

# PlusPC User's Guide

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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:

- o The part number of the diskette assembly.
- o The software library disk number (for internal use only).
- o The product name and version number.
- o The date of the **DISKID** file.
- o A list of files on the diskette, with version number, date, and description for each one.
- o Configuration information (when applicable).
- o Notes giving special instructions for using the product.
- o 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

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 ALT-S to freeze the screen display; type ALT-S again to continue scrolling.

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

3. Enter:

DISKID

4. The contents of the DISKID file is displayed on the screen. If the file is larger (more than 25 lines), the screen displays this scroll. Type ALT-S to freeze the screen display type. ALT-S again to continue scrolling.



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## PREFACE

The VICTOR PLUS PC is a breakthrough in PC compatibility design. The VICTOR 9000 computer, known for its versatility and outstanding floppy diskette capacity, provides with the PLUS PC access to one of the world's most extensive collections of software products. The PLUS PC is a VICTOR enhancement that provides you with IBM PC compatibility, and with access to the programs available to PC users, while maintaining the VICTOR 9000's unique capabilities and features.

This PLUS PC User's Guide shows you how to take advantage of the new capabilities of your VICTOR computer. It is to be used in conjunction with the Operator's Reference Guide II. As in the Reference Guide, it presents the information to you in a way that will enable you to understand what to expect of your new options, and then, in subsequent chapters, how to put them to use to fill your special needs.

The first chapter -- Introduction to Your PLUS PC -- describes in simple terms the PLUS PC environment, the four operating system modes, and how you can expect the PLUS PC to perform.

The second chapter -- Using the Operating System -- gives instructions on how to start using your PLUS PC, and how to approach the use of your keyboard.

The third chapter -- Utility Programs -- lists and describes the software tools that you can use to control operations, allocate resources, and maintain the file system within your computer environment.

INTRODUCTION

The VICTOR PLUS PC is a breakthrough in PC compatibility design. The VICTOR 9000 computer, known for its versatility and outstanding library of software, provides with the PLUS PC access to one of the world's most extensive collections of software products. The PLUS PC is a VICTOR enhancement that provides you with IBM PC compatibility, and with access to the programs available to PC users, while maintaining the VICTOR 9000's unique capabilities and features.

The PLUS PC Setup Guide shows you how to take advantage of the new capabilities of your VICTOR computer. It is to be used in conjunction with the Electronic Reference Guide II. As in the Reference Guide, it presents the information to you in a way that will enable you to understand what to expect of your new system, and then, in subsequent chapters, how to put them to use to fill your special needs.

The first chapter -- Introduction to your PLUS PC -- describes in simple terms the PLUS PC environment, the four operating system modes, and how you can expect the PLUS PC to perform.

The second chapter -- Maintaining the Operating System -- gives instructions on how to start using your PLUS PC, and how to approach the use of your keyboard.

The third chapter -- Utilizing Programs -- lists and describes the software tools that you can use to control operations, system's resources, and maintain the file system within your computer environment.

## 1. INTRODUCTION TO YOUR PLUS PC

This chapter describes:

- o What PLUS PC will do for you
- o The operating modes that provide the framework for PLUS PC
- o The performance features of VICTOR PLUS PC

The information in this chapter will help you approach the VICTOR PLUS PC knowledgeably, ready to start implementing the more detailed instructions contained in the chapters that follow. It is especially important that you understand the modes in which you may now operate your VICTOR PLUS PC computer, since they are the basis of the increased capability of your VICTOR 9000 computer.

### 1.1 CAPABILITIES OF THE PLUS PC

Your VICTOR computer, with the addition of the PLUS PC retrofit package, has now become a remarkably flexible business tool. Beginning with VICTOR's advantage in floppy disk capacity, you will not only be able to use VICTOR software application programs, but also those that are offered for the PC compatible computers.



## 1.2 MULTI-MODE ENVIRONMENT

The installation of PLUS PC allows you to use your VICTOR computer either as a VICTOR 9000, or as a PC compatible computer. There are four different ways, or operational modes, to exploit the PLUS PC environment. With the first two you have access to disks with either VICTOR or PC format; with the second two you have access only to disks formatted for the mode in which you boot up.

### 1.2.1 DUAL-MODE OPERATION

Included in the PLUS PC operating system are VICTOR MS-DOS 2.1 and an operating system compatible with PC-DOS 2.1. When the PLUS PC operating system is booted up, your computer starts up as either a VICTOR or a PC compatible, depending on the switch that is set at installation. These dual modes are:

- o +PC/V Mode (PLUS PC in VICTOR mode)
- o +PC/C Mode (PLUS PC in PC-compatible mode)  
+PC/C MODE

See Chapter 1.3 for a detailed discussion of using these modes.

### 1.2.2 SINGLE-MODE OPERATION

These two operational modes depend on your booting up with a VICTOR operating system diskette or with a PC operating system diskette. The hardware accepts either operating system, and boots up either as a VICTOR computer, or as a PC-compatible computer. These modes are called:

- o VICTOR Mode -- you can read and write only VICTOR format diskettes, and execute only VICTOR programs.
- o PC Mode -- you can read and write only PC format diskettes, and execute only PC programs.

These modes reproduce the operating features of either the VICTOR 9000 or a PC-compatible computer. They support every feature of the PLUS PC package: the ability to read and write VICTOR format diskettes and PC format diskettes from either mode; execute VICTOR programs in +PC/V mode, or PC programs in +PC/C mode; switch between +PC/V and +PC/C; and other features described in the following pages.

### 1.3 PLUS PC DUAL-MODE CAPABILITY

The PLUS PC dual-mode capability is made possible by the expansion of VICTOR hardware to allow both the VICTOR operating environment and a PC-compatible operating environment to be supported within the VICTOR 9000 series architecture. The new VICTOR PLUS PC operating system is capable of providing the functions of either VICTOR MS-DOS or PC-DOS.

You can decide at the time of PLUS PC installation whether you want the initial operating system to be MS-DOS or PC-DOS. The installer will set a switch

on one of the retrofit printed circuit boards. In accordance with this switch, when you insert the PLUS PC operating system diskette, your computer will boot up either as a VICTOR 9000 series computer (in +PC/V mode), or as a PC compatible computer (in +PC/C mode).

### 1.3.1 CHOOSING YOUR START-UP MODE

The VICTOR operating system is extremely flexible in terms of both the number and reliability of VICTOR programs, as well as its storage capabilities, whether on hard disk or on diskettes. Therefore, you should have the initial mode set for VICTOR. Whichever mode you choose, however, you can take advantage of these features:

- o You can choose the initial mode to be either +PC/V or +PC/C.
- o After booting up you may switch to either mode.
- o The VICTOR floppy disk drive can read or write either VICTOR or PC formatted diskettes. However, if you are using a hard disk with PLUS PC installed, the hard disk format is PC compatible, and must be accessed from the +PC/V mode, the +PC/C mode, or the PC mode.
- o The program or batch file you wish to execute may be either VICTOR or PC, from either a PC or a VICTOR formatted disk.
- o You can transfer a PC program to a VICTOR disk format, or a VICTOR program to a PC disk format. Both types of program can be transferred to a hard disk.

- o You can reorganize your data files into tree-structured directories, a feature of MS-DOS 2.1.

### 1.3.2 MODE SWITCHING

You may want to use a program that cannot execute in the mode in which you are operating. If you request the operating system to load this program, the OS will send you a message that the program does not work in this mode. If you still want to use the program, insert the PLUS PC OS diskette (if the PLUS PC OS has not been copied onto a hard disk), and type one of the following key combinations:

- o To switch from +PC/V mode to +PC/C mode:

**LOCK-ALT-7(calc pad)**

- o To switch from +PC/C mode to +PC/V mode:

**CTL-ALT-HOME**

**NOTE:** These are actually the same key combinations. The names of the keys reflect the VICTOR and PC keyboard differences, discussed in Chapter 2.3.

