

PCSA



MS-DOS Reference Manual

October 1988

Operating System and Version:

VMS Version 4.7, 5.0, or later

DOS, Versions 3.2 and 3.3

MS-DOS, Versions 3.2 and 3.3

Software Version:

DECnet/PCSA Client, Version 2.1

VAXmate Services for MS-DOS, Version 2.1

VAX/VMS Services for MS-DOS, Version 2.1

VAXmate Standalone, Version 2.1

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Update Notice

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New and Changed Information

This update contains changes and additions made to the *MS-DOS Reference Manual*.

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Instructions

The enclosed pages are to be placed in the *MS-DOS Reference Manual* as replacements for or additions to current pages.

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4-105 thru 4-112	4-105 thru 4-112
4-143 thru 4-148	4-143 thru 4-148
4-157 thru 4-160	4-157 thru 4-160
4-179/4-180	4-179 thru 4-180.1
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PCSA



MS-DOS Reference Manual

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DECwriter	MASSBUS	RSX	VMS
DIBOL	MicroVAX	RT	VT
LA50	PDP	ThinWire	Work Processor

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Preface

The Personal Computing Systems Architecture (PCSA) is an extension of DIGITAL's systems and networking architecture that merges VMS and MS-DOS environments. The PCSA network may include VAX, MicroVAX, or VAXmate servers running VAX/VMS Services for MS-DOS or VAXmate Services for MS-DOS. It also includes the DECnet/PCSA Client software that runs on PC workstations and on VAXmate workstations. Other PCSA products include ThinWire Ethernet products, and other peripherals, such as the LN03 Plus and LA75 Companion printers.

DIGITAL's PCSA network fully integrates all the elements of personal and corporate computing required for direct information access and sharing. Thus, it has computing and communication capabilities substantially better than those of conventional PC local area networks (LANs).

Manual Objectives

The *MS-DOS Reference Manual* describes the characteristics of DOS directories, files, and commands. It also explains how to prepare to use your hard disk and copy files to it. This manual describes redirection of input and output, batch processing, editing and function keys, and the DEBUG command. Lastly, this manual contains MS-DOS error messages, information and commands to configure your system, information about diskettes and international features, and VAXmate options and specifications.

Intended Reader

This manual is intended for the experienced MS-DOS user. A new user to MS-DOS can use this manual, but with the understanding that care should be taken when using new commands for the first time. In most cases, especially in the Operating System Commands chapter, examples are given to help the user understand how a specific command works.

Manual Organization

This manual consists of the following chapters and appendices:

- | | |
|------------|--|
| Chapter 1 | Contains information about MS-DOS commands, files, wildcards, directories, and path names. |
| Chapter 2 | Contains information about preparing your hard disk. This information includes formatting the hard disk and copying files to it. |
| Chapter 3 | Contains information about redirecting input and output, and about using pipes and filters. |
| Chapter 4 | Contains detailed information about all the MS-DOS commands. This information includes the command format and specific examples. |
| Chapter 5 | Contains information about batch processing and about specific batch commands. |
| Chapter 6 | Contains information about MS-DOS editing and function keys. |
| Chapter 7 | Contains information about using the DEBUG utility. It also contains detailed information about DEBUG commands. |
| Chapter 8 | Contains information about using the MS-DOS operating system with MS-Windows. |
| Appendix A | Contains MS-DOS error messages. Each message contains a cause and an action section. |
| Appendix B | Contains information about configuring your system. It also contains detailed information about CONFIG.SYS commands. |
| Appendix C | Contains information about diskettes that you can use with your VAXmate workstation. |

- Appendix D Contains information about international features, such as country codes, character set codes, keyboard abbreviations, and the supported .COU, .FNT, .GRF, and .KEY files.
- Appendix E Describes the VAXmate workstation options.
- Appendix F Describes the VAXmate workstation specifications.

Conventions Used

Follow these conventions while using this manual:

Convention	Meaning
default drive	Is the current drive.
current directory	Is the directory you are currently in. The current directory is also called the default directory.
black type	In examples of dialog between you and the VAXmate workstation, what the workstation displays on the screen is shown in black.
color type	In examples of dialog between you and the VAXmate workstation, what you type from the keyboard is shown in red
case	You can type commands and parameters in uppercase or lowercase letters, or a combination of both.
numbers	All numbers shown in this manual are in decimal form, unless otherwise noted.
typing	In command examples, type all spaces and punctuation marks exactly as they are printed.
Ctrl/C	Hold down the Ctrl key and press the C key.
Ctrl/Alt/Del	Hold down the Ctrl and Alt keys and press the Del key on the numeric keypad. The Del key is also labeled Sel. You use the Ctrl/Alt/Del keys to reset your workstation.

Convention	Meaning
[]	In a command format example, square brackets indicate optional information. Do not type the brackets when specifying the information enclosed in the brackets.
 	In a command format example, a vertical bar indicates a choice between two or more entries. You must select one entry, unless the entries are optional.

Chapter 1

Commands, Directories, Paths, and Files

MS-DOS is an abbreviation for Microsoft Disk Operating System. It is a single tasking, single user operating system for microcomputers that use the Intel family of microprocessors. MS-DOS controls the overall operation of your computer and provides an environment that enables you to easily perform operations such as:

- Program execution
- File management
- Resource management
- Programming simplification
- Device handling

The MS-DOS operating system has existed since 1981. Over the years, it has evolved through a number of versions. The first released version, MS-DOS Version 1.0, was very similar to an earlier operating system called CP/M-80. MS-DOS Version 2.0 was released in 1983, and contained significant changes, including hard disk support, print spooling, UNIX-like features and characteristics to make application develop easier. MS-DOS Version 3.0 was released in 1984, and contained support for larger hard disks, networking, and 3 1/2 inch diskettes.

There are approximately 10 million MS-DOS based machines in the world today, of which DIGITAL's VAXmate workstation is one. The VAXmate was first introduced with version 3.10 of MS-DOS. The current improved version for the VAXmate is MS-DOS Version 3.30.

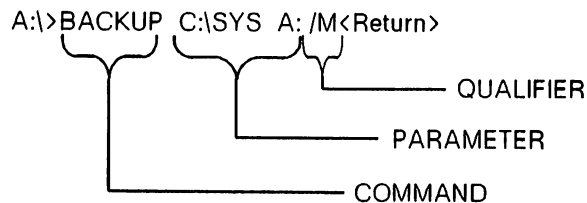
This chapter discusses:

- General command format
- Information common to all commands
- Files
- Wildcards
- Directories
- Paths

General Command Format

A command is an instruction that tells the MS-DOS operating system to perform a task. You type a command and its parameters and qualifiers on the command line following the MS-DOS operating system prompt. Figure 1-1 shows the general command line format for the BACKUP command.

Figure 1-1: Command Line Format



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When you type commands, exact spacing and punctuation are important. Separate a command and its parameters with a space.

Information Common to All Commands

The following information applies to MS-DOS commands:

- Many commands are followed by qualifiers. These qualifiers supply additional information for specific command execution. Qualifiers are preceded by a forward slash (/). For example:

```
C:\>BACKUP C: A: /AReturn
```

The /A qualifier indicates that the user wants to add backup files to the contents of the backup diskette without affecting the files already stored there.

- Some commands are followed by two or more arguments, one of which you can choose. For example, the format of the BREAK command is:

```
A:\>BREAK [ON | OFF]
```

When using the BREAK command, you must specify either ON or OFF.

- Separate commands and parameters with delimiters. Valid delimiters are:
 - Space
 - Tab key
- Include the file extension when referring to a file that has a file extension. The file extension follows the file name, is one to three characters long, and is preceded by a period. For example, if your directory contains the files MEMO.TXT and MEMO.BAT and you want to display the file MEMO.TXT on drive A, you must type:

```
A:\>TYPE MEMO.TXTReturn
```

- Commands take effect only after you press the Return key.
- Wildcards and reserved words are not allowed in the names of any commands.
- The prompt is the default drive designation followed by a greater-than sign. For example, the prompt for drive A is:

```
A>
```

You can customize the prompt to include other items. For more information, see the PROMPT command in Chapter 4 of this manual.

- Some command explanations refer to diskette drives or files as the source and destination. The *source* is the one from which you are transferring information. The *destination* is the one to which you are transferring information.

In all cases, type the source before the destination. In the following example, SOURCE.TXT is the source (the file from which the COPY command transfers information) and DESTINAT.TXT is the destination (the file to which the COPY command transfers information):

```
A:\>COPY A:SOURCE.TXT C:DESTINAT.TXT   
1 File(s) copied  
  
A:\>
```

Files

A file is a collection of related information. All programs, text, and data reside in files, and each file has a unique name. The MS-DOS operating system executes files in the following order:

- Files with the .COM file extension.
- Files with the .EXE file extension.
- Files with the .BAT file extension.

Therefore, if you have three files, LABEL.COM, LABEL.EXE, and LABEL.BAT, and you type:

```
A:\>LABEL 
```

the MS-DOS operating system executes the file LABEL.COM. The LABEL.EXE and LABEL.BAT files will never be executed because LABEL.COM has precedence. To execute LABEL.EXE or LABEL.BAT, you must rename each file to something unique.

The following sections discuss:

- Naming files
- Illegal file names

Naming Files

You must give your files unique names, because you cannot have two files with the same file name and file extension. A unique file name helps you remember what a file contains and eliminates confusion when a directory contains many files.

A file name can have two parts:

- The one- to eight-character file name.
- The one- to three-character file extension. A file extension is optional.

You cannot use the following characters in a file name or file extension:

, " / \ [] : | < > + = ;

Use a period (.) to separate a file name and a file extension.

You can type the file name and file extension using the following characters:

A-Z	a-z	0-9
\$	&	#
%	'	(
)	-	@
^	{	}
-	'	!
-		

Illegal File Names

Because the MS-DOS operating system reserves certain words for special purposes, you cannot use the following words as file names:

AUX	CON
PRN	NUL
CLOCK\$	LPT
LPT1	LPT2
LPT3	LPT4
COM1	COM2
COM3	COM4

You should not create files that have the same names as MS-DOS commands.

Wildcards

A *wildcard* is a character that takes the place of zero or more characters in an MS-DOS file name or file extension. Wildcards give many MS-DOS commands greater flexibility.

The wildcards, which are discussed in the following sections, are:

- The question mark (?)
- The asterisk (*)

Question Mark

A question mark in a file name or file extension indicates that any single character, or no character, can occupy that position. For example, if you type the following command (and these files exist on drive L):

```
L:\>DIR MEMO?.TXT
```

the MS-DOS operating system would display the following information:

```
Volume in drive L is DOS
Directory of L:

MEMO1   TXT           5981  1-01-88  9:00a
MEMO2   TXT           1890  1-01-88  9:30a
MEMO    TXT            798  1-01-88  9:44a

Total of 8.69 Kbytes used in 3 Files
```

Asterisk

An asterisk in a file name or file extension indicates that any number of characters (zero or more) can occupy that position. For example, if you type the following command (and these files exist on drive L):

```
L:\>DIR M*.TXT[Return]
```

the MS-DOS operating system displays the following information:

```
Volume in drive L is DOS
Directory of L:

MILLER  TXT           3290  1-05-88 10:34a
MEMO1   TXT           5981  1-01-88  9:00a
MEMO2   TXT           1890  1-01-88  9:30a
MEMO3   TXT            798  1-01-88  9:44a

Total of 11.96 Kbytes used in 4 Files
```

The wildcard designations *.* and * refer to all files in your current directory.

