 Cursor on. 8 No auto line feed. 9 No auto Return. A Turn beeper off. B Decrease screen brightness. C Decrease screen contrast.
ESC ^	1B, 5E	Toggle hold mode.
ESC [	1B, 5B	Set hold mode.
ESC \	1B, 5C	Clear hold mode.
ESC |	1B, 7C	Activate user-defined console.

Table G-6: Operation Mode Functions

ESCAPE SEQUENCE	ASCII CODE GENERATED (HEXADECIMAL)	SEQUENCE DEFINITION
ESC p	1B, 70	Enters reverse video mode.
ESC q	1B, 71	Exits reverse video mode.

Table G-7: Special Functions

ESCAPE SEQUENCE	ASCII CODE GENERATED (HEXADECIMAL)	SEQUENCE DEFINITION
ESC }	1B, 7D	Disables the keyboard.
ESC {	1B, 7B	Enables the keyboard.
ESC v	1B, 76	Enables wrap-around at end of line.
ESC w	1B, 77	Disables wrap-around at end of line.
ESC z	1B, 7A	Resets terminal to power-on configuration.
ESC $	1B, 24	Transmits character at cursor location.
ESC]	1B, 5D	Transmits the 25th line.
ESC #	1B, 23	Transmits the page.
ESC (	1B, 28	Sets high intensity.
ESC)	1B, 29	Sets low intensity.
ESC +	1B, 2B	Clears the foreground (high-intensity displayed characters).
ESC Z	1B, 5A	Identifies display as emulating VT52 (the terminal responds with an ESC K).
ESC 0	1B, 30	Sets the underline mode.
ESC 1	1B, 31	Resets the underline mode.
ESC 2	1B, 32	Enables cursor blink.
ESC 3	1B, 33	Disables cursor blink.
ESC 8	1B, 38	Sets the test (literally) mode for the next single character.
ESC i[n]	1B, 69	Displays the system sign-on banner (n is the ASCII numeric character): P Display 0 Entire banner. 1 Company logo only. 2 Product name only. 3 Configuration information only.

Table G-8: ASCII Conversion Table

In the column headings, Dec means decimal, Hex means hexadecimal (H), and CHR means character.

Dec	Hex	CHR	Dec	Hex	CHR	Dec	Hex	CHR
000	00H	NUL	043	2BH	+	086	56H	V
001	01H	SOH	044	2CH	,	087	57H	W
002	02H	STX	045	2DH	-	088	58H	X
003	03H	ETX	046	2EH	.	089	59H	Y
004	04H	EOT	047	2FH	/	090	5AH	Z
005	05H	ENQ	048	30H	0	091	5BH	[
006	06H	ACK	049	31H	1	092	5CH	\
007	07H	BEL	050	32H	2	093	5DH	]
008	08H	BS	051	33H	3	094	5EH	^
009	09H	HT	052	34H	4	095	5FH	_
010	0AH	LF	053	35H	5	096	60H	`
010	0BH	VT	054	36H	6	097	61H	a
012	0CH	FF	055	37H	7	098	62H	b
013	0DH	CR	056	38H	8	099	63H	c
014	0EH	SO	057	39H	9	100	64H	d
015	0FH	SI	058	3AH	:	101	65H	e
016	10H	DLE	059	3BH	;	102	66H	f
017	11H	DC1	060	3CH	<	103	67H	g
018	12H	DC2	061	3DH	=	104	68H	h
019	13H	DC3	062	3EH	>	105	69H	i
020	14H	DC4	063	3FH	?	106	6AH	j
021	15H	NAK	064	40H	@	107	6BH	k
022	16H	SYN	065	41H	A	108	6CH	l
023	17H	ETB	066	42H	B	109	6DH	m
024	18H	CAN	067	43H	C	110	6EH	n
025	19H	EM	068	44H	D	111	6FH	o
026	1AH	SUB	069	45H	E	112	70H	p
027	1BH	Escape	070	46H	F	113	71H	q
028	1CH	FS	071	47H	G	114	72H	r
029	1DH	GS	072	48H	H	115	73H	s
030	1EH	RS	073	49H	I	116	74H	t
031	1FH	US	074	4AH	J	117	75H	u
032	20H	(sp)	075	4BH	K	118	76H	v
033	21H	!	076	4CH	L	119	77H	w
034	22H	"	077	4DH	M	120	78H	x
035	23H	#	078	4EH	N	121	79H	y
036	24H	$	079	4FH	O	122	7AH	z
037	25H	%	080	50H	P	123	7BH	{
038	26H	&	081	51H	Q	124	7CH	|
039	27H	'	082	52H	R	125	7DH	}
040	28H	(	083	53H	S	126	7EH	~
041	29H	)	084	54H	T	127	7FH	DEL
042	2AH	*	085	55H	U			

Note: LF = Line feed, FF = Form feed, CR = Carriage return, and DEL = Delete.