The computer will switch modes. The date and time will remain unchanged.

The key combinations you type to reboot and remain in your current mode are:

- o **LOCK-ALT-.(Calc Pad)** for +PC/V
- o **CTL-ALT-DEL** for +PC/C

You may also press the reset button at the back of your computer if you want to return to your start-up mode.



You may follow this procedure any time you want to change from one PLUS PC mode to the other.

The VICTOR PLUS PC operating system provides for the switching from any combination of program type, disk format, execution mode, and drive mode into the appropriate operating mode. The operating system automatically adapts the disk drive to the format of the inserted diskette. However, since mode switching or rebooting involves substantial reorganization of the computer setup, the operating system requires verification before proceeding with a mode switch.

#### 1.4 VICTOR AND PC SINGLE-MODE CAPABILITY

Like the dual-mode feature, the VICTOR and PC single-mode capability is also made possible by the expansion of VICTOR hardware. Thus, the PLUS PC system can fully emulate both VICTOR and PC operating environments.

These modes enable you to use earlier versions of these operating systems, if required. You may boot up with any VICTOR or PC operating system, with all its capabilities and limitations. However, if you have a hard disk, it has been converted to the PC-compatible format, and you can no longer access it from the VICTOR operating system.

You will probably spend most of your working time in the PLUS PC modes, since they have many more features than the other modes.



## 1.5 OTHER PERFORMANCE CHARACTERISTICS

Some other features of the VICTOR PLUS PC are noted here; they will be described in greater detail elsewhere in this manual.

### 1.5.1 COLOR EMULATION

Although the standard VICTOR computer uses a monochrome screen, PC programs using the color screen will be able to run effectively on the VICTOR PLUS PC due to color emulation, which uses shading with dot densities and reverse video rather than colors.

The PC graphics screen is emulated by use of a 640 x 400 pixel region of the VICTOR 800 x 400 pixel high-resolution display. Each 2 x 2 pixel block of this region represents 1 pixel in the PC 320 x 200 graphics screen. This technique results in wider left and right borders on the VICTOR display.

VICTOR also offers a printed circuit board option for a color display that can be installed with the PLUS PC. The use of this board with a color monitor will provide a PC-compatible color display which is accessible from PC programs.

### 1.5.2 KEYBOARD CHANGES

When VICTOR PLUS PC is operating in +PC/C or PC mode, the keys that form the periphery of the keyboard, including the function keys and the calculator pad and other non-character keys, change to take on the meaning of the keys on a PC compatible keyboard. Keyboard labels are provided to attach to the front of the keys affected by these changes, described and illustrated in Chapter 2.

### 1.5.3 HARD DISK

The format for the hard disk is PC compatible. VICTOR PLUS PC supports the PC provisions for the hard disk, and sets up partitions where other operating systems besides MS-DOS may reside. The VICTOR method of allocating space on the hard disk provides much greater flexibility in use of storage than the PC XT fixed disk system. This is described in greater detail in Chapter 4.

## 2. USING THE OPERATING SYSTEM

This chapter provides you with the details necessary to enable you to start using the VICTOR PLUS PC. The procedures to be discussed in this section are:

- o Booting up your PLUS PC
- o Formatting diskettes
- o Using the keyboard

### 2.1 BOOTING UP YOUR PLUS PC OPERATING SYSTEM AND LOADING PROGRAMS

Before you can use the PLUS PC operating system or any application program, you must transfer the operating system from the system diskette or hard disk into RAM. Then you can communicate with your computer on the command level, or you can load an application program into memory.

#### 2.1.1 PROCEDURE FOR FLOPPY DISKS

After turning on your computer, you load the PLUS PC operating system by inserting the diskette that is provided with your PLUS PC into one of the disk drives. Once you have loaded the PLUS PC operating system into memory, load the utility or application program that you want to use.

You can load an application program into memory by typing the filename of the program file. When an application program is executing, you must use the commands that are "known" to that program. When you

exit from the application program or utility, you return to the operating system, and can use operating system commands.

### **2.1.2 PROCEDURE FOR HARD DISK**

There are two ways to boot your computer if it has a hard disk:

- o You can insert the PLUS PC operating system diskette in a floppy drive, and reset the computer.
- o You can copy the PLUS PC operating system onto the boot volume of your newly configured hard disk drive. Now the OS automatically loads from the boot volume if there is no diskette in the floppy drive.

Once you have restructured your hard disk for the PLUS PC, you can have access to it through the PLUS PC operating system, the PC mode, or any other operating system that can use the PC XT compatible hard disk.

### **2.1.3 SPECIAL PLUS PC NOTES**

The following points need to be made in reference to the PLUS PC:

- o You can copy PC programs onto your VICTOR format diskettes. If you do, you can run the programs from these diskettes in the +PC/C mode. The advantage in using VICTOR format diskettes is that you have the benefit of VICTOR's greater disk capacity.



- o You can use either a VICTOR or a PC operating system diskette to boot up the computer in VICTOR or PC mode, but you will have neither access to both diskette formats nor the capability of switching modes (as opposed to when you boot up with the PLUS PC operating system diskette).
- o You should exercise caution in running batch files on the PLUS PC. If you have included anything in the batch file that requires a mode (or context) switch, the entire batch file will terminate at that point.
- o VICTOR provides a set of utilities for use with PLUS PC.

## 2.2 . FORMATTING DISKETTES

The procedures for formatting diskettes are given in Chapter 3 of Section II of the Operator's Reference Guide II. The following notes refer to the special characteristics of the PLUS PC.

As stated in Chapter 2.1.3, both VICTOR format diskettes and PC format diskettes can be used with the PLUS PC operating system. The PLUS PC design allows the operating system to read from or write onto either type of diskette from either +PC/V or +PC/C mode. However, because of the physical differences between the VICTOR and PC methods of formatting disks, the PLUS PC operating system will not format a PC diskette.

You can use a diskette that has already been formatted on a PC-compatible computer. But if you continue to use it, you are limited to the low-density storage of the PC format. Therefore, you can use the PLUS PC most efficiently by using diskettes that have been formatted on the VICTOR



computer, and wherever possible, copying the programs and data from your PC format diskettes onto VICTOR format diskettes for everyday use.

## 2.3 USING THE KEYBOARD

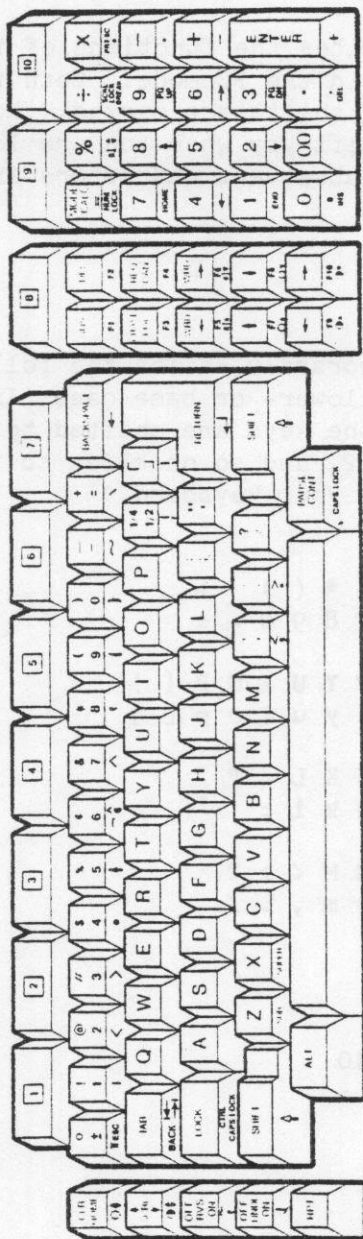
When you are working in PC-compatible mode, many of the keyboard functions change to correspond with those of the PC keyboard. You will receive label stickers to attach to the front of your keys to indicate the differing functions. The top row of number keys and the "QWERTY" characters do not change when you are in a PC compatible mode. The keys that change are located among the other non-character keys, and the calculator pad keys. You can see the differences by comparing the keyboards shown in Figures 2-1, 2-2, and 2-3.