Directories

In an office, you can separate and organize files that belong to different people or that relate to specific projects by putting them into different file cabinets. For example, you might keep all your accounting files in one file cabinet, and all your letters and memos in another.

On your VAXmate workstation, you can use directories to group files and information into convenient categories. These directories are like the different file cabinets in an office. Directories contain information about:

- File names
- File sizes

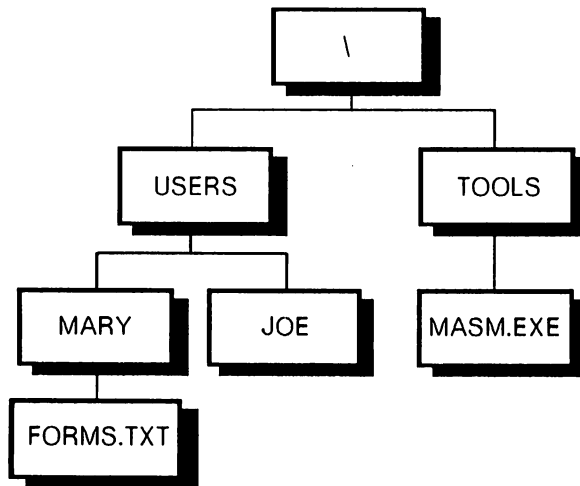
- File locations
- File modification dates

Directories can also contain other directories, usually called subdirectories. This method of organizing your files is called a *hierarchical directory structure*.

A hierarchical directory structure resembles a tree structure: directories are branches of the tree and files are the leaves. The root is the first level in the directory structure, and does not appear in a directory listing. The root directory is automatically created when you format a disk and start copying files to it.

The tree or file structure grows as you create new directories for groups of files. Within each new directory, you can add files and create new directories. Figure 1-2 shows a hierarchical directory structure.

Figure 1-2: Hierarchical Directory Structure



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<code>\</code>	Is the root directory. The MS-DOS operating system creates this directory when you format a disk or diskette.
<code>USERS</code>	Is a directory under the directory named <code>ROOT</code> .
<code>TOOLS</code>	Is a directory under the directory named <code>ROOT</code> .
<code>MASM.EXE</code>	Is a file in the directory named <code>TOOLS</code> .
<code>MARY</code>	Is a directory under the directory named <code>USERS</code> .
<code>JOE</code>	Is a directory under the directory named <code>USERS</code> .
<code>FORMS.TXT</code>	Is a file in the directory named <code>MARY</code> .

You can move around this tree structure. For example, you can find any file in the system by starting at the root and traveling along the branches to the desired file. Conversely, you can start where you are within the file system and travel towards the root.

Paths

A *path name* is a directory name, or sequence of directory names, followed by an optional file name. When you use directories you must use a path name to tell the MS-DOS operating system where files are located in the directory structure. Each directory name is separated from the previous one by a backslash (`\`).

The format of a path name is:

```
[drv: ][\]directory[\directory]...[\filename]
```

For example:

```
L:\USER\MARY
```

This path name indicates that the user is in the subdirectory `MARY`, which is a subdirectory of `USER`, which is a subdirectory of the root directory on drive `L`.

If a path name begins with a slash, the MS-DOS operating system begins searching for the specified file at the root directory. Otherwise, it begins searching for the specified file from the current directory.

Commands, Directories, Paths, and Files

Some sample path names are:

<code>\</code>	Indicates the root directory, when used alone.
<code>\PROGRAMS</code>	Is a directory named PROGRAMS under the root directory.
<code>L:\USERS\MARY\FORMS.TXT</code>	Is a typical full path name. This path name is a file named FORMS.TXT in the directory named MARY belonging to the directory named USERS on drive L.
<code>MARY\FORMS.TXT</code>	Is a relative path name. It names the file FORMS.TXT in the directory MARY of the current directory. If the current directory is the root (<code>\</code>), it names <code>\MARY\FORMS.TXT</code> .
<code>TEXT.TXT</code>	Is the name of a file or directory in the current directory.

The MS-DOS operating system provides special shorthand notations for the current directory and the directory above the current directory:

- `.` A single dot is the shorthand notation used to indicate the current directory in all hierarchical directory listings. The MS-DOS operating system automatically creates this entry when a directory is made.
- `..` Two dots is the shorthand notation used to indicate the directory above your current directory. The MS-DOS operating system automatically creates this entry when a directory is made.

To see this notation, go to a directory other than the root directory (SYS in this example) and type:

```
C:\SYS> DIR 
Volume in drive C is MSDOS
Directory of C:\SYS

. <DIR> 1-01-88 9:00a <- Current directory
.. <DIR> 1-01-88 9:00a <- Directory above current directory
TEST ASM 1-01-88 9:04a <- File in C:\SYS

Total of 2.89 Kbytes used in 3 Files
```

The MS-DOS operating system must read an external command from a disk before it can execute the command. Therefore, you must tell the MS-DOS operating system where to look for that command file. You can either type the path with the file name, or set the path using the PATH command.

After you specify a path using the PATH command, the MS-DOS operating system searches your current directory and those directories specified in the PATH command.

To tell the MS-DOS operating system to always search the directory A:\BIN, type:

```
A:\>PATH A:\BIN[Return]
```

To determine the current path, type:

```
A:\>PATH[Return]
```

Chapter 2

Using the Hard Disk

This chapter explains:

- What a hard disk is
- How to prepare your hard disk
- How to copy files to your hard disk
- How to set the startup priority

What Is a Hard Disk?

A hard disk is a large capacity, rigid disk used for storing data. A hard disk's storage capacity is defined in megabytes (Mbytes). A *byte* stores one character; a *megabyte* stores one million characters. For example, if your VAXmate workstation has a 20 Mbyte hard disk, you can store 20 million characters on the disk.

Preparing Your Hard Disk

Before you can use your hard disk, you have to:

- Set the drive type
- Initialize your hard disk
- Partition your hard disk
- Set the startup partition (optional)
- Format each partition

Setting the Drive Type

Before you can use your hard disk, you have to tell the MS-DOS operating system its size. MS-DOS uses this information later when you partition your hard disk.

This section also discusses:

- Setting an industry standard drive type
- Entering a parameter table

Use the following procedure to set the drive type:

1. At the MS-DOS system prompt, type:

```
A:\>FDISK
```

The FDISK program displays its main menu:

```
Hard Disk Setup Program Version 2.00  
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation  
Drive type is DEC RD31
```

```
Hard disk partitions:  
MS-DOS C:, 306 cylinders long.  
MS-DOS D:, 307 cylinders long.
```

```
Startup priority: floppy disk, hard disk, network.
```

1. Set drive type.
2. Initialize the drive. (CAUTION: erases the entire drive)
3. Add a partition.
4. Delete a partition.
5. Set the startup partition.
6. Prepare drive for shipping.
7. Select network startup priority.
8. Exit from this program.

```
Enter your selection by typing a number followed by <Return> or by  
pressing the corresponding function key: _
```

2. To set the drive type, press the number associated with the option "Set the drive type," and press the Return key.

The FDISK program displays the following screen:

```
Hard Disk Setup Program Version 2.00  
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
How do you want to set the drive type?
```

1. Set type to DEC RD31 (20MByte)
2. Set type to DEC RD32 (40MByte)
3. Select from industry standard types.
4. Enter a parameter table.
5. Return to main menu without changing type.

```
Enter your selection: _
```

- If you have a DIGITAL 20 Mbyte hard disk, press "1" and press the Return key. Proceed to the section "Initializing Your Hard Disk."
- If you have a DIGITAL 40 Mbyte hard disk, press "2" and press the Return key. Proceed to the section "Initializing Your Hard Disk."
- If you have an industry standard hard disk, press "3" and press the Return key. Proceed to the section "Setting an Industry Standard Drive Type."
- If you want to enter a parameter table, press "4" and press the Return key. Proceed to the section "Entering a Parameter Table."

Setting an Industry Standard Drive Type

1. When you set an industry standard drive type, the FDISK program displays the following screen (1 of 4):

```
Hard Disk Setup Program Version 2.00
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Industry standard types
(cylinders x heads x sectors) pre-comp cylinder, landing zone, size

1. Type 1 ( 306 cyl x 4 hds x 17 sec) 128, 305, 10.2 MBytes
2. Type 2 ( 615 cyl x 4 hds x 17 sec) 300, 615, 20.4 MBytes
3. Type 3 ( 615 cyl x 6 hds x 17 sec) 300, 615, 30.6 MBytes
4. Type 4 ( 940 cyl x 8 hds x 17 sec) 512, 940, 62.4 MBytes
5. Type 5 ( 940 cyl x 6 hds x 17 sec) 512, 940, 46.8 MBytes
6. Type 6 ( 615 cyl x 4 hds x 17 sec) None, 615, 20.4 MBytes
7. Type 7 ( 462 cyl x 8 hds x 17 sec) 256, 511, 30.7 MBytes
8. Type 8 ( 733 cyl x 5 hds x 17 sec) None, 733, 30.4 MBytes
9. Type 9 ( 900 cyl x 5 hds x 17 sec) None, 901, 112.1 MBytes
10. Type 10 ( 820 cyl x 3 hds x 17 sec) None, 820, 20.4 MBytes
11. Type 11 ( 855 cyl x 5 hds x 17 sec) None, 855, 35.5 MBytes
12. Type 12 ( 855 cyl x 7 hds x 17 sec) None, 855, 49.7 MBytes
13. Type 13 ( 306 cyl x 8 hds x 17 sec) 128, 319, 20.3 MBytes
14. Type 14 ( 733 cyl x 7 hds x 17 sec) None, 733, 42.6 MBytes
15. Display next page of disk selections.
16. Return to the main menu without changing type.

Enter your selection:
```

Each screen has an option that allows you to proceed to the next screen. Each screen also has an option that allows you to return to the FDISK main menu without changing the drive type.

2. After you find the correct drive type, press the number associated with it and press the Return key.

The FDISK program displays its main menu. Proceed to the section "Initializing Your Hard Disk."

Entering a Parameter Table

1. When you enter a parameter table, the FDISK program displays the following screen:

Hard Disk Setup Program Version 2.00
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

You will be required to enter the following information:

Number of cylinders (tracks per surface).
Number of heads (surfaces).
Number of sectors per track (512 bytes each).
Number of the first cylinder that requires write precompensation.
Number of the cylinder to be used as a landing (parking) zone.

After you enter the data you will be given the opportunity to return to the main menu without changing the drive type.

Enter number of cylinders:
Enter number of heads:
Enter number of sectors per track:
NOTE: If this drive does not require write precompensation, enter a value greater than the number of cylinders on the drive.

Enter number of first pre-compensated cylinder:
Enter number of landing zone cylinder:

2. Enter the following information:

- Number of cylinders
- Number of heads
- Number of sectors per track
- Number of the first cylinder
- Number of the landing (parking) zone

When you finish entering information, the FDISK program displays the following information:

To set the drive type with the data just entered, press <F10>

To abandon the change and return to the main menu, press <Return>

Press the appropriate key.

Initializing Your Hard Disk

After you set the drive type, you have to initialize the hard disk. During the initialization process, the MS-DOS operating system places 512-byte sectors on the hard disk.

CAUTION

The initialization process erases everything on the hard disk.

Use the following procedure to initialize the hard disk:

1. At the MS-DOS system prompt, type:

```
A:\>FDISKReturn
```

The FDISK program displays its main menu.