Differences Between DOS and PC DOS

For PC DOS, note the following:

- PC DOS boots only off floppy drive A, not drive B.
- For PC DOS to boot off the fixed disk, there can be only two or fewer volumes on the fixed disk.
- PC DOS won't read or write VICTOR media (V-format diskettes).

The first column in Table H-1 shows all of the PC DOS commands documented by IBM. The second column shows the comparable DOS 2.1 commands for your computer. For DOS commands with no comparable PC DOS command, the first column is empty. Likewise, for PC DOS commands for which no comparable DOS command exists, the second column is blank.

Table H-1: DOS/PC DOS Commands

PC DOS 2.0	DOS 2.1
Internal Commands	
BREAK	BREAK
	CAUX, CLST, CTTY
CHDIR (CD)	CHDIR (CD)
CLS	CLS
COPY	COPY
DATE	DATE
DIR	DIR
ERASE (DEL)	ERASE (DEL)
	EXIT
	HISTORY (HI)
MKDIR (MD)	MKDIR (MD)
PATH	PATH
	PROMPT
REN	REN

PC DOS 2.0	DOS 2.1
RMDIR (RD)	RMDIR (RD)
	SET
TIME	TIME
TYPE	TYPE
VER	VER
VERIFY	VERIFY
VOL	VOL
Batch Commands	
ECHO	ECHO
FOR	FOR
GOTO	GOTO
IF	IF
SHIFT	SHIFT
PAUSE	PAUSE
REM	REM
External Commands	
ASSIGN	
BACKUP	
CHKDSK	CHKDSK
COMP	FILCOM
	CONCAT
DISKCOMP	
DISKCOPY	DISKCOPY
	FGREP
	FIND
FORMAT	FORMAT
GRAPHICS	
	LS
	MODCON
MODE	
	MORE
	MV
	PORTSET
PRINT	PRINT
RECOVER	RECOVER
	SEARCH
	SORT
SYS	SYS
	TAIL
TREE	
	WC

NOTE: For the PC DOS commands BACKUP and TREE, you can use SEARCH.

I

Reserved Filenames and Device Names

You should not create new filenames incorporating a word such as DATE, TIME, or CLS, because each is used already for a VI operating system command. Names used for existing commands are called reserved names.

The following is a list of reserved names that you should not use for program filenames (.COM, .EXE, or .BAT). You can, however, create text files with these names.

AVAILDEV	DATE	GOTO	RD
ASSIGN	DEBUG	GRAPHICS	RESTORE
BASIC	DEL	HISTORY	RMDIR
BUFFERS	DEVICE	IF-EXIST	SDCOPY
IBASICA	DIR	LINK	SEARCH
VBASICA	DISKCOMP	LS	SET
BREAK	DISKCOPY	MD	SHELL
CAUX	ECHO	MKDIR	SHIFT
CD	EDLIN	MODCON	SORT
CHDIR	ERASE	MODE	SYS
CHKDSK	EXE2BIN	MORE	SWITCHAR
CLS	EXESIZE	MV	TAIL
CLST	EXIT	PATH	TIME
COMMAND	FDISK	PAUSE	TREE
COMP	FGREP	PRINT	TYPE
CONCAT	FILCOM	PROMPT	VER
COPY	FILES	RECOVER	VERIFY
COUNTRY	FIND	REM	VOL
CTRL-C	FORMAT	RENAME	WC
CTTY	FOR-IN-DO	REN	

In addition to these reserved names, there are a few other words that should not be assigned for filenames. These words are called reserved device names and in general are used to designate an external device to which data is to be transmitted. The following are the device names that you should not use for filenames:

AUX:	CON:	LPT3:
COM1:	LPT1:	NUL:
COM2:	LPT2:	PRN:

Note: Do not create any filenames with the switch character or the PATH delimiter.

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