Figure 2-1 shows the basic VICTOR keyboard, and Figure 2-2 shows the PC keyboard. Figure 2-3 shows the VICTOR keyboard with PC-enhanced keys outlined and marked.





Figure 2-3: VICTOR Keyboard Reconfiguration for PLUS PC



### 2.3.1 FUNCTIONS OF THE PC KEYBOARD

This section describes the functions of the keyboard as it is modified in the PC mode. Both the shifts and the cancels of shifts are marked. Note that if you depress the shift key when you are locked in Caps Lock state, subsequent characters are lowercase.

#### Shift Key

The Shift key temporarily shifts the following keys to uppercase from lower- or base case. If you are in Caps Lock state, the keys are shifted to lower- or base case. (F1, F2, and so on refer to the function keys at the top of your keyboard.)

! @ # \$ % ^ & \* ( ) \_ +  
1 2 3 4 5 6 7 8 9 0 - =

tab Q W E R T Y U I O P { }  
tab q w e r t y u i o p [ ]

A S D F G H J K L : " ~  
a s d f g h j k l ; ' `

| Z X C V B N M < > ?  
\ z x c v b n m , . /

PrtSc  
\*

F1 through F10



The Shift key also temporarily reverses the Num Lock or non-Num-Lock state of the following keys:

7	8	9	4	6	1	2	3	0	.
Home	↑	Pg up	←	→	End	↓	Pg Dn	Ins	Del

## Ctrl Key

The Ctrl key temporarily shifts the following keys to the Ctrl state:

2/@ 6/^ -/\_ BACKSPACE

Q W E R T Y U I O P { }  
q w e r t y u i o p [ ] RETURN

A S D F G H J K L  
a s d f g h j k l

| Z X C V B N M  
\ z x c v b n m

PrtSc

\*

F1 through F10

7	9	4	6	1	3
Home	Pg up	←	→	End	Pg Dn

The Ctrl key is also used with the Alt and Del or Num Lock keys to cause the "System Reset" function, with the Scroll Lock key to cause the "Break" function, and with the Num Lock key to cause the "Pause" function. These functions -- System Reset, Break, and Pause -- are described in Chapter 2.3.2, "Special Functions."

## Alt Key

The Alt key temporarily shifts the following keys to the Alt state:

! @ # \$ % ^ & \* ( ) \_ +  
1 2 3 4 5 6 7 8 9 0 - =

Q W E R T Y U I O P  
q w e r t y u i o p

A S D F G H J K L  
a s d f g h j k l

Z X C V B N M  
z x c v b n m

F1 through F10

The Alt key is also used with the Ctrl and Del or Num Lock keys to cause the "system reset" function described in Chapter 2.3.2, "Special Functions."

This key also allows you to enter any ASCII character code from 0 to 255 into the system from the keyboard. You press the Alt key while typing the decimal value of the characters, using the calculator pad keys. You then release the Alt key. If you enter a number greater than 255, the result will be modulo-256. These three digits are interpreted as a character code, and are transmitted through the keyboard routine to the system or application program.

## Caps Lock Key

The Caps Lock key shifts the following keys to uppercase:

Q W E R T Y U I O P  
q w e r t y u i o p

A S D F G H J K L  
a s d f g h j k l

Z X C V B N M  
z x c v b n m

If you press the Caps Lock key a second time, it reverses the action.

## Scroll Lock Key

You can use the Scroll Lock key to implement scrolling the text on your screen. After pressing the Scroll Lock key, use the cursor-control keys to scroll the text up or down. When you press the Scroll Lock key again, the scrolling effect is turned off. (Ensure that your application program has this capability before attempting to use the Scroll Lock key for this purpose.)

## Shift Key Priorities and Combinations

If you press combinations of the Alt, Ctrl, and Shift keys, and only one combination is valid, the precedence is as follows: the Alt key first, the Ctrl key second, and the Shift key third. Only the Alt/Ctrl combination is valid, since it is used in the "system reset" function.

### 2.3.2 SPECIAL FUNCTIONS

Some special functions in PC mode require that you press certain keys in combination to obtain the desired effect.

- o System Reset: If you press a combination of the Alt, Ctrl, and Del keys, the keyboard routine will initiate the equivalent of a "system reset," or "reboot," in the current operating mode. The combination of Alt, Ctrl, and Num Lock will initiate a boot to the VICTOR operating mode.
- o Break: If you press the Ctrl and Break keys at the same time, the keyboard routine will generate hex 1B interrupt. In +PC/C or PC modes this will have the same effect as Alt-C in VICTOR mode.
- o Pause: If you press the Ctrl and Num Lock keys at the same time, the keyboard routine will go into a loop, waiting for any key to be pressed except the Num Lock key. This is a way -- transparent to the system or application -- of temporarily suspending list, print, and other similar modes, and then resuming the operation. The "unpause" key is thrown away.
- o Print Screen: If you press the Shift and PrtSc keys, you invoke the print screen routine. This works in the alphanumeric or graphics mode of the screen. Unrecognizable characters print as blanks.

## 2.4 USING OTHER OPERATING SYSTEMS

If you want to use another PC operating system besides PC-DOS, you can boot it from a floppy diskette. With a hard disk system, you can provide a location for it on the hard disk drive, and designate it as the boot partition. Then, when you power up the computer, that OS will boot up. Note, however, that at this point you will not be in one of the +PC modes, and will not have access to both VICTOR and PC diskette formats. If you want to go to the PLUS PC operating system, you can reboot the computer using the PLUS PC OS diskette.

You can also use other operating systems provided for the VICTOR 9000, but only from a diskette in the VICTOR mode.

### Hard Disk Preparation for Another Operating System

The FDISK utility provides the locations for other operating systems by partitioning the volumes, and reserves the partitions in accordance with the requirements of the desired operating system. When another operating system is transferred to the hard disk system, it looks for its own partition. If through FDISK you have specified that partition as the booting partition, then that operating system will be loaded when you boot from the hard disk.



## 2.4 USING OTHER OPERATING SYSTEMS

If you want to use another PC operating system besides PC-DOS, you can boot it from a floppy diskette. With a hard disk system, you can provide a location for it on the hard disk drive, and designate it as the boot partition. Then, when you power up the computer, that OS will boot up. Note, however, that at this point you will not be in the of the +BI mode, and will not have access to data of the VICTOR and PC diskette formats. If you want to go to the VICTOR PC operating system, you can reboot the computer using the PLUS PC OS diskette.

You can also use other operating systems provided for the VICTOR 9000, but only from a diskette in the VICTOR mode.

### Hard Disk Preparation for Another Operating System

The BIOS utility provides the location for other operating systems by partitioning the volume, and reserves the partitions in accordance with the requirements of the desired operating system. When another operating system is transferred to the hard disk system, it looks for its own partition. If through BIOSX you have specified that partition as the booting partition, then that operating system will be loaded when you boot from the hard disk.

### 3. UTILITY PROGRAMS

#### 3.1 INTRODUCTION

Your PLUS PC provides utility programs for both +PC/V and +PC/C modes. These utilities, listed in Tables 3-1 and 3-2, are furnished with the PLUS PC operating system to help you manage certain basic file operations, or to configure your system.

Before you can use a utility it must be loaded into memory, either from a hard disk or from a diskette that you have inserted into the floppy disk drive. You can place a utility file on any diskette or hard disk volume using the appropriate copy command for the current operating system.