2. Press the number associated with the option "Initialize the drive," and press the Return key.

The FDISK program displays the following screen:

```
Hard Disk Setup Program Version 2.00  
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
CAUTION: If you continue with the initialization, ALL of the data on the  
hard disk (including non-MS-DOS partitions) will be erased.
```

```
To abandon the initialization, press <Return>.
```

```
To continue with the initialization, press <F10>.
```

3. To continue the initialization process, press the <F10> key.

To stop the initialization process and return to the FDISK main menu, press the Return key.

Partitioning Your Hard Disk

After you initialize the hard disk, you have to divide it into sections, called *partitions*. Each partition can have a much larger storage capacity than a single diskette, depending upon the size partitions you choose.

You determine the size of each partition on your hard disk. You can create one to four partitions. Each partition can be any size (up to a maximum of 32 Mbytes), as long as the total size of all partitions does not exceed the total size of the hard disk.

You can think of partitions as different MS-DOS operating system drives. For example, four equal partitions on a 20 Mbyte hard disk would give you:

Drive C:	25%	5 Mbytes
Drive D:	25%	5 Mbytes
Drive E:	25%	5 Mbytes
Drive F:	25%	5 Mbytes

You could also partition your hard disk with just two partitions, giving you:

Drive C:	50%	10 Mbytes
Drive D:	50%	10 Mbytes

It is recommended that you make only one partition, and that you make that partition 100 percent of your hard disk's available storage capacity, or 32 Mbytes, whichever is smaller.

NOTE

If you have an RD32 40 Mbyte hard disk, you must make at least two partitions. The first partition cannot exceed 32 Mbytes, or 78% of the total storage capacity of the hard disk. The second partition would be eight megabytes, or 21%.

The section also discusses:

- Adding a partition
- Deleting a partition

Using the Hard Disk

Adding a Partition

Use the following procedure to add a partition to your hard disk:

1. At the MS-DOS prompt, type:

```
A:\>FDISKReturn
```

The FDISK program displays its main menu.

2. Press the number associated with the option "Add a partition," and press the Return key.

The FDISK program displays the following screen:

```
Hard Disk Setup Program Version 2.00  
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
The largest partition you can create in the available space is 50 percent  
of the disk (307 cylinders) starting at cylinder 306. Enter the percentage  
of the disk you wish to set aside for this partition or enter the value  
zero (0) to return to the main menu.
```

```
Enter the desired size as a percentage of the disk: _
```

The FDISK program indicates the percent of available storage space on your hard disk. The percentage never represents more than 32 Mbytes.

3. Enter the size of the partition you want by percent and press the Return key.

Continue this step until you add the partitions you want to add. Remember, you can have a maximum of four partitions.

After you add a partition, you must restart the MS-DOS operating system by pressing <Ctrl/Alt/Del>.

Proceed to the section "Setting the Startup Partition."

Deleting a Partition

Deleting a partition on your hard disk destroys all the existing data on that partition. Therefore, before you delete a partition, back up or copy, to diskettes, a disk or to a server, all files you want to save from the partition.

Use the following procedure to delete a partition from your hard disk:

1. At the MS-DOS prompt, type:

```
A:\>FDISKReturn
```

The FDISK program displays its main menu.

2. Press the number associated with the option "Delete a partition," and press the Return key.

The FDISK program displays the following screen:

```
Hard Disk Setup Program Version 2.00  
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
CAUTION: Deleting a partition will erase all data in that partition.
```

- ```
1. Delete the partition "MS-DOS C:".
2. Delete the partition "MS-DOS D:".
3. Return to the main menu.
```

```
Enter your selection: _
```

Notice that you can choose to return to the FDISK main menu without making any changes.

3. Press the number of the partition you want to delete, and press the Return key.

Continue this step until you delete the partitions you want to delete.

After you delete a partition, you must restart the MS-DOS operating system by pressing <Ctrl/Alt/Del>.

## Setting the Startup Partition (Optional)

The startup partition is the partition from which you start the MS-DOS operating system. It usually contains:

- The MS-DOS operating system files
- The CONFIG.SYS file
- The AUTOEXEC.BAT file

### NOTE

If you do not create a startup partition, you must have a key diskette in the floppy drive to use your workstation.

## Using the Hard Disk

You set the startup partition so that the MS-DOS operating system can be read into memory from the hard disk. This eliminates the need for a key diskette in the diskette drive every time you turn on your VAXmate workstation or restart the MS-DOS operating system.

It is recommended that you make your first partition your startup partition. For example, if you have three partitions (drives C:, D:, E:), make drive C: your startup partition.

Use the following procedure to set the startup partition:

1. At the MS-DOS prompt, type:

```
A: \> FDISK
```

The FDISK program displays its main menu.

2. Press the number associated with the option "Set the startup partition," and press the Return key.

The FDISK program displays the following screen:

```
Hard Disk Setup Program Version 2.00
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

1. Make the partition "MS-DOS C:" the startup partition.
2. Make the partition "MS-DOS D:" the startup partition.
3. Return to the main menu.

```
Enter your selection: _
```

Notice that you can return to the FDISK main menu without making any changes.

3. Press the number of the partition you want to be the startup partition, and press the Return key.

### NOTE

You can also use the preceding procedure to make a startup partition a normal partition.

## Formatting Your Hard Disk

After you partition your hard disk, you must format each partition. Formatting places the MS-DOS directory structure on a partition.

There are two possible formatting procedures to follow:

- Formatting a startup partition
- Formatting a normal partition

### Formatting a Startup Partition

When you want to start the MS-DOS operating system from your hard disk, you must format a partition as the startup partition. The startup partition contains the hidden files IO.SYS, MSDOS.SYS, and the file COMMAND.COM.

To format drive C as your startup partition, type:

```
A:\> FORMAT C: /S
```

The FORMAT command with the /S qualifier formats the specified partition and copies IO.SYS, MSDOS.SYS, COMMAND.COM, and the boot loader to the partition.

If your turn on, or reset, the VAXmate workstation with no diskette in drive A, or with the drive door is open, the MS-DOS operating system starts from your hard disk.

### Formatting a Normal Partition

To format any partition other than your startup partition (drive D in this example), type:

```
A:\> FORMAT D:
```

## Copying Files to Your Hard Disk

After you format a partition, you can copy files to it using the COPY command.

To copy all files from drive A to drive C, type:

```
A:\> COPY *.* C:
```

For more information about the COPY command, see Chapter 4 of this manual.

## Setting the Startup Priority

The PCSA Version 2.0 software allows you to start your VAXmate workstation from:

- A key diskette
- The hard disk
- The network

The default order is key diskette, hard disk, network. If you want to change the order to key diskette, network, hard disk, use the FDISK program.

Use the following procedure to change the startup priority:

1. From the MS-DOS system prompt, type:

```
A:\>FDISKReturn
```

The FDISK program displays its main menu.

2. Press the number associated with the option "Select network startup priority," and press the Return key.

The FDISK program displays the following screen:

```
Hard Disk Setup Program Version 2.00
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
Startup priority: floppy disk, hard disk, network.
```

```
Set startup priority:
```

1. Startup priority: floppy disk, network, hard disk.
2. Startup priority: floppy disk, hard disk, network.
3. Don't change current setting.

```
Type 1, 2 or 3 followed by <Return>: _
```

Notice that the current priority is displayed, and that you can return to the FDISK main menu without making any changes.

3. To change the startup priority, press the number associated with the priority you want and press the Return key.

After you press the Return key, the FDISK program displays its main menu.

## Chapter 3

---

# Redirecting Input and Output

The MS-DOS operating system assumes that input comes from the keyboard and that output goes to the VAXmate workstation screen. However, using the less-than sign (<) and the greater-than sign (>), you can redirect the flow of command input and output.

### NOTE

You cannot use redirection under MS-Windows.

Table 3-1 describes the options for redirecting input and output.

**Table 3-1: Options for Redirecting Input and Output**

| Option | Description                                             |
|--------|---------------------------------------------------------|
| <      | Gets input for a command from a file.                   |
| >      | Sends output of a command to a file.                    |
| >>     | Appends the output from a command to the end of a file. |

This remainder of this chapter discusses:

- Redirecting input
- Redirecting output
- Using filters
- Using pipes

## Redirecting Input

The MS-DOS operating system allows you to send input to a command from a source other than the keyboard. For example, if you have a list of names you must sort periodically, you do not want to type the names from the keyboard every time you run the SORT program. By redirecting input, using the less-than sign (<), you can send the file to the SORT command. For example, to send the names in the file NAMES.TXT to the SORT command for sorting, type:

```
A:\>SORT < NAMES.TXT
```

The SORT command sorts the names in the file NAMES.TXT and displays them on the VAXmate workstation screen.

### NOTE

If you supply input to a program using this method, and the program attempts to find more input after the end of the file is reached, the MS-DOS operating system stops processing. You have to restart the VAXmate workstation by pressing <Ctrl/Alt/Del>.

## Redirecting Output

The MS-DOS operating system also allows you to send output to a file, instead of to the VAXmate workstation screen. You use the greater-than sign (>) to send output from a command to a file. For example, to send the names in the file NAMES.TXT to the SORT command and then send the output to the file SORTED.TXT, type:

```
A:\>SORT < NAMES.TXT > SORTED.TXT
```

If the file SORTED .TXT does not exist, the MS-DOS operating system creates it.

If the file SORTED.TXT exists, the MS-DOS operating system overwrites the old data with the new data.

You can also append information to another file, using two greater-than signs (>>). Two greater-than signs tell the MS-DOS operating system to append the output of the command to the end of the specified file. For example, to append a sorted list of names to the existing information in a file named SORTED.TXT, type:

```
A:\>SORT < NAMES.TXT >> SORTED.TXT
```

If the file SORTED.TXT does not exist, it is created.

## Filters

A *filter* is a command or program that reads input, acts upon it, and then transmits it, usually to your VAXmate workstation or to a file. Because filters can be put together in many different ways, a few filters can take the place of a large number of specific commands. Table 3-2 lists the MS-DOS operating system filters.

**Table 3-2: MS-DOS Filters**

| Filter | What It Does                             |
|--------|------------------------------------------|
| FIND   | Searches for specified string in a file. |
| MORE   | Displays output one screen at a time.    |
| SORT   | Sorts text.                              |

You can redirect the output of a filter to a file, or use it as input for another filter using pipes.

See the following section for examples of filters and pipes used with redirection.

## Pipes

A *pipe* is a method for using more than one command or program at a time. For example, you can send the output from one program to another program as input. A typical case is a program that produces output in columns. You can use a pipe to sort the output before it is displayed on the screen.

### NOTE

If you use pipes, the programs being piped should not erase or modify the piping files.

You pipe by separating commands with the pipe separator ( | ). For example, to display an alphabetically sorted listing of your directory, type:

```
A:\>DIR | SORTReturn
```

The vertical bar causes all output generated by the left side of the bar to be sent to the right side of the bar for processing.

## *Redirecting Input and Output*

You can also use pipes to send data to a file. For example, to sort a directory listing and send it to a file named DIREC.FIL, type:

```
A:\>DIR | SORT > DIREC.FILReturn
```

To sort a directory listing and send it to a file named DIREC.FIL on drive C, type:

```
A:\>DIR | SORT > C:DIREC.FILReturn
```

A pipe can consist of more than two commands. For example, to sort your directory, display one screen at a time, and display -MORE- at the bottom of the screen, type:

```
A:\>DIR | SORT | MOREReturn
```

You can use a filter and pipes to find a specific type file in a directory, and send the output to another file. For example, to find all the .EXE files in a directory and send the output to a file named FILES.TXT, type:

```
A:\>DIR | FIND "EXE" > FILES.TXTReturn
```

## Chapter 4

---

# Operating System Commands

This chapter discusses the MS-DOS operating system commands and contains the following information about each command:

- Format
- Comments
- Examples

The commands are listed alphabetically for easy reference.

In most instances, the MS-DOS operating system response follows an example.

## Commands

The MS-DOS operating system contains internal and external commands, and device drivers. Table 4-1 lists the characteristics of internal and external commands, and device drivers

**Table 4-1: Command Device Driver Characteristics**

| What It Is        | Characteristics                                                                                                                                                                                                                                                                                                                   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Internal Commands | <p>Are not shown in a directory listing.</p> <p>Are stored in the COMMAND.COM file. They are automatically read into memory when you turn on your VAXmate workstation.</p> <p>Can be used any time you see the MS-DOS operating system prompt.</p>                                                                                |
| External Commands | <p>Are shown in a directory listing.</p> <p>Are stored as files on a diskette, hard disk, or server. They are read into memory only when you request it.</p> <p>Can be used if the file exists on a diskette, hard disk, or server. You can identify these commands by their file extensions, which are .BAT, .COM, and .EXE.</p> |
| Device driver     | <p>Are shown in a directory listing.</p> <p>Are stored as files on a diskette, hard disk, or server. They are loaded using the DEVICE= command in the CONFIG.SYS file.</p>                                                                                                                                                        |

To execute MS-DOS external commands, you must do one of the following:

- Be in the directory containing the external command file.
- Type the path to include the directory containing the external command file. For example, if you are in the root directory of drive A, and the external command you want to run (FDISK, in this example), is in the SYSTEM directory of drive A, you would have to type the following to execute the command:

```
A:\>A:\SYSTEM\FDISKReturn
```

- Set the path using the PATH command. For more information, see the PATH command later in this chapter.

Table 4-2 lists and briefly describes the MS-DOS internal and external operating system commands, and device drivers. The following list describes the one-letter codes that are used in Table 4-2 to indicate each commands type, and whether the command can be used with a virtual disk, on the network, or under MS-Windows.

|   |                                                                                |
|---|--------------------------------------------------------------------------------|
| D | Indicates a device driver.                                                     |
| E | Indicates an external command.                                                 |
| I | Indicates an internal command.                                                 |
| L | Indicates a command that can be used with a virtual disk.                      |
| N | Indicates a command that can be used on the network, including a virtual disk. |
| W | Indicates a command that can run under MS-Windows.                             |

Use Table 4-2 as a quick reference once you become familiar with the MS-DOS operating system commands.

A detailed description of each command follows the table.

**Table 4-2: MS-DOS Operating System Commands**

| Command  | Type  | Use                                                                                                    |
|----------|-------|--------------------------------------------------------------------------------------------------------|
| ANSI     | D,W   | A console device driver that accepts ANSI terminal escape sequences                                    |
| APPEND   | E,N   | Sets a search path for nonexecutable files                                                             |
| ASSIGN   | E,N   | Sends input/output from one drive to a different drive                                                 |
| ATTRIB   | E,N,W | Sets, clears, and displays MS-DOS file attributes                                                      |
| BACKUP   | E,N,W | Makes backup copies of files from any disk (memory drive, diskette, hard disk, and virtual disk)       |
| BREAK    | I,N,W | Sets/clears Ctrl/C check                                                                               |
| CHDIR    | I,N,W | Changes directories                                                                                    |
| CHKDSK   | E,L   | Scans the disk of the default drive or a designated drive and checks for errors                        |
| CLS      | I,N,W | Clears the screen                                                                                      |
| COMMAND  | E,N,W | Starts another copy of the command processor                                                           |
| COPY     | I,N,W | Copies files you specify                                                                               |
| CTTY     | I     | Changes console TTY                                                                                    |
| DATE     | I,N,W | Displays and sets the date                                                                             |
| DEBUG    | E,N,W | Editor for binary files                                                                                |
| DECKEYB  | E,N   | Loads a specified keyboard map file                                                                    |
| DEL      | I,N,W | Deletes files you specify                                                                              |
| DIR      | I,N,W | Lists requested directory entries                                                                      |
| DISKCOMP | E,L,W | Compares the contents of the first specified diskette to the contents of the second specified diskette |
| DISKCOPY | E,L,W | Copies diskettes by tracks, not files                                                                  |
| DRIVER   | D,N,W | Is an installable device driver that supports external floppy drives                                   |

**Table 4-2 (Cont.): MS-DOS Operating System Commands**

| Command  | Type  | Use                                                                                                                                                                               |
|----------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ECHO     | I,N,W | Turns on/off the echoing of batch file command lines to the VAXmate workstation and turns on/off the MS-DOS operating system prompt; also displays a message, if one is specified |
| EDLIN    | E,N,W | A line editor                                                                                                                                                                     |
| ERASE    | I,N,W | Deletes files you specify                                                                                                                                                         |
| EXE2BIN  | E,N,W | Converts relocatable executable files to binary format                                                                                                                            |
| EXIT     | I,N,W | Exits from the command processor, and returns to the previous level                                                                                                               |
| FASTOPEN | E,N   | Searches a memory list for directories and newly opened files                                                                                                                     |
| FC       | E,N,W | Compares files and displays differences                                                                                                                                           |
| FDISK    | E,W   | Initializes and partitions the hard disk                                                                                                                                          |
| FIND     | E,N,W | Searches for a string of text in a specified file                                                                                                                                 |
| FONT     | E,N   | Loads text font files                                                                                                                                                             |
| FOR      | I,N,W | Provides repeated execution of commands in a batch file or at the MS-DOS operating system prompt                                                                                  |
| FORMAT   | E,L   | Formats a disk or floppy diskette for the MS-DOS operating system                                                                                                                 |
| FREE     | I,N,W | Displays the number of bytes free on a drive                                                                                                                                      |
| GOTO     | I,N,W | Provides logic flow control for batch file command lines                                                                                                                          |
| GRAFTABL | E,N   | Loads graphic character fonts                                                                                                                                                     |
| GRAPHICS | E     | Enables the printing of a graphic screen display on a printer in graphics mode                                                                                                    |
| IF       | I,N,W | Provides logic flow control for batch file command lines                                                                                                                          |
| JOIN     | E,L   | Joins a disk drive to a specific path name                                                                                                                                        |
| LABEL    | E,L,W | Creates, changes, or deletes a volume label                                                                                                                                       |

**Table 4-2 (Cont.): MS-DOS Operating System Commands**

| <b>Command</b> | <b>Type</b> | <b>Use</b>                                                                                                             |
|----------------|-------------|------------------------------------------------------------------------------------------------------------------------|
| LDCOUNTRY      | E,N         | Loads country-specific information and case conversion tables                                                          |
| MDRIVE         | D,N,W       | Creates a memory drive in your user memory or in extended memory                                                       |
| MKDIR          | I,N,W       | Creates a directory                                                                                                    |
| MODE           | E,N         | Sets parameters for printer set up, video, communications set up, printer redirection, and keyboard                    |
| MORE           | E,N,W       | Displays output one screen at a time                                                                                   |
| MOUSE          | D,N,W       | Enables the DIGITAL mouse to emulate a Microsoft mouse                                                                 |
| PATH           | I,N,W       | Sets or displays a command search path                                                                                 |
| PAUSE          | I,N,W       | Temporarily suspends execution of a batch file                                                                         |
| PRINT          | E           | Prints specified files                                                                                                 |
| PROMPT         | I,N,W       | Enables customizing of the command prompt                                                                              |
| RECOVER        | E,L         | Recovers a file or disk containing bad sectors                                                                         |
| REM            | I,N,W       | Displays a comment in a batch file                                                                                     |
| REN            | I,N,W       | Renames files                                                                                                          |
| REPLACE        | E,N,W       | Replaces files on the destination diskette with files of the same name from the source diskette                        |
| RESTORE        | E,N,W       | Restores files saved using the BACKUP command                                                                          |
| RMDIR          | I,N,W       | Removes a directory                                                                                                    |
| SELECT         | E,L         | Enables the changing of the CONFIG.SYS file and AUTOEXEC.BAT file to the desired character set and country information |
| SET            | I,N,W       | Sets one string value to another string value, and displays the system environment                                     |
| SHARE          | E,N         | Installs file sharing and locking for a network                                                                        |

**Table 4-2 (Cont.): MS-DOS Operating System Commands**

| Command | Type  | Use                                                                       |
|---------|-------|---------------------------------------------------------------------------|
| SHIFT   | I,N,W | Increases the number of replaceable parameters in the batch process       |
| SORT    | E,N,W | Sorts data alphabetically, forward or backward                            |
| SUBST   | E,L,W | Substitutes a logical drive for a path name                               |
| SYS     | E,W   | Transfers the MS-DOS operating system files from one disk to another disk |
| TIME    | I,N,W | Displays and sets the time                                                |
| TREE    | E,N,W | Displays all the directory paths on the specified drive                   |
| TYPE    | I,N,W | Displays the contents of the specified file                               |
| VER     | I,N,W | Displays the MS-DOS operating system version number                       |
| VERIFY  | I,N,W | Turns on/off the verifying of information written to a diskette or disk   |
| VOL     | I,N,W | Displays the default drive's label                                        |
| XCOPY   | E,N   | Copies groups of files, and can copy subdirectories                       |

You cannot use the following MS-DOS operating system commands with a remote network resource as the destination:

|          |          |
|----------|----------|
| CHKDSK   | DISKCOMP |
| DISKCOPY | FORMAT   |
| JOIN     | LABEL    |
| RECOVER  | SUBST    |
| SYS      |          |

You can use these commands from a network server on your local resources. For example, you can use the CHKDSK command on a network drive to check a diskette in drive A, but not on your network drive G.

## **ANSI**

ANSI.SYS is an MS-DOS loadable device driver that replaces the standard console device driver. An ANSI escape sequence is a series of characters that begins with an escape character or keystroke and defines the following functions:

- Cursor control functions
- Erase functions
- Set graphics rendition function
- Set mode functions
- Reset mode functions
- Keyboard key reassignment functions

### **Format**

The following command line must be included in your CONFIG.SYS file to install the ANSI device driver:

```
DEVICE=[drv:]\[path\]ANSI.SYS
```

For more information about ANSI.SYS, see the *VAXmate Technical Reference Manual*.

## **APPEND**

To set the search path for nonexecutable files outside the current directory, use the APPEND command. Then, you can store and use data files without going to the directory that contains those files.

### **Format**

Use this format if you want to specify the /E or /X qualifier the first time APPEND is loaded:

```
[drv1:][\path1\]APPEND [/E][/X]
```

Use this format to specify the directories to be searched:

```
[drv1:][\path1\]APPEND drv:2\path2[;[drv:\]path...]
```

Use this format to delete APPEND operations:

```
[drv1:][\path1\]APPEND ;
```

## Operating System Commands

### APPEND

Where:

- drv1:** Is the drive containing the APPEND command. If you omit this drive, the MS-DOS operating system searches for the APPEND command on the default drive.
- \path1\** Is the path containing the APPEND command. If you omit this path, the MS-DOS operating system searches for the APPEND command in the current directory.
- /E** Adds any subsequent APPEND operations to the MS-DOS environment. When using the /E qualifier, you must specify it when the APPEND command is loaded for the first time.
- /X** Lets you use commands such as DIR and TREE on an appended directory. When using the /X qualifier, you must specify it when the APPEND command is loaded for the first time.
- If APPEND /X is in effect, you should not use any commands that searches the MS-DOS directory structure, that is, commands such as BACKUP and RESTORE.
- When using the /X qualifier, some applications may generate unpredictable or unwanted results. If this occurs, do not use the APPEND command with the /X qualifier.
- drv2:** Is the drive you are appending to your current directory.
- path2** Is the path you are appending to your current directory.
- ;** Cancels previous APPEND operations, but does not free the memory used by the APPEND command.

### Comments

You can display the APPEND path using the SET command, if you specified APPEND /E when you started your VAXmate workstation.

You can append:

- Local directories on your VAXmate workstation
- File server drives
- Virtual disk drives
- A combination of any of the above

If an application program reads a file from an appended directory and then writes it back to a disk, the file is written to the current directory.

You can append as many directories as you can specify with 128 characters. You need to separate directory names with a semicolon.

Each APPEND command supersedes the last APPEND operation, unless you type the APPEND command with no parameters.

If you use the APPEND command with the ASSIGN command, you must enter the APPEND command first (see the following examples).

### Example 1

To append the subdirectory A:\ACCOUNTS to the root directory on drive A, type:

```
A:\>APPEND /E[Return]
A:\>APPEND A:\ACCOUNTS[Return]
A:\>
```

### Example 2

To append the subdirectories A:\DATA and A:\MEMOS to the root directory of drive A, and then assign drive A to drive C, type:

```
A:\>APPEND /E[Return]
A:\>APPEND A:\DATA;A:\MEMOS[Return]
A:\>ASSIGN A C[Return]
```

### Example 3

To see a list of appended directories, type:

```
A:\>APPEND[Return]
APPEND=A:\ACCOUNTS
A:\>
```

### Example 4

To cancel any previous APPEND operations, type:

```
A:\>APPEND ;[Return]
A:\>
```

## ASSIGN

To send input and output from one drive to another, use the ASSIGN command.

### Format

```
[drv:][\path\]ASSIGN [x [=] y]
```

### Where:

- drv:** Is the drive containing the ASSIGN command. If you omit this drive, the MS-DOS operating system searches for the ASSIGN command on the default drive.
- \path\** Is the path containing the ASSIGN command. If you omit this path, the MS-DOS operating system searches for the ASSIGN command in the current directory.
- x** Is the drive that an application program reads from and writes to.
- y** Is the drive that you want an application program to read from and write to.

### Comments

The ASSIGN command enables you to reassign the drive an application program reads from and writes to. For example, assume you use an application program that must read data from drive A. To direct the same application to read from drive C, use the ASSIGN command.

### NOTE

Use the ASSIGN command **only** when an application requires it. After the application is finished, reset the drives.

Do not use the ASSIGN command with the BACKUP, RESTORE, LABEL, JOIN, SUBST or PRINT commands or during normal use of the MS-DOS operating system. The ASSIGN command hides the true device type from commands that require actual drive information.

The DISKCOMP, DISKCOPY, and FORMAT commands ignore any drive reassignment.

You can reset all drives to their original assignment (see the following examples).

**Example 1**

To send requests that an application program makes for drive A to drive C, type:

```
C:\>ASSIGN A C[Return]
C:\>
```

**Example 2**

To send requests that an application program makes for drive A or drive C to drive D, type:

```
D:\>ASSIGN A=D C=D[Return]
D:\>
```

**Example 3**

To reset drive A (which was assigned to drive D in the previous example) back to drive A, type:

```
D:\>ASSIGN A=A[Return]
D:\>
```

**Example 4**

To reset all drives to their original assignment, type:

```
D:\>ASSIGN[Return]
D:\>
```

## ATTRIB

To set, clear and display the MS-DOS file attributes archive, system, hidden, and read-only, use the ATTRIB command.

### Format

```
[drv1:][\path1\]ATTRIB [drv2:][\path2\][filename2.ext] [...]
[+/- [A][S][H][R]] [/L][/S]
```

```
[drv1:][\path1\]ATTRIB [+/- [A][S][H][R]] [/L][/S]
[drv2:][\path2\][filename2.ext] [...]
```

### Where:

|               |                                                                                                                                                            |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the ATTRIB command. If you omit this drive, the MS-DOS operating system searches for the ATTRIB command on the default drive.      |
| \path1\       | Is the path containing the ATTRIB command. If you omit this path, the MS-DOS operating system searches for the ATTRIB command in the current directory.    |
| drv2:         | Is the drive containing the file whose attributes you want to set, clear or display. If you omit this drive, the ATTRIB command uses the default drive.    |
| \path2\       | Is the path containing the file whose attributes you want to set, clear, or display. If you omit this path, the ATTRIB command uses the current directory. |
| filename2.ext | Is the file name and file extension of the file whose attributes you want to set, clear, or display. You can include wildcards.                            |
| +             | Enables an attribute.                                                                                                                                      |
| -             | Disables an attribute.                                                                                                                                     |
| A             | Specifies the archive attribute.                                                                                                                           |
| S             | Specifies the system attribute. A system file makes up part of the MS-DOS operating system.                                                                |
| H             | Specifies the hidden attribute. You cannot see a hidden file when you use the DIR command.                                                                 |

- R Specifies the read-only attribute. You can read and execute a file; you cannot change or delete it.
- /L Logs all program activity to the console.
- /S Processes all subdirectories of the specified path.

### Comments

You can type the attributes before or after the file name and file extension.

You can use either the plus sign (+) or the minus sign (-) with an attribute. You cannot use both at the same time with the same attribute.

### Examples

Table 4-3 shows examples of the ATTRIB command.

**Table 4-3: ATTRIB Command Examples**

| Command Line             | Result                                                          |
|--------------------------|-----------------------------------------------------------------|
| ATTRIB                   | Displays the ATTRIB help message.                               |
| ATTRIB MEMO.TXT          | Displays the attributes of MEMO.TXT.                            |
| ATTRIB MEMO.TXT +H       | Sets MEMO.TXT to hidden.                                        |
| ATTRIB +H MEMO.TXT       | Sets MEMO.TXT to hidden.                                        |
| ATTRIB MEMO.TXT -S       | Clears MEMO.TXT of the system attribute.                        |
| ATTRIB -S MEMO.TXT       | Clears MEMO.TXT of the system attribute.                        |
| ATTRIB +H MEMO.TXT -S    | Sets MEMO.TXT to hidden and clears it of the system attribute.  |
| ATTRIB MEMO.TXT +ASHR    | Sets MEMO.TXT to archived, system, hidden, and read-only.       |
| ATTRIB MEMO.TXT +A+S+H+R | Sets MEMO.TXT to archived, system, hidden, and read-only.       |
| ATTRIB *.TXT +A +H +S +R | Sets all .TXT files to archived, hidden, system, and read-only. |

**Table 4-3 (Cont.): ATTRIB Command Examples**

| Command Line            | Result                                                                                                                                                    |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| ATTRIB *.TXT +A-H+S-R   | Sets all .TXT files to archived and system, and clears them of the hidden and read-only attributes.                                                       |
| ATTRIB MEMO.TXT +SR -AH | Sets MEMO.TXT to system and read-only, and clears it of the archived and hidden attributes.                                                               |
| ATTRIB *.TXT +A /S      | Sets the archive bit for all .TXT files in the current directory and all subordinate subdirectories.                                                      |
| ATTRIB *.TXT +A /S /L   | Sets the archive bit for all .TXT files in the current directory and all subordinate subdirectories. Each file is logged on the screen as it is modified. |

## BACKLIST

To display the files backed up during a BACKUP operation, use the BACKLIST command.

### Format

```
[drv1:] [\path1\]BACKLIST drv2: [\path2] [/S:n[nnn]]
```

### Where:

- drv1:** Is the drive containing the BACKLIST command. If you omit this drive, the MS-DOS operating system searches for the BACKLIST command on the default drive.
- \path1\** Is the path containing the BACKLIST command. If you omit this path, the MS-DOS operating system searches for the BACKLIST command in the current directory.
- drv2:** Is the drive containing the backup files.
- \path2** Is the path containing the backup files. Path2 is the directory containing the subdirectory BKSUBDIR on a hard disk or virtual disk. If you omit path2, the BACKLIST command uses the default directory on drv2:.
- /S:n[nnn]** Sorts the output list in the order specified by n. The first option specified is the primary sort option, the second, the secondary sort option, and so on. Do not insert spaces between the options. If you specify duplicate options, only the first occurrence of that option determines its priority. The order specified by n can be one or more of the following:

|   |                                 |
|---|---------------------------------|
| D | Sorts by file modification date |
| E | Sorts by file extension         |
| F | Sorts by file name              |
| P | Sorts by path (directory)       |
| S | Sorts by file size              |
| T | Sorts by file modification time |
| V | Sorts by diskette volume number |

*Operating System Commands*  
**BACKLIST**

**Example 1**

Assume you backed up all drive C files to drive D. To display the backed up files on drive D, type:

A:\> BACKLIST D:

**Example 2**

To display the backed up files, sorted by file name, on drive D, type:

A:\> BACKLIST D: /S:F

**Example 3**

To display the BACKLIST help message, type:

A:\> BACKLIST

## BACKUP

To back up files from one disk to another, use the BACKUP command. In addition to backing up files to local drives, the BACKUP command allows you to back up files to network drives and virtual disks.

Using the BACKUP command, you can periodically make an extra copy of files on a disk, reformat the disk, and restore the files using the RESTORE command.

### Format