Implementation of some utilities used on your PLUS PC is similar to those described in Chapter 7 of the Operator's Reference Guide II (these utilities are listed in Table 3-1). Others are implemented like the PC utilities, or function with the hard disk drive (these are listed in Table 3-2). Guidelines for using hard disk utilities are given in Chapter 4; the others are described in this chapter. The selected utilities described in this chapter will help you:

- o Instruct the operating system to use a different drive (ASSIGN)
- o Control cursor positioning or reassign key functions (ANSI.SYS)
- o Change the state of various I/O devices (MODE)
- o Copy the PLUS PC operating system from a diskette or from a hard disk volume (RETROSYS)

**Table 3-1: PLUS PC Utilities for VICTOR Mode**

UTILITY	DESCRIPTION
COPY (internal)	Copies files singly or in groups; handles mixed formats
DISKCOPY	Copies an entire diskette -- VICTOR format to VICTOR format
SDCOPY	Backs up files on a single floppy disk drive; handles mixed formats
SEARCH	Archive/restore system
FORMAT	Initializes diskettes for read/write
CHKDSK.COM	
PRINT.COM	
PORTSET.COM	
RECOVER.COM	
MORE.COM	
EDLIN.COM	
SYS.EXE	
SORT.EXE	
FIND.EXE	
MODCON.EXE	
FILCOM.EXE	
MV.EXE	
FGREP.EXE	
LS.EXE	
EXESIZE.EXE	
132C.COM	
132ON.COM	
132OFF.COM	
CPM.EXE	
RDCPM.COM	
CALC.COM	
CONCAT.EXE	
TAIL.EXE	
WC.EXE	

Table 3-2: PLUS PC Utilities for PC Mode

UTILITY	DESCRIPTION
SDCOPY	Backs up files on a single floppy disk drive; handles mixed formats
BACKUP	Creates a backup diskette
RESTORE	Returns files to reside on system
FDSETUP	Creates virtual drives on the fixed disk
FDISK	Creates and modifies partitions within the virtual drives
FDFORMAT	Initializes fixed disk partitions
RETROSYS	Copies PLUS PC OS onto floppy diskette or fixed disk
ASSIGN	Instructs DOS to address a different drive
ANSI.SYS	Controls cursor or reassign key functions
MODE	Changes state of I/O devices

## 3.2 HARD DISK UTILITIES

When you have a hard disk drive, some specialized utilities are used, both in installation and in reconfiguration of your hard disk format. These utilities are described in Chapter 4.

## 3.3 SELECTED PLUS PC UTILITIES FOR +PC/C MODE

### 3.3.1 ANSI.SYS

ANSI.SYS is a loadable device driver that allows you the use of the ANSI-defined escape sequences for interaction with the display. With this utility you can also reassign the meaning of any key on the keyboard.

Interface to ANSI.SYS is established through DOS function calls 1, 2, 6, and 9. Before you can access this utility, you must use your text editor to place the following command in your configuration file, CONFIG.SYS:

**DEVICE = ANSI.SYS**

Now refer to the commands listed in Table 3-3, keeping in mind the following notes:

1. In setting screen modes, the default value, zero, is used when there is no value specified in the parameter.
2. # is a decimal number, with one or two digits, specified with ASCII characters.
3. In cursor positioning (A, B, C, D, H, F), 1 is the default value.



Table 3-3: Control Key Sequences

ESCAPE SEQUENCE	NAME AND FUNCTION
ESC [#;#H	CUP - Cursor positioning. Positions cursor to row and column specified. If no numbers are given, cursor is moved to home position.
ESC [#A	CUU - Cursor up. Moves cursor up specified number of lines.
ESC [#B	CUD - Cursor down. Moves cursor down specified number of lines.
ESC [#C	CUF - Cursor forward. Moves cursor forward specified number of columns.
ESC [#D	CUB - Cursor backward. Moves cursor back specified number of columns.
ESC [n	DSR - Device status report. When a DSR is received, console outputs a CPR.
ESC [#;#R	CPR - Cursor position report. Reports current cursor position through standard input device. First number is row, second is column.
ESC [s	SCP - Save cursor position. Cursor can be restored with RCP.
ESC [u	RCP - Restore cursor position.
ESC [J	ED - Erase display. Also homes cursor.

**Table 3-3: Control Key Sequences (cont.)**

ESCAPE SEQUENCE	NAME AND FUNCTION																										
ESC [K	EL - Erase current line starting with cursor position.																										
ESC [#;...;#m	SGR - Set graphics rendition. Parameters are as follows: <table> <tr> <td>0</td><td>All attributes off (normal white on black)</td></tr> <tr> <td>1</td><td>Bold on (high intensity)</td></tr> <tr> <td>4</td><td>Underscore on</td></tr> <tr> <td>5</td><td>Blink on</td></tr> <tr> <td>7</td><td>Reverse video on</td></tr> <tr> <td>8</td><td>Cancelled on (invisible)</td></tr> <tr> <td>30-37</td><td>Sets foreground color to least significant digit (0-7)</td></tr> <tr> <td>40-47</td><td>Sets background color to least significant digit (0-7)</td></tr> <tr> <td>Colors:</td><td> <table> <tr> <td>0 = black</td><td>4 = blue</td></tr> <tr> <td>1 = red</td><td>5 = magenta</td></tr> <tr> <td>2 = green</td><td>6 = cyan</td></tr> <tr> <td>3 = yellow</td><td>7 = white</td></tr> </table> </td></tr> </table>	0	All attributes off (normal white on black)	1	Bold on (high intensity)	4	Underscore on	5	Blink on	7	Reverse video on	8	Cancelled on (invisible)	30-37	Sets foreground color to least significant digit (0-7)	40-47	Sets background color to least significant digit (0-7)	Colors:	<table> <tr> <td>0 = black</td><td>4 = blue</td></tr> <tr> <td>1 = red</td><td>5 = magenta</td></tr> <tr> <td>2 = green</td><td>6 = cyan</td></tr> <tr> <td>3 = yellow</td><td>7 = white</td></tr> </table>	0 = black	4 = blue	1 = red	5 = magenta	2 = green	6 = cyan	3 = yellow	7 = white
0	All attributes off (normal white on black)																										
1	Bold on (high intensity)																										
4	Underscore on																										
5	Blink on																										
7	Reverse video on																										
8	Cancelled on (invisible)																										
30-37	Sets foreground color to least significant digit (0-7)																										
40-47	Sets background color to least significant digit (0-7)																										
Colors:	<table> <tr> <td>0 = black</td><td>4 = blue</td></tr> <tr> <td>1 = red</td><td>5 = magenta</td></tr> <tr> <td>2 = green</td><td>6 = cyan</td></tr> <tr> <td>3 = yellow</td><td>7 = white</td></tr> </table>	0 = black	4 = blue	1 = red	5 = magenta	2 = green	6 = cyan	3 = yellow	7 = white																		
0 = black	4 = blue																										
1 = red	5 = magenta																										
2 = green	6 = cyan																										
3 = yellow	7 = white																										
ESC [#h	SM - Sets mode according to the following: <table> <tr> <td>0</td><td>= 40 x 25 black and white</td></tr> <tr> <td>1</td><td>= 40 x 25 color</td></tr> <tr> <td>2</td><td>= 80 x 25 black and white</td></tr> <tr> <td>3</td><td>= 80 x 25 color</td></tr> <tr> <td>4</td><td>= 320 x 200 color</td></tr> <tr> <td>5</td><td>= 320 x 200 black and white</td></tr> <tr> <td>6</td><td>= 640 x 200 black and white</td></tr> <tr> <td>7</td><td>= Enable wrap at end of line</td></tr> </table>	0	= 40 x 25 black and white	1	= 40 x 25 color	2	= 80 x 25 black and white	3	= 80 x 25 color	4	= 320 x 200 color	5	= 320 x 200 black and white	6	= 640 x 200 black and white	7	= Enable wrap at end of line										
0	= 40 x 25 black and white																										
1	= 40 x 25 color																										
2	= 80 x 25 black and white																										
3	= 80 x 25 color																										
4	= 320 x 200 color																										
5	= 320 x 200 black and white																										
6	= 640 x 200 black and white																										
7	= Enable wrap at end of line																										

Table 3-3: Control Key Sequences (cont.)

ESCAPE SEQUENCE	NAME AND FUNCTION
ESC [#1	RM - Resets mode as above, but #7 disables wrap at end of line.
ESC [#;#..;#p or ESC [#;"..";p or ESC ["..";p	KKR - Key reassignment. Reassigns key specified by ASCII code numbers in first parameter. The other numbers define the sequence of ASCII codes generated when this key is intercepted. Extended ASCII redefinition is set up by the first and second code if the first code in the sequence is zero. If you reassign a key to itself, you will cancel the redefinition, e.g., in this sequence: ESC [65;65p.

### Examples:

The examples given here will help you to make use of this utility.

ESC [5A	Moves cursor up 5 lines
ESC [C	Moves cursor forward 1 column
ESC [J	Clears screen, homes cursor
ESC [10;4H	Moves cursor to row 10, column 4
ESC [2;"dir";13p	Redefines ctl-B to print 'dir'+CR
ESC [6h	Sets 640 x 200 graphics mode
ESC [32;47m	Makes text green on white
ESC [7h	Enables wrap at end of line
ESC [7l	Disables wrap at end of line

### 3.3.2 ASSIGN

ASSIGN is an external utility that allows you to instruct the DOS to use a different drive from the one that was specified for disk operations. For example, you can run ASSIGN to tell the DOS that disk A is the same as disk B, and all subsequent disk operations to disk A will be directed internally to disk B.

The basic format for the ASSIGN command is:

**ASSIGN [x = y [...]]**

where the first drive letter **x** is internally converted by DOS to the second drive letter **y**. You do not have to enter a colon after the drive letter. Drive letters are valid only if they are currently assigned to a drive in the system.

If you enter ASSIGN with no parameters, all drive reassignments will be reset, with your default drive assignments once again in place.

For example, if you wish to redirect all requests for drive A to drive C, type:

**ASSIGN A = C**

Now, when you request the directory listing for drive A (DIR A:), the OS will display the files that are on drive C.

The following command routes all requests for drive A or B to drive C:

**ASSIGN A = C B = C**

**NOTE:** ASSIGN should not be used with the PRINT command, or when running DOS in normal operations, since it can hide the real name or device type from programs that need that information.

### 3.3.3 MODE

The MODE command allows you to modify the state of various devices connected with your system. You can change the parameters for your serial ports and line printer, and redirect the printer output. You will also be able to modify the state of your screen. The MODE commands comprise the following functions:

- o Display functions
- o Serial interface functions
- o Printer functions

Within these functions there are four options:

- o Option 1, for the printer
- o Option 2, for switching display types and setting color/graphics display modes
- o Option 3, for the serial port
- o Option 4, to redirect the parallel printer output to a serial port (1 or 2)

The display functions and options for the MODE command are described in the following sections.



## Display Functions

You can use the MODE command to set the following video modes:

CO40	40 x 24 color
BW40	40 x 24 black and white
CO80	80 X 24 color
BW80	80 X 24 black and white
CO320	320 x 200 color graphics
BW320	320 x 200 black and white graphics
BW640	640 x 200 black and white graphics
MONO	Monochrome

## Serial Interface Functions

You can use MODE to set the following serial interface functions:

- o Set the baud rate to 110, 150, 300, 600, 1200, 2400, 4800, or 9600
- o Set parity to EVEN, ODD, or NONE
- o Set the size of the data word to 7 or 8 bits
- o Set the number of stopbits to 1 or 2
- o Configure the COM port for a printer (in conjunction with the LPT redirect option), providing continuous retry on time-out errors

## Printer Functions

You can use MODE to provide for the following printer functions:

- o Set the number of characters per line (from 80 to 132); and set the number of lines per inch (6 or 8). **NOTE:** These functions are set up for the VICTOR (Epson) printer, Model Numbers 6010, 6020, and 6025.
- o Enable timeout retry. This command causes a part of MODE to stay in memory.
- o Redirect each printer to a serial port (1-2). Also causes part of MODE to stay in memory.

### Option 1 -- Setting Up Printer Functions

The basic command for option 1 is:

**MODE LPT#:[n][,[m][,P]]**

where:

- # is 1, 2, or 3 (the printer number)
- n is 80 or 132 (characters per line)
- m is 6 or 8 (lines per inch, vertical spacing)
- P specifies continuous retry on time-out errors

**NOTE:** If you do not type a value for n or m, or if the value is invalid, then the mode for that operation is not changed.

The following example sets the mode of operation of printer 1 so that it prints out 132 characters per line, and 8 lines per inch of vertical spacing. (The default values for the printer are 80 characters per line, and 6 lines per inch.)

**MODE LPT1:132,8**

You can stop the retry loop by pressing Ctrl-Break. If you do not wish time-out errors to be continuously retried, do not specify P when you use MODE option 1.

### **Option 2 -- Switching Display Functions**

The basic command for option 2 is:

**MODE n**

where:

**n** is 40, 80, BW40, BW80, CO40, CO80, CO320, BW320, BW640, or MONO. (Refer to "Display Functions" for a list of the video modes.) The display selections are as follows:

- 40        The display width is 40 characters per line (color/graphics display mode).
- 80        The display width is 80 characters per line (color/graphics display mode).
- BW40     Switches the active display type to color/graphics and sets the display mode to black and white, with 40 characters per line.

- BW80 Switches the active display type to color/graphics and sets the display mode to black and white, with 80 characters per line.
- CO40 Switches the active display type to color/graphics and enables color, with 40 characters per line.
- CO80 Switches the active display type to color/graphics and enables color, with 80 characters per line.
- CO320 Switches the active display type to color/graphics, enables color, and sets the display mode to 320 x 200 graphics.
- BW320 Switches the active display type to color/graphics, disables color (black and white), and sets the display mode to 320 x 200 graphics.
- BW640 Switches the active display type to color/graphics, disables color (black and white), and sets the display mode to 640 x 200 graphics.
- MONO Switches the active display type to monochrome, with a default width of 80 characters per line.

### Option 3 -- Setting up the Serial Port

The parameters required for this option are the protocol parameters, which are used to initialize the serial port. You must specify the baud rate. If the other values are not entered, the default values are activated, but you must use a comma for each value omitted.

The basic command for option 3 is:

**MODE COMn:baud[,parity[,databits[,stopbits[,P]]]]**

where:

**n** is either serial port 1 or 2

**baud** is 110, 150, 300, 600, 1200, 2400, 4800, or 9600 (only the first two digits are required in the baud rate specification).

**NOTE:** Values are required for these first two parameters. Defaults are used if the other parameters are omitted.

**parity** is either N for none, O for odd, or E for even (default value is E)

**databits** is either 7 or 8 (default value is 7)

**stopbits** is either 1 or 2 (default value is 2 if baud is set at 110; otherwise it is 1)

**P** is an option that provides for continuous retries on time-out errors. Press Ctrl-Break to stop the retry loop. Reinitialize the serial port without the P if you do not want the time-out errors to be continuously retried.

#### **Examples:**

To set serial port 1 to 1200 baud rate, no parity, eight databits, and one stopbit, enter:

**mode com1:12,N,8,1,P**



To use the default values for this command, enter:

```
mode com1:12,,,P
```

In this case, the parity default is even, the databits default is seven, and the stopbits default is 1.

#### Option 4 -- Redirecting Parallel Printer Output to a Serial Port

With this option, you may redirect output for logical printers to the serial I/O ports, making it possible to connect as many as three printers.

**NOTE:** Before you use this utility to redirect parallel printer output to a serial port, you must first initialize the serial port, using option 3.

The basic command for option 4 is:

```
MODE LPT#:=COMn
```

where:

# is either 1, 2, or 3 (printer number)

n is either 1 or 2 (serial port number)

#### Examples:

To redirect output for printer LPT1 to serial port 2 (serial port B), enter:

```
mode lpt1:=com2
```

To disable the redirection for the printer designated by the #, type:

**mode lpt#:**

### 3.3.4 RETROSYS

RETROSYS.EXE is an external command or utility program that copies the PLUS PC operating system from a diskette or from a hard disk volume. Because there is a unique set of files for each of the two PLUS PC operating system modes, RETROSYS is capable of copying one or both of the sets of files. The files related to each of the modes are as follows:

<u>+PC/V</u>	<u>+PC/C</u>
MSDOS.SYS	PCDOS.SYS
VCONFIG.SYS	PCONFIG.SYS
VCONFIG.BAT	PCONFIG.BAT
VCOMMAND.COM	PCOMMAND.COM
Any device drivers specified in VCONFIG.SYS	Any device drivers specified in PCONFIG.SYS

The basic format for the RETROSYS utility is:

**RETROSYS[/O] source[/O] [destination][[/O]](cr)**

or

**RETROSYS[/O] ([+PC/V source][[/O]],  
[+PC/C source][[/O]]) [destination][[/O]](cr)**

where:

**source** is drivename: or [path]filename.ext, where drivename is the name of the drive or volume containing the existing system files. Path is the path through the subdirectory hierarchy to the operating system files. Filename.ext is a specified operating system file. If you give a filename without an extension or path, the PLUS PC operating system assumes the extension SYS and the current directory or the root directory on the default drive. The source must contain the operating system and the VCOMMAND.COM and PCOMMAND.COM files, which are copied with the operating system.

**+PC/V source** is as indicated for source, but refers only to the set of operating system files used for the +PC/V mode.

**+PC/C source** is as indicated for source, but refers only to the set of operating system files used for the +PC/C mode.

**destination** is the name of the drive containing the diskette or the hard disk volume onto which the operating system is to be copied. If you do not specify the name of the drive for the system copy, RETROSYS asks you for the copy destination. After the copy is complete, you are prompted for another destination.

**/O** is a command switch that copies only the hidden files MSDOS.SYS and/or PCDOS.SYS.

## **Examples:**

The following commands copy all system and CONFIG files (and specified drivers) from the current directory on drive A to the root directory of drive B:

```
retrosys a: b:  
retrosys (,) b:
```

The following commands copy just MSDOS.SYS and PCDOS.SYS from the current directory on drive A to the root directory of drive B:

```
retrosys a:/o b:  
retrosys (,) b:/o
```

The following command copies NEW.SYS, VCOMMAND.COM, VCONFIG.SYS, and VCONFIG.BAT from the current directory on the default drive to the root directory of drive A, and copies TEST.SYS, PCOMMAND.COM, PCONFIG.SYS, AND PCONFIG.BAT from the directory c:\work to the root directory of drive A. Any drivers specified in VCONFIG.SYS or PCONFIG.SYS are also copied to the root directory of drive A.

```
retrosys (new.sys,c:\work\test) a:
```

#### 4. USING THE HARD DISK

When the VICTOR PlusPC is installed on a VICTOR 9000 computer with a hard disk drive, the installation procedures use the hard disk utilities to restructure the disk format in a way that is compatible with the PC structure. The combined features of VICTOR and PC hard disk drive structure result in the following enhanced capabilities:

- o Greater utilization of disk space. The hard disk drive can have up to eight virtual drives, and each virtual drive can have up to four partitions.
- o Access to other operating systems. The PlusPC with hard disk can have a separate operating system resident on each partition.

The information contained in this chapter will help you to:

- o Understand how to approach the use of the hard disk.
- o Have an overview of the PlusPC hard disk configuration, and of the utilities used in its reconfiguration.
- o Use the fixed disk partitioning program to modify the configuration of your system.



#### **4.1 GENERAL GUIDELINES FOR USING THE HARD DISK**

When your PlusPC was installed, the hard disk was restructured into a PC compatible format and your VICTOR programs and data were loaded on this new structure. The default structure at installation is one volume devoted entirely to DOS, with the original VICTOR virtual volumes as subdirectories. The information given in this chapter will enable you to modify your hard disk structure to accommodate your current or future needs.

##### **Accessing Data on the Hard Disk**

The normal way to access the data on your PlusPC hard disk is through the PlusPC operating system. You can copy the OS from the PlusPC diskette onto the hard disk, so that you can boot your computer from the hard disk.

##### **Accessing Data through VICTOR or PC OS Diskettes**

If you have a PC operating system on a floppy diskette, you can boot it and use the hard disk in PC mode. VICTOR programs can access the hard disk only through the PlusPC operating system. Other VICTOR operating systems must be used from the floppy diskette.

##### **VICTOR and PC Programs on Hard Disk**

PlusPC allows you to have both VICTOR and PC programs on the hard disk at the same time. The PlusPC operating system places a flag in the directory entry of each program to indicate whether it is VICTOR or PC. If you try to execute a VICTOR program while in +PC/I mode, or vice versa, the

system will send you a message stating that you are in the wrong mode. If you wish to change, you can switch modes using the keystrokes given in Chapter 1.

## 4.2 OVERVIEW OF HARD DISK CONFIGURATION

The utilities used to install and modify your hard disk format are summarized here and described fully in the sections that follow.

- o **SEARCH** -- The SEARCH utility is used to back up and restore the hard disk contents.
- o **FDSETUP** -- The utility program FDSETUP is used to reorganize, or restructure, the hard disk to create volumes, or virtual disk drives.
- o **FDISK** -- The FDISK utility is used to create partitions within a disk volume, in preparation for the operating system.
- o **FDFORMAT** -- FDFORMAT is the PlusPC utility used to initialize the hard disk partitions. The basic command is:

```
fdformat d:[/v](cr)
```

where d: is the virtual drive letter, and /v indicates the first volume.

There are five basic steps involved in modifying your VICTOR 9000 series hard disk structure using the PlusPC system utilities.

1. Back up the contents of the disk onto floppy diskettes using the SEARCH utility.
2. Initialize the disk, using FDSETUP to divide the disk into virtual disk drives (also called

volumes).

3. Divide the volumes into partitions (up to four partitions for each volume), using the FDISK utility to:
  - a. Provide partitions on one or more volumes for use of the PlusPC DOS. The number of volumes, up to eight, and the size of the volumes is specified by the user. The first volume must contain the booting DOS.
  - b. Format the DOS partitions, using the FDFORMAT utility for hard disks.
4. Load the PlusPC operating system onto the DOS partitions of the hard disk, using the RETROSYS utility. Transfer other desired operating systems into the appropriate partitions of the hard disk using utilities provided with those systems.
5. Copy the original contents back onto the disk, using the RESTORE utility.

### 4.3 SEARCH

The SEARCH utility is used to back up and restore the hard disk contents. The use of SEARCH is described here for the first and last steps in hard disk configuration.

### 4.3.1 CREATING BACKUP FILES ON DISKETTES

To create a backup file containing all the data on your disk, you can use the /TARC (create tape archive) action switch, followed by the name you wish to give the backup file. For example, to back up files from volumes C, D, and E, put a formatted diskette in drive A and enter:

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

This command finds all files on those drives, and backs them up on a single file named BACKUP on drive A. If your diskette runs out of space, the program displays a message asking if you want to continue. Respond n(cr), remove the diskette, insert a blank formatted diskette, and re-enter the same SEARCH command.

### 4.3.2 RESTORING FILES FROM THE BACKUP FILE

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 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 or tree structure

If there were too many files to fit onto the backup diskette, you may get an error message on the last file. In this case, tell SEARCH to continue by inserting the next backup diskette and repeating the /tarx command. The file in error on the previous diskette will be intact at the beginning of the next backup diskette.

#### 4.4 FDSETUP -- CREATING FIXED DISK VOLUMES

(Text to come.)

#### 4.5 FDISK -- THE FIXED DISK PARTITIONING PROGRAM

The VICTOR hard disk drives can be divided into as many as eight virtual disk drives, or volumes. Each volume can have up to four partitions. The DOS partitions must be set up using a program provided with the PlusPC operating system. FDISK, the fixed disk volume partitioning program, allows you to:

- o Create a DOS partition
- o Change the active partition (the boot partition)
- o Delete a DOS partition
- o Display the partition data
- o Select the next virtual drive

Each partition can be a different size, and each is prepared through the fixed disk partitioning program. To set up a DOS partition, you must use FDISK.



There are three steps that may be involved in configuring each virtual drive of your fixed disk:

1. You can assign all of the space on a virtual drive (or volume) for use as a DOS partition. If you are only going to use DOS with a fixed disk volume, you can proceed to Chapter 4.5.1, "Preparing Your Fixed Disk Volume for One Partition."
2. You can assign the available space on a virtual drive to more than one operating system. Proceed to Chapter 4.5.3, "Partitioning Your Fixed Disk Volume for Multiple Operating Systems," to assign a specific amount of disk space to DOS partitions.

**NOTE:** If you are not certain whether you will be using another operating system, you should assign all the space on a volume to DOS, since you can reassign it later.

3. You must make your DOS partitions usable by the PlusPC operating system. Proceed to Chapter 4.5.2, "Setting Up the DOS Partition." These procedures will format a DOS partition and copy the operating system onto the partition.

### Preliminary Notes

- o You can refer to a fixed disk virtual drive in the same way that you refer to a diskette drive.
- o If you have two floppy disk drives, the DOS recognizes them as A and B. If you have one floppy disk drive on your system, the DOS treats that drive as both A and B and keeps track of the last used name of that drive. Thus, designation of the hard disk or disks always begins with C.

#### 4.5.1 PREPARING A FIXED DISK VOLUME FOR ONE PARTITION

This section will help you to allocate all of the space on a virtual drive to one operating system. Most of the time that OS will be MS-DOS.

First prepare the fixed disk volume for use with DOS, using the FDISK command as follows:

1. Insert your DOS diskette in drive A. When the DOS prompt (A>) appears on the screen, enter:

```
fdisk(cr)
```

The following screen appears:

```
VICTOR PLUS PC
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: [ ]

The current volume and option 5 will only be shown if your system has more than one virtual drive. If you want to set up the DOS partition on another drive, enter:

5(cr)

FDISK allows you to create an active partition on a virtual drive other than the first virtual drive. Note, however, that DOS can only be started from the first virtual drive (refer to Chapter 4.5.5, "Changing the Active Partition," to change the partition status). Notice that the drive number on the screen changes after you press Return.

2. Enter:

1(cr)

to set up the fixed disk volume for use with DOS. If this volume has not already been set up for DOS or another operating system, then the following screen appears:

VICTOR PLUS PC  
Fixed Disk Partition Utility  
Copyright (c) 1984

Create DOS Partition \*\* Volume 1 \*\*

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

If your fixed disk volume has already been set up, then you will see a different screen that shows how the partitions in this volume have been assigned, and you will get a different

prompt. If this happens, you should follow the steps in Chapter 4.5.3, "Partitioning Your Fixed Disk for Multiple Operating Systems."

3. Now press Return, since you want to use the entire volume for MS-DOS. FDISK will assign this volume to DOS.

Your volume has now been set up with a DOS partition. But before DOS can use it, DOS needs to create a directory and other information in the partition. To do this, follow the instructions in the next section, "Setting Up the DOS Partition."

#### 4.5.2 SETTING UP THE DOS PARTITION

You have to format the DOS volume partition using the PlusPC FDFORMAT command before you can use it.

**CAUTION:** Follow these instructions only if the DOS partition has been created, but has not already been formatted and used to store data. Any data in the partition will be destroyed by the format operation.

1. Make sure your DOS diskette is in drive A, and that the DOS prompt (A>) is on the screen, then enter:

**FDFORMAT d:/v(cr)**

Substitute the correct fixed disk virtual drive letter for the **d** in the command (for example, if you have one or two diskette drives, enter **c** for the first volume, as shown in the following screens). This prompt now appears:

**Press any key to begin formatting drive C:**

2. Press any key. The following message appears on the screen:

**Formatting...**

Do not be alarmed if several minutes go by before you see any more messages. DOS is checking the data in every location in the DOS partition, and it takes several minutes. This message will appear:

**Format complete**

If you require the PlusPC operating system on this fixed disk volume, enter the following to load the operating system:

**retrosys c:(cr)**

This message is displayed:

**system transferred**

This tells you that a copy of DOS has been placed on this volume of the fixed disk.

Then the following message appears:

**Volume label (11 characters, ENTER for none)?**

3. Enter a 1- to 11-character **volume label** (such as MYFIXEDDISK) that is used to identify this volume when DIR and CHKDSK display information. If you do not want a label on this volume, press Return. Please note, however, that you cannot add a volume label later, so you should enter one now.



FDFORMAT then displays the volume space statistics and the DOS prompt. Your fixed disk is now completely usable by DOS.

Remember to copy the programs from your VICTOR PlusPC Operating System Diskette if you will be using these programs.

4. Remove the DOS diskette from drive A (leave the diskette drive door open) and press the Ctrl, Alt, and Del keys simultaneously (System Reset). If you have correctly followed the steps outlined above, and a copy of DOS was stored on the first volume in the active partition, DOS will start from the fixed disk and you will be asked to enter the date and time.

Now when you enter the date and time, you will notice that the DOS prompt (A>) has changed. Instead of the letter A>, you will see the drive letter of your fixed disk volume. DOS remembers which drive it was started from, and makes that drive the default drive.

If you have followed the instructions given above, your fixed disk is now completely initialized.

#### **4.5.3 PARTITIONING YOUR FIXED DISK VOLUME FOR MULTIPLE OPERATING SYSTEMS**

If you want more than one operating system to use a virtual drive, you must divide that volume into separate areas called partitions. The partitions can be different sizes and you can set them up in any order. An operating system can only access one partition. You cannot transfer data directly from one partition to another.

Each operating system that supports the fixed disk provides a program that will allow you to create a partition for use under that system. If you try to read from, or write to, the fixed disk using a system that has no partition assigned to it, you will get an error message.

FDISK can only be used to create or delete the DOS partition. A partition set up for another operating system can only be created or deleted from that operating system.

You can set up one partition for use under DOS at the location and size you choose. You can also delete the DOS partition if, for example, you want to create it again at a different size or location on the fixed disk. The following options are supported by FDISK:

- o Create a DOS partition
- o Change the active partition (the one that will be started when the system is restarted)
- o Delete a DOS partition
- o Display virtual disk partition data
- o Select a different virtual disk drive

These functions are described in following sections. To get access to them, you need to start the FDISK program as follows:

1. To start, enter:

`d:fdisk(cr)`

where d: is the drive where the FDISK.EXE program resides.

2. If it is on the default drive, just enter:

`fdisk(cr)`

You will then see the following screen:

```
VICTOR PLUS PC
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: [ ]

The current volume and option 5 will only be shown if your system has more than one virtual disk drive. Option 5 selects another volume.

The FDISK program allows you to create an active partition on a virtual disk other than the first virtual disk. Note, however, that DOS can only be started from the first virtual disk. The partition status is shown as A for active, and N for not active (refer to Chapter 4.5.5, "Changing the Active Partition," to change the partition status).

Type the number of the option you want and press Return. The options are described in the following sections.

#### 4.5.4 OPTION 1, CREATING THE DOS PARTITION

You can use this option to create the DOS partition. To do this you must determine where it should be located, and how large it should be. If there is already a partition assigned to DOS, you will see an error message.

A virtual drive is divided into parts called cylinders. The number of cylinders and their sizes can vary depending on the virtual drive. A 10-megabyte disk contains 304 usable cylinders, and each cylinder contains 32,768 bytes. If you wanted to assign the entire fixed disk for use as a single volume under DOS, you could specify the size as 304 cylinders, and the starting cylinder as 000. This is the configuration that would result if only one volume exists on the hard disk and you respond Y to the question asking if you wish to use the entire volume for DOS.

The screen you see depends on whether the virtual drive has any partitions. If it has been initialized, go to step 2 below. If not, this screen appears:

```
VICTOR PLUS PC
Fixed Disk Partition Utility
Copyright (c) 1984
```

```
Create DOS Partition  ** Volume 1 **
```

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



Follow these steps:

1. If DOS is the only operating system that you intend to use with the fixed disk, then you should follow the instructions in Chapter 4.5.1, "Preparing Your Fixed Disk for One Partition." Otherwise, enter:

n(cr)

A message similar to the following appears:

**No Partitions Defined**

**Number of cylinders used = 0 out of 150**

These lines show the total number of cylinders on your current volume. Proceed to step 3.

2. You will see a screen similar to the following if your current volume has already been set up:

**VICTOR PLUS PC**

**Fixed Disk Partition Utility**

**Copyright (c) 1984**

**Create DOS Partition \*\* Volume 1 \*\***

Partition	Status	Type	Start	End	Size
1	N	non-DOS	000	049	50
2	A	non-DOS	050	099	50
3	N	non-DOS	250	304	55

**Number of cylinders used = 155 out of 305**



The "Create DOS Partition" screen shows a sample fixed disk with three partitions. This is given only as an example, not as a recommended setup.

The current volume indication will appear only if you have more than one fixed drive.

One line will be shown for each assigned partition.

The partition column shows the relative number of the partition (in the order in which it appears on the fixed disk).

The status column shows which system gains control when the boot is started from this volume. The status for that partition is shown as A (for active); the others are shown as N (for not active).

The Type column shows which partition, if any, is the DOS partition.

The Start and End columns show the starting and ending cylinder numbers for a partition and the Size column shows its size in cylinders.

The next line shows the number of cylinders used and the total amount of space on this virtual drive.

3. The following prompt appears:

Input partition size..... < >

The partition size entry defaults to the largest available space on the fixed disk. If you wish your DOS partition to use the largest available

space, simply press Return. Otherwise, type in the size you want (in cylinders), and press Return. The next prompt is:

**Input starting cylinder number.. < >**

4. The starting cylinder number default depends on the partition size you specified above. It is the first cylinder of the largest space on the fixed disk large enough for the partition. If you want the DOS partition to be located there, press Return. Otherwise, type in the starting cylinder number you prefer, and press Return. The cursor is placed at the bottom of the screen, and you see this message:

**Press ESC to Return to Menu**

Note that the lines on the screen change to show the new active partition. The DOS partition has now been created.

If you need the partition you just created to be active (able to boot), perform the steps in Chapter 4.5.5, "Option 2, Changing the Active Partition."

Your DOS partition has been created, but you still need to follow the instructions in Chapter 4.5.2, "Setting Up the DOS Partition," before you can use the DOS partition.

#### 4.5.5 OPTION 2, CHANGING THE ACTIVE PARTITION

Select this option when you want to start a different operating system in another partition. You will see a screen similar to the following:

```
VICTOR PLUS PC
Fixed Disk Partition Utility
Copyright (c) 1984
```

```
Change Active Partition  ** Volume 1 **
```

Partition	Status	Type	Start	End	Size
1	N	non-DOS	000	049	50
2	N	non-DOS	050	149	100
3	A	DOS	150	304	55

```
Number of cylinders used = 205 out of 305
```

```
Enter the number of the partition
to make active:
```

After this screen appears, proceed as follows:

1. Enter the number of the partition containing the operating system which you wish to boot when the system is started from the fixed disk. This message appears:

```
[ ] Press ESC to Return to Menu
```

Note that the lines on the screen change to show the new active partition.

2. Press the ESC key to return to the FDISK options menu and press it again to return to DOS.

To start the operating system in the partition you just made active, perform these steps:

- a. Open the diskette drive A door.
- b. Press and hold Ctrl and Alt, and then press Del.

The operating system in the active partition should then start.

#### 4.5.6 OPTION 3, DELETING THE DOS PARTITION

**CAUTION:** This option destroys all data in the DOS partition, so be sure you have backed up all of your files before you proceed.

1. First you need to insert a PlusPC operating system diskette and restart the system from diskette drive A if you wish to continue processing under DOS.

To start a system in another fixed disk partition, you should change the active partition to that partition number before you delete the DOS partition.

You should see a screen display like the following:

VICTOR PLUS PC  
Fixed Disk Partition Utility  
Copyright (c) 1984

Delete DOS Partition \*\* Volume 1 \*\*

Partition	Status	Type	Start	End	Size
1	N	non-DOS	000	049	50
2	N	non-DOS	050	099	50
3	N	DOS	100	249	150
4	A	non-DOS	250	304	55

Number of cylinders used = 305 out of 305

WARNING! All data in the DOS partition  
will be ERASED. Is this OK (Y/N)?

2. If you have backed up all of your files and are ready to continue, type Y and press Return. If you decide to cancel the operation, press the ESC key to return to the FDISK options menu.

If you type Y and press Return, the partition information displayed on the screen is updated, and the following message appears:

[ ] Press ESC to Return to Menu

The DOS partition has now been deleted. You will need to start another system from the fixed disk, or restart DOS from another volume or a diskette to proceed.



#### 4.5.7 OPTION 4, DISPLAYING PARTITION DATA

You can use this option to display fixed disk status information. Your screen appears similar to the following:

```
VICTOR PLUS PC
Fixed Disk Partition Utility
Copyright (c) 1984
```

```
Display Partition Data  ** Volume 1 **
```

Partition	Status	Type	Start	End	Size
1	A	DOS	000	199	200
2	N	non-DOS	200	304	105

```
Number of cylinders used = 305 out of 305
```

The current volume appears only if you have more than one fixed disk drive.

One line is shown for each assigned partition.

The Partition column shows the relative number of the partition (in the order in which it appears on the fixed disk).

The Status column shows which system gains control when the system is started from the fixed disk. The status of the partition belonging to that system is shown as A (for active); the others are shown as N (non-active).

The Type column shows which partition, if any, is the DOS partition.

The Start and End columns show the starting and ending cylinder numbers for a partition, and the Size column shows its size in cylinders.

The next line shows the total amount of space used on this volume.

Press the ESC key when you are ready to return to the FDISK options menu.

#### 4.5.8 OPTION 5, SELECTING ANOTHER VOLUME

Select this option when you want to use FDISK to work with another volume. After you have entered the option, you will see a volume selection message similar to the following:

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

After you enter the choice, the current volume indication will change. Enter ESC to return to the main FDISK options menu.

This option is available only if your system has more than one fixed disk drive. If you used FDSETUP to create two or more virtual drives, then you will have to use this option to create partitions within those volumes.

The start and end columns show the starting and ending cylinder numbers for a partition, and the size column shows its size in cylinders.

The next line shows the total amount of space used on this volume.

Press the F20 key when you are ready to return to the FDISK options menu.

## 4.2.8 OPTION 2, SELECTING ANOTHER VOLUME

Select this option when you want to use FDISK to work with another volume. After you have entered the option, you will see a volume selection message similar to the following:

Enter volume number (1-3):

# Home of Victor Computers

After you enter the number, the command prompt indication will change. Enter F20 to return to the FDISK options menu.

This option is available only if your system has more than one fixed disk drive. If you used FDISK to create two or more virtual drives, then you will have to use this option to create partitions within those volumes.