```
[drv1:][\path1\]BACKUP drv2:[\path2\][filename2[.ext]]
 drv3:[\path3] [/A] [/S] [/M] [/D:mm-dd-yy]
 [/T:hh:mm:ss] [/F] [/L[:drv4:\path4\filename4[.ext]]]
```

### Where:

- drv1:** Is the drive containing the BACKUP command. If you omit this drive, the MS-DOS operating system searches for the BACKUP command on the default drive.
- \path1\** Is the path containing the BACKUP command. If you omit this path, the MS-DOS operating system searches for the BACKUP command in the current directory.
- drv2:** Is any logical drive containing the file you want to back up.
- \path2\** Is the path containing the file you want to back up. If you omit a path, the BACKUP command uses the current directory.
- filename2.ext** Is the file name and file extension of the file(s) you want to back up. You can use wildcards.
- drv3:** Is the destination drive, the drive to which you want to back up a file. The destination drive can be any logical drive on your VAXmate workstation (Mdrive, hard disk drive, network drive, virtual disk, or diskette).
- \path3** Is the path for the destination drive. If you back up to a diskette, the BACKUP command uses the root directory. If you back up to a hard disk or virtual disk, and omit path3, the BACKUP command creates the subdirectory BKSUBDIR in the current directory on the default drive. If you specify path3, the BACKUP command creates the subdirectory BKSUBDIR in path3.
- /A** Adds files to the current contents of the backup disk without erasing the existing files on the disk.

## Operating System Commands

### BACKUP

|               |                                                                                                                                                                                                                                                                                                           |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /S            | Backs up all subdirectories of the specified path.                                                                                                                                                                                                                                                        |
| /M            | Backs up only those files that were modified since the last backup.                                                                                                                                                                                                                                       |
| /D:mm-dd-yy   | Backs up only those files that were modified on or after the specified date. The date format depends on the country code.                                                                                                                                                                                 |
| /T:hh:mm:ss   | Backs up only those files that were modified on or after the specified time. The time is 24 hour time. The time format depends on your country code.<br><br>The time separators are country dependent. These time separators are for the United States.                                                   |
| /F            | Formats the target disk, the disk to which you are backing up files, if the target disk is not already formatted. You must have the FORMAT command in your path or in the current directory. Messages from the FORMAT command are displayed.                                                              |
| /L            | Creates a file to which a log of all backup activity is sent. If you omit a drive, path, and file name, the BACKUP command creates the file BACKUP.LOG in the root directory of the source drive.<br><br>If BACKUP.LOG already exists, the BACKUP command appends new information to the end of the file. |
| drv4:         | Is the drive that contains the log file. If you specify this drive, it should not be the destination drive. You must also specify a path and a file name.                                                                                                                                                 |
| \path4\       | Is the path to the directory that contains the backup log file. If you specify a drive, you must also specify a path and a file name.                                                                                                                                                                     |
| filename4.ext | Is the file name and file extension of the log file. If you specify a drive and a path, you must specify a file name.                                                                                                                                                                                     |

#### Comments

If you back up IO.SYS and MSDOS.SYS using the BACKUP command, the RESTORE command does not restore them.

The BACKUP command erases all files:

- In the destination directory on a hard disk.
- In the destination root directory on a diskette.

If you back up files to a hard disk or a virtual disk and run out of space, you have to find another place to store the backup files. You also have to perform the backup procedure again.

You can back up files to a subdirectory on a hard disk or network drive.

You must run the RESTORE command to retrieve files you backed up before you can use them.

If you backed up files using the MS-DOS V3.3 BACKUP program, use the MS-DOS V3.3 RESTORE program to restore them.

If APPEND /X is loaded, use APPEND ; to cancel previous APPEND operations before using the BACKUP command.

You can back up files from one diskette to another diskette, even though the diskettes have a different number of sectors and sides.

Table 4-4 lists valid file specifications for the BACKUP command.

**Table 4-4: BACKUP File Specifications**

| Specification   | Meaning                                                                                                       |
|-----------------|---------------------------------------------------------------------------------------------------------------|
| *.ASM           | Backs up all .ASM files in the current directory.                                                             |
| *.*             | Backs up all files in the current directory.                                                                  |
| TEST?.MEM       | Backs up all .MEM files that start with the name TEST, such as TEST.MEM, TEST1.MEM, TEST2.MEM, and TESTA.MEM. |
| .               | Backs up all files in the current directory.                                                                  |
| ..              | Backs up all files in the directory above the current directory.                                              |
| \*.*            | Backs up all files in the root directory of the current drive.                                                |
| A:\*.*          | Backs up all files in the root directory of drive A.                                                          |
| A:\TEST\WHO\*.* | Backs up all files in the subdirectory WHO of the directory TEST on drive A.                                  |

*Operating System Commands*  
**BACKUP**

**Example 1**

To back up all files in the current directory of drive C, type:

```
C:\>BACKUP C:*.* A:\Return
Backup Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Insert backup diskette 01 in drive A:

Caution! Files in the target drive
A:\ root directory will be erased
Strike any key when ready

*** Backing up files to drive A: ***
Diskette Number: 01
```

If you want a permanent list of the files you saved, use the /L qualifier to create a log file when you execute the BACKUP command. You can then type or print the log file.

**Example 2**

To back up all files in all directories on drive C to drive A, type:

```
C:\>BACKUP C:*.* A: /SReturn
Backup Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Insert backup diskette 01 in drive A:

Caution! Files in the target drive
A:\root directory will be erased
Strike any key when ready

*** Backing up files to drive A: ***
Diskette Number: 01
```

### Example 3

To back up to diskettes all root directory files that were modified since the last backup, type:

```
C:\>BACKUP C:*.* A: /M[Return]
Backup Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Insert backup diskette 01 in drive A:

Caution! Files in the target drive
A:\ root directory will be erased
Strike any key when ready

*** Backing up files to drive A: ***
Diskette Number: 01
```

### Example 4

To back up the files in the root directory on drive A to the current directory on network drive I, type:

```
A:\>BACKUP A:*.* I:[Return]
Backup Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Caution! Files in the following target
directory will be erased
I:\BKSUBDIR
Strike any key when ready

*** Backing up files to drive I ***
A:\>
```

## **BREAK**

To set or clear the Ctrl/C check, use the BREAK command.

### **Format**

**BREAK [ON | OFF]**

**Where:**

**ON**        Sets the Ctrl/C check.

**OFF**       Clears the Ctrl/C check.

### **Comments**

You can add the BREAK command to your CONFIG.SYS file.

The default condition is BREAK OFF. The MS-DOS operating system checks only to see if you pressed <Ctrl/C> when it is reading from the keyboard, writing to the screen, or writing to a printer. If you set BREAK ON, you can press <Ctrl/C> to stop program activity, such as sorting a file.

### **Example 1**

To specify BREAK ON every time you start your VAXmate workstation, add the following line to your CONFIG.SYS file:

```
BREAK=ON
```

### **Example 2**

To specify BREAK ON during the compilation of a program, type:

```
A:\>BREAK ON[Return]
A:\>
```

### **Example 3**

To display the current setting of BREAK, type:

```
A:\>BREAK[Return]
BREAK is off
A:\>
```

## CHDIR

To display a directory or change to another directory, use the CHDIR command.

### Format

CHDIR [path]

CD [path]

Where:

path        Is the path you want to change to.

### Comments

You can display the path name to your current directory by typing the CHDIR command without parameters.

### NOTE

In the following examples, the PROMPT command has been set to display the current directory with the default drive.

### Example 1

To change from the root directory to the subdirectory \BIN, type:

```
A:\>CHDIR BIN[Return]
```

```
A:\BIN>
```

### Example 2

To change to the subdirectory \BIN\USER\FORMS, type:

```
A:\>CHDIR \BIN\USER\FORMS[Return]
```

```
A:\BIN\USER\FORMS>
```

### Example 3

To change to the directory above your current directory, type:

```
A:\BIN\USER\FORMS>CHDIR ..[Return]
```

```
A:\BIN\USER>
```

## CHKDSK

To scan a disk and check it for errors, use the CHKDSK command.

### Format

```
[drv1:][\path1\]CHKDSK [drv2:][[\path2\]filename2.ext][/F][/V]
```

Where:

|               |                                                                                                                                                                                                                                                                                   |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the CHKDSK command. If you omit this drive, the MS-DOS operating system searches for the CHKDSK command on the default drive.                                                                                                                             |
| \path1\       | Is the path containing the CHKDSK command. If you omit this path, the MS-DOS operating system searches for the CHKDSK command in the current directory.                                                                                                                           |
| drv2:         | Is the drive on which you want to execute the CHKDSK command. If you omit this drive, the CHKDSK command uses the default drive.                                                                                                                                                  |
| \path2\       | Is the path to the directory on which you want to execute the CHKDSK command. If you omit this path, the CHKDSK command uses the current directory.                                                                                                                               |
| filename2.ext | Is the file name and file extension of the file on which you want to execute the CHKDSK command. If you specify a file name, the CHKDSK command indicates whether the file is stored contiguously, and indicates the number of blocks.                                            |
| /F            | Corrects errors found using CHKDSK. File(s) named FILE????CHK that contain the lost links are then created in the specified disk's root directory.<br><br>If you have files that contain lost clusters, and you do not specify the /F qualifier, the files will not be recovered. |
| /V            | Lists all files in all the directories on the disk.                                                                                                                                                                                                                               |

### Comments

Use CHKDSK periodically on each disk to check for errors in the directory. If errors are found, CHKDSK displays a message and a status report.

If you type a file name after CHKDSK, a status report is displayed for the disk and the individual file.

You can redirect the output from CHKDSK to a file to save the status report. If you redirect CHKDSK output, do not use the /F qualifier.

**NOTE**

You cannot use the CHKDSK command with any assigned, joined, or substituted drives.

You can use the CHKDSK command on a virtual disk.

**Example 1**

To list all the files in all the directories on the default drive, type:

```
A:\>CHKDSK /v[Return]
```

Information similar to the following is displayed:

```
Volume VAXMATE created Jan 1, 1988 9:00a
Directory A:\
 A:\IO.SYS
 A:\MSDOS.SYS
 A:\COMMAND.COM
Directory A:\SYS
Directory A:\SYS\DOS
 A:\SYS\DOS\ANSI.SYS
 .
 .
Directory A:\SYS\NET
 A:\SYS\NET\SHARE.EXE
 .
 .
```

**Example 2**

To display a CHKDSK status report, type:

```
C:\>CHKDSK[Return]

21274624 bytes total disk space
 36864 bytes in 2 hidden files
 47104 bytes in 17 directories
 8097792 bytes in 595 user files
13092864 bytes available on disk

655360 bytes total memory
594480 bytes free
```

*Operating System Commands*  
**CHKDSK**

**Example 3**

To store a CHKDSK status report in the STATUS.TXT file, type:

```
A:\>CHKDSK > STATUS.TXT
```

```
A:\>
```

## **CLS**

To clear the screen, use the CLS command.

### **Format**

CLS

### **Example**

To clear the screen, type:

```
A:\>CLS
```

## COMMAND

To start a new command processor, use **COMMAND**. The command processor is the MS-DOS operating system program that contains all the internal commands, such as **CLS**, **DIR**, and **TYPE**.

### Format

```
[drv1:][\path1\]COMMAND [drv2:][\path2\] [cttydev][/C string]
[/E:nnnn][/P]
```

### Where:

- drv1:** Is the drive containing the **COMMAND** program. If you omit this drive, the MS-DOS operating system searches for the **COMMAND** program on the default drive.
- \path1\** Is the path containing the **COMMAND** program. If you omit this path, the MS-DOS operating system searches for the **COMMAND** program in the current directory.
- drv2:** Is the drive containing the **COMMAND.COM** file. If you omit this drive, **COMMAND** uses the default drive.
- \path2\** Is the path to the directory containing the **COMMAND.COM** file. If you omit this path, **COMMAND** uses the current directory.
- cttydev** Enables you to specify a different device for input and output, such as **COM1** or **COM2**. Do not type a colon after **COM1** or **COM2**.
- /C string** Tells the command processor to execute the command or commands specified by **string** and then return to the primary command processor.
- If you specify the **/C** qualifier with the **/P** qualifier, the **/P** qualifier is ignored.
- /E:nnnn** Is the number of bytes (**nnnn**) needed to create a new command processor environment. The range is 160 to 32,768 bytes. The default is 512 bytes.
- If **nnnn** is less than 160 bytes, the MS-DOS operating system defaults to 160 bytes and displays the message "Invalid environment size specified."
- If **nnnn** is greater than 32,768 bytes, the MS-DOS operating system defaults to 32,768 bytes and displays the message "Invalid environment size specified."

**/P** Tells COMMAND.COM not to exit to any higher level.  
If you specify the /C qualifier with the /P qualifier, the /P qualifier is ignored.

### Comments

When you start a new command processor, you also create a new command environment, which is a copy of the old environment. A command environment includes the last PATH and PROMPT commands issued, along with any environment settings you have defined with the SET command. You can change the new environment using the SET command, without affecting the old one. For more information, see the SET command later in this chapter.

COMMAND loads a new command processor in two parts:

- The transient part, which an application program can overwrite
- The resident part, which remains in memory and which an application program cannot overwrite

Some application programs write over the transient part of the COMMAND.COM file when they run. When this occurs, the resident part of the command processor searches for the COMMAND.COM file by looking for the COMSPEC= command in the environment. When it finds the file, it reloads the transient part of COMMAND.COM.

Running COMMAND.COM a second time decreases the random access memory (RAM) you have available.

### IMPORTANT

If you use any terminate and stay resident programs, first exit from all newly started command processors. If you do not exit from these command processors, the terminate and stay resident programs use considerably more memory than normal.

When you run COMMAND.COM from MS-Windows, you must use the EXIT command before you can close the window or end your MS-Windows session.

### Example 1

To start a new command processor, execute the CHKDSK command on drive A, and return to the first command processor, type:

```
A:\>COMMAND /C CHKDSK A: [Return]
```

*Operating System Commands*  
**COMMAND**

**Example 2**

From MS-Windows, to start a new command processor that sorts a directory listing of the current drive and then returns to the primary command processor:

1. Select the Run command in the File menu.
2. Type:

```
COMMAND /C DIR | SORT
```

3. Select the Close command in the System menu.

**Example 3**

To run the MS-DOS operating system from a terminal connected to COM1, type:

```
C:\> COMMAND COM1
```

To return to your normal VAXmate workstation screen, type EXIT on the terminal connected to COM1. If there is no terminal on COM1, you must reboot your workstation.

## COPY

To copy or append files, use the COPY command.

### Format

To copy files:

```
[drv1:][\path1\COPY [/A | /B] [drv2:][\path2\filename2[.ext]
[/A | /B] [drv3:][\path3\[filename3.ext]
[/A | /B][/V]
```

To append files:

```
[drv1:][\path1\COPY [/A | /B] [drv2:][\path2\filename2.ext
[/A | /B] + [drv3:][\path3\filename3.ext
[/A | /B] + [...]
[drv4:][\path4\filename4.ext [/A | /B][/V]
```

### Where:

- drv1:** Is the drive containing the COPY command. If you omit this drive, the MS-DOS operating system searches for the COPY command on the default drive.
- \path1\** Is the path containing the COPY command. If you omit this path, the MS-DOS operating system searches for the COPY command in the current directory.
- drv2:** Is the drive containing the file you want to copy or append. If you omit this drive, the COPY command uses the default drive.
- \path2\** Is the path containing the file you want to copy or append. If you omit this path, the COPY command uses the current directory.
- filename2.ext** Is the file name and file extension of the file you want to copy or append.
- drv3:** Is the destination drive for the COPY operation. For the APPEND operation, drv3: is the drive containing the file you want to append. If you omit this drive, the COPY command uses the default drive.
- \path3\** Is the destination path for the COPY operation. For the APPEND operation, \path3\ is the path containing the file you want to append. If you omit this path, the COPY command uses the current directory.

## Operating System Commands

### COPY

- filename3.ext** Is the file name and file extension of the destination file. If you omit the destination file name and file extension, the COPY command copies the file to the default drive with the original file name and file extension.
- When appending files, filename3.ext is the second file you want to append.
- drv4:** Is the destination drive for the APPEND operation. If you omit this drive, the COPY command uses the default drive.
- \path4\** Is the destination path for the appended file. If you omit this path, the COPY command uses the current directory.
- filename4.ext** When appending files, filename4.ext is the file name and file extension of the appended files.
- /A** When used with the source file, the COPY command with the /A qualifier treats the files as an ASCII text file. Data in the file is copied up to, but not including, the first end-of-file character, (Ctrl/Z). The remainder of the file is not copied.
- When used with the destination file, the COPY command with the /A qualifier adds an end-of-file character as the last character.
- /B** When used with the source file, the COPY command with the /B qualifier copies the entire file, including any end-of-file character.
- When used with the destination file, the COPY command with the /B qualifier adds no end-of-file character.
- /V** Causes the MS-DOS operating system to verify that the sectors written on the destination diskette are recorded properly.
- /V also causes the COPY command to copy more slowly because the MS-DOS operating system checks each entry recorded on the disk.

The /A and /B qualifiers each apply to the file name preceding it and to all remaining files on the command line until another /A or /B qualifier occurs.

### Comments for Copying Files

If you omit the destination file name and file extension, and the original file is on the default drive, the COPY command quits. You cannot copy files to themselves.

If you specify the destination drive, file name, and file extension, you can type it in one of three ways:

- You can type the destination drive. The COPY command copies the file to the specified drive. The copied file name is the same name as the original file name.
- You can type the destination file name and file extension. The COPY command copies the original file to a file on the default drive with the specified file name and file extension. In this case, the original file can also be on the default drive.
- You can type the destination drive, file name, and file extension. The COPY command copies the original file to the specified drive and gives it the new file name and file extension.

### Comments for Appending Files

The COPY command enables you to append files while copying. You can list any number of files as parameters to the COPY command, separated by plus signs (+).

You can use wildcards when appending files.

You cannot append two files together if any source file other than the first source file has the same name as the destination file. The problem occurs because the original file is overwritten by the new file.

When you append files, the default qualifier is /A.

### Example 1

To copy REPORT.TXT in the default directory on drive C to the default drive, type:

```
A:\>COPY C:REPORT.TXT
1 File(s) copied
A:\>
```

*Operating System Commands*  
**COPY**

**Example 2**

To copy REPORT.TXT to drive C, type:

```
A:\>COPY REPORT.TXT C:Return
 1 File(s) copied
```

```
A:\>
```

**Example 3**

To make a copy of MEMO.TXT and name it LETTER.TXT, type:

```
A:\>COPY MEMO.TXT LETTER.TXTReturn
 1 File(s) copied
```

```
A:\>
```

**Example 4**

To copy MEMO.TXT to drive C and name it UPDATE.TXT, type:

```
A:\>COPY MEMO.TXT C:UPDATE.TXTReturn
 1 File(s) copied
```

```
A:\>
```

**Example 5**

To copy all the files in \BIN\USERS to \ACCOUNTS, type:

```
A:\>COPY \BIN\USERS \ACCOUNTSReturn
A:\BIN\USERS\COMMAND.COM
A:\BIN\USERS\CONFIG.SYS
A:\BIN\USERS\AUTOEXEC.BAT
 3 File(s) copied
```

```
A:\>
```

### Example 6

To append A.XYZ, B.MEM, and C:C.TXT into a file named BIGFILE.TXT on the default drive, type:

```
A:\>COPY A.XYZ + B.MEM + C:C.TXT BIGFILE.TXT[Return]
A.XYZ
B.MEM
C:C.TXT
 1 File(s) copied

A:\>
```

### Example 7

To append all .LST files into a file named COMBIN.PRN, type:

```
A:\>COPY *.LST COMBIN.PRN[Return]
ONE.LST
TWO.LST
THREE.LST
 1 File(s) copied

A:\>
```

### Example 8

To append each .LST file with its corresponding .REF file into a .PRN file, type:

```
A:\>COPY *.LST + *.REF *.PRN[Return]
ONE.LST
ONE.REF
TWO.LST
TWO.REF
THREE.LST
THREE.REF
 3 File(s) copied

A:\>
```

#### NOTE

If a .LST file exists, but its corresponding .REF file does not exist, the COPY command makes a copy of the .LST file and gives it the .PRN file extension.

If a .LST file does not exist, but its corresponding .REF file does exist, the COPY command does not append any files.

*Operating System Commands*  
**COPY**

**Example 9**

To append all .LST files, and then all .REF files, into one file named COMBIN.PRN, type:

```
A:\>COPY *.LST + *.REF COMBIN.PRN
ONE.LST
TWO.LST
THREE.LST
ONE.REF
TWO.REF
THREE.REF

1 File(s) copied

A:\>
```

**Example 10**

To append A.COM (plus the end-of-file character), B.XYZ (to the first end-of-file character), and C:C.TXT into a file named BIGFILE.TXT, type:

```
A:\>COPY A.COM/B + B.XYZ/A + C:C.TXT BIGFILE.TXT
A.COM
B.XYZ
C:C.TXT

1 File(s) copied

A:\>
```

**Example 11**

To update the time and date for the file MEMO.TXT, type:

```
A:\>COPY MEMO.TXT+, ,
MEMO.TXT
1 File(s) copied

A:\>
```

## CTTY

To change the device from which you issue commands, use the CTTY command, where TTY represents the console. Use the CTTY command to connect another device, such as a VT100 terminal, to your VAXmate workstation. Then, you can use the VT100 terminal to start a driver and execute commands on the high-resolution terminal of the VAXmate workstation.

### Format

CTTY device

### Where:

device     Is the device from which you supply commands to the MS-DOS operating system.

### Comments

You must have a terminal connected to the specified device, or you will have to restart the workstation to return control to the standard keyboard and monitor.

### Example 1

To move all command input/output (I/O) from the console to the AUX port (where a VT100 terminal is connected), type:

```
A:\>CTTY AUX[Return]
```

### Example 2

To move I/O back to the console from the device on the AUX port, type the following command from the console on the AUX port:

```
A:\>CTTY CON[Return]
```

## **DATE**

To enter or change the date, use the DATE command.

### **Format**

**DATE** [mm-dd-[yy]yy]

### **Where:**

**mm** Is the month (1, 2, ..., 12).

**dd** Is the day (1, 2, ..., 31).

**yy** Is the year (80, 81, ..., 99; or 1980, 1981, ..., 2099).

### **Comments**

You can change the date from your VAXmate workstation or from a batch file.

The date format shown is for the United States. The form for the DATE command depends on the country specified in the CONFIG.SYS file.

If you type parameters after the DATE command, use numerals only.

You can separate the month, day, and year entries by:

- hyphens ( - )
- periods ( . )
- slashes ( / )

The MS-DOS operating system changes months and years correctly, whether the month has 31, 30, 29, or 28 days. The MS-DOS operating system also handles leap years.

### **Example 1**

To set a new date, type:

```
A:\>DATE Return
Current date is Fri 1-01-1988
Enter new date (mm-dd-yy):
```

You can type a new date, or press the Return key if you desire no changes.

**Example 2**

To set the new date to March 1, 1988, type:

```
A:\>DATE 3-1-88
```

```
A:\>
```

## DECKEYB

To load a keyboard map file into memory, use the DECKEYB file. The DECKEYB command maps the specified character set to a keyboard layout.

### Format

```
[drv1:][\path1\]DECKEYB [drv2:][\path2\][filename2[.ext]
[/D][/S]]
```

### Where:

|               |                                                                                                                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the DECKEYB command. If you omit this drive, the MS-DOS operating system searches for the DECKEYB command on the default drive.                                                          |
| \path1\       | Is the path containing the DECKEYB command. If you omit this path, the MS-DOS operating system searches for the DECKEYB command in the current directory.                                                        |
| drv2:         | Is the drive containing the keyboard file you want to load. If you omit this drive, the DECKEYB command uses the default drive.                                                                                  |
| \path2\       | Is the path containing the keyboard file you want to load. If you omit this path, the DECKEYB command searches the current directory, any appended directories, the root directory, and the current search path. |
| filename2.ext | Is the file name and file extension of the keyboard map file. If you omit a file extension, .KEY is used. For a full list of supported .KEY files, see Appendix D.                                               |
| /D            | Loads the default keyboard map file.                                                                                                                                                                             |
| /S            | Displays the name of the current keyboard map file.                                                                                                                                                              |

### Comments

If you use the SELECT command, you do not need to use the DECKEYB command.

If the MS-DOS operating system finds the file and it is a valid keyboard map file, the DECKEYB program loads the file into memory. The changes are implemented immediately.

If the .KEY file is not in the proper format, a message is displayed and the keyboard is not modified.

If you omit a file name, the DECKEYB command displays an informational help screen.

Pressing the Ctrl/Alt/F2 keys changes the currently loaded keyboard file to the standard keyboard file STDUS.

Pressing the Ctrl/Alt/F3 keys changes the currently loaded keyboard file to that last keyboard file loaded into memory. To activate this feature, a nonstandard keyboard, such as STDFR.KEY, should have been loaded.

**NOTE**

The DECKEYB command does not check that the font, keyboard, and country-specific information match. If they do not match, the results are unpredictable.

**Example 1**

To display the DECKEYB help message, type:

```
A:\>DECKEYB[Return]
```

**Example 2**

To load the default keyboard map file (STDUS.KEY), type:

```
A:\>DECKEYB /D[Return]
```

```
Keyboard Map Loader Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
The default keyboard map has been successfully loaded
```

```
A:\>
```

An alternative would be to press <Ctrl/Alt/F2>.

*Operating System Commands*  
**DECKEYB**

**Example 3**

To load the French multinational keyboard map file (MCSFR.KEY):

1. Ensure that the text font file and the keyboard map file match by using the FONT command to load MCS.FNT.
2. Type:

```
A:\>DECKEYB MCSFRReturn
```

```
Keyboard Map Loader Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
MCSFR.KEY
```

```
Has been successfully loaded
```

```
A:\>
```

## DEL

To delete files from a specified directory, use the DEL command. You can also use the ERASE command to erase files.

### Format

```
DEL [drv:][\path\]filename.ext
```

### Where:

|              |                                                                                                                                                                              |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv:         | Is the drive containing the file you want to delete. If you omit this drive, the DEL command uses the default drive.                                                         |
| \path\       | Is the path containing the file you want to delete. If you omit this path, the DEL command uses the current directory.                                                       |
| filename.ext | Is the file name and file extension of the file you want to delete. If you specify a drive and a path and omit a file name, all files in the specified directory are erased. |

### Comments

You can use wildcards when deleting files using the DEL command. If you want to delete all files in a directory or subdirectory, the DEL command prompts you for a "Y" or "N" response.

### Example 1

To delete the file MEMO.TXT on drive L, type:

```
L:\>DEL MEMO.TXTReturn
L:\>
```

### Example 2

To delete the file MEMO.TXT in the subdirectory TOOLS on drive A, type:

```
A:\>DEL \TOOLS\MEMO.TXTReturn
A:\>
```

*Operating System Commands*  
*DEL*

**Example 3**

To delete all files in the root directory of drive A, type:

```
L:\>DEL A:*.*
Are you sure (Y/N)?
```

Press the Y key and the Return key to delete all the files on drive A.

Press the N key and the Return key to cancel the delete process on drive A.

## DIR

To display volume information, a list of files in a directory, and the amount of space being used on a disk, use the DIR command.

### Format

```
DIR [drv:][\path\][filename.ext][/P][/W]
```

### Where:

|                     |                                                                                                                                                                                                              |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>drv:</b>         | Is the drive containing the files for which you want a directory listing. If you omit this drive, the DIR command uses the default drive.                                                                    |
| <b>\path\</b>       | Is the path for which you want a directory listing. If you omit this path, the DIR command uses the current directory.                                                                                       |
| <b>filename.ext</b> | Is the file name and file extension of the files you want displayed.                                                                                                                                         |
| <b>/P</b>           | Selects page mode, which pauses the directory display after the screen is full. To resume the display of output, press any key.                                                                              |
| <b>/W</b>           | Selects wide display. When you use the /W qualifier, only file names are displayed. The file size and the time and date of the last modification are not displayed. File names are displayed five to a line. |

### Comments

When you use the DIR command, files are listed with the size, the time, and the date of their last modification. Also listed is the volume name, number of bytes used, and the number of files in the directory listing.

The directory date and time formats are dependent on the country specified in the CONFIG.SYS file.

You can use the wildcard characters ? and \* in the file name option. Table 4-5 lists the DIR command equivalents.

**Table 4-5: DIR Command Equivalents**

| Command      | ? Equivalent     | * Equivalent   |
|--------------|------------------|----------------|
| DIR          | DIR ????????.??? | DIR *.*        |
| DIR FILENAME | DIR FILENAME.??? | DIR FILENAME.* |
| DIR .EXT     | DIR ????????.EXT | DIR *.EXT      |
| DIR .        | DIR ????????.    | DIR *.         |

**Example 1**

To display all files on the default directory, type:

```
A:\>DIR[Return]
```

**Example 2**

To display all the files in the subdirectory \BIN\SYS on drive A, type:

```
L:\>DIR A:\BIN\SYS[Return]
Volume in drive A has no label
Directory of A:\BIN\SYS

. <DIR> 10-27-87 2:50p
.. <DIR> 10-27-87 2:50p
APPEND PIF 369 8-17-87 11:39a
ASSIGN PIF 369 8-17-87 11:39a
ATTRIB PIF 369 8-17-87 11:39a
Total of 1.12 Kbytes used in 3 Files

L:\>
```

The . entry indicates your current directory.

The .. entry indicates the directory above your current directory.

**Example 3**

To display all the files in the directory above your current directory, type:

```
A:\>DIR ..[Return]
```

**Example 4**

To display all files named MEMO on the default drive, type:

```
A:\>DIR MEMOReturn
 Volume in drive A is DOS
 Directory of A:\

MEMO LST 145 2-05-86 12:58p
MEMO TXT 598 2-08-86 9:10a
 Total of 743 bytes used in 2 Files

A:\>
```

## DISKCOMP

To compare the contents of two diskettes, or two virtual disks, use the DISKCOMP command.

### Format

```
[drv1:][\path1\]DISKCOMP [drv2: drv3:] [/1][/8]
```

### Where:

- drv1:** Is the drive containing the DISKCOMP command. If you omit this drive, the MS-DOS operating system searches for the DISKCOMP command on the default drive.
- \path1\** Is the path containing the DISKCOMP command. If you omit this path, the MS-DOS operating system searches for the DISKCOMP command in the current directory.
- drv2:** Is the first diskette you want to compare. If you omit this drive, the DISKCOMP command uses the default drive.
- drv3:** Is the second diskette you want to compare. If you omit this drive, the DISKCOMP command uses the default drive.
- /1** Specifies that you want to compare only the first side of the diskettes, even if they are double-sided.
- /8** Specifies that you want to compare only eight sectors per track, even if the first diskette contains more sectors per track.

### Comments

You must specify diskette drive letters or drive letters connected to a virtual disk. Do not try to access a virtual disk to which you have not first connected.

The DISKCOMP command does not compare hard disk drives.

Do not use the DISKCOMP command with virtual disks larger than 1.2 Mbytes.

You can specify the same drive for both diskettes. The DISKCOMP command prompts you to insert the appropriate diskette.

The DISKCOMP command determines the number of sides and sectors from the first diskette specified.

The DISKCOMP command compares all tracks on a track-by-track basis. If tracks are not equal, the DISKCOMP command displays the track number and the side (0 or 1) where the differences occurred.

**NOTE**

You cannot use the DISKCOMP command on a substituted, assigned, joined, or network drive.

**Example 1**

To compare the diskette in drive A to the diskette in drive B, type:

```
C:\>DISKCOMP A: B: [Return]
Insert FIRST diskette in drive A:
Press any key when ready . . .
Comparing 80 tracks
15 sectors per track, 2 side(s)
Insert SECOND diskette in drive A:
Press any key when ready . . .
```

If the two diskettes are different, the DISKCOMP command rings the bell and displays the following message:

```
Compare error on side x, track x
```

The DISKCOMP command rings the bell and displays the previous message for each track that does not match.

To stop the ringing of the bell and the display of this message, press Ctrl/C.

**Example 2**

To compare two diskettes using the default drive, type:

```
A:\>DISKCOMP [Return]
```

## **DISKCOPY**

To make an exact copy of a diskette, including bad blocks, use the DISKCOPY command.

### **Format**

```
[drv1:] [\path1\]DISKCOPY [drv2:] [drv3:] [/1]
```

### **Where:**

- drv1:** Is the drive containing the DISKCOPY command. If you omit this drive, the MS-DOS operating system searches for the DISKCOPY command on the default drive.
- \path1** Is the path containing the DISKCOPY command. If you omit this path, the MS-DOS operating system searches for the DISKCOPY command in the current directory.
- drv2:** Is the source drive, the drive containing the diskette you want to copy.
- drv3:** Is the destination drive, the drive containing the diskette to which you want to copy files. If you omit this drive, the DISKCOPY command uses the default drive. The DISKCOPY command formats the destination diskette if its format is not the same as the source diskette's format.
- /1** Specifies that you want to copy only the first side of the diskette.

### **Comments**

You must specify diskette drive letters or drive letters connected to a virtual disk. Do not try to access a virtual disk to which you have not first connected.

Do not use the DISKCOPY command with virtual disks larger than 1.2 Mbytes.

If the files on your diskette are not using space efficiently, use the COPY command or XCOPY command to copy files from one diskette to another. Because both commands copy files sequentially, your new diskette will make efficient use of space.

The DISKCOPY command makes multiple passes to copy a diskette. The less memory you have, the more passes that are required.

A VAXmate workstation has a double-sided, 96-track-per-inch (TPI) drive. You can copy any single- or double-sided, 8, 9, or 15 sector-per-track diskette.

The DISKCOPY command formats the destination diskette if it does not have the same format as the source diskette.

**NOTE**

Diskettes copied on a 96 TPI drive may not be readable by 48 TPI drives. If you copy Rainbow diskettes, you must first format the destination diskette on a Rainbow computer.

If you specify drive A as the source drive and drive B as the destination drive, the DISKCOPY command prompts you to insert a diskette into drive A.

If you omit the source drive and the destination drive, the DISKCOPY command uses the default drive and performs a one-drive copy.

**NOTE**

You cannot use the DISKCOPY command on a substituted, assigned, joined, or network drive.

**Example**

To copy the contents of a diskette in drive A to a new diskette, type:

```
L:\>DISKCOPY A: B:
Insert SOURCE diskette in drive A:
Press any key when ready. . .
Copying 80 tracks
15 Sectors/Track, 2 side(s)
Insert TARGET diskette in drive A:
Press any key when ready. . .
.
.
.
Copy another diskette (Y/N)?
```

## DRIVER

DRIVER.SYS is an MS-DOS loadable device driver that allows you to use a logical drive letter to access a disk.

### Format

DEVICE=DRIVER.SYS /D:ddd [/H:hh][/T:ttt][/S:ss][/C][/F:f][/N]

### Where:

**/D:ddd** Is the drive number. You can specify a number from 0 through 255. For example:

- |     |                                                               |
|-----|---------------------------------------------------------------|
| 000 | Is the first physical diskette drive                          |
| 001 | Is the second physical diskette drive                         |
| 002 | Is the third physical diskette drive, which must be external  |
| 003 | Is the fourth physical diskette drive, which must be external |
| 128 | Is the first physical hard disk                               |
| 129 | Is the second physical hard disk                              |

**/H:hh** Is the number of heads, ranging from 1 to 99. The default is 2 heads.

**/T:ttt** Is the number of tracks per side on the device, ranging from 1 to 999. The default is 80 tracks per side.

**/S:ss** Is the number of sectors per track, ranging from 1 to 99. The default is nine sectors per track.

**/C** Indicates that change-line mode is required. This means that the device will be able to tell whether the drive door is open or closed. If the door is open, the device driver assumes that the drive does not have a diskette in it.

**/F:f** Specifies the device type. For example:

- |   |                       |
|---|-----------------------|
| 0 | 160 Kbytes/180 Kbytes |
| 0 | 320 Kbytes/360 Kbytes |
| 1 | 1.2 Mbytes            |
| 2 | 720 Kbytes/Other      |

- 3           8-inch, single density
- 4           8-inch, double density
- 5           hard disk
- 6           tape drive
- 7           1.44 Mbytes

**/N**        Specifies that the device is a hard disk.

### **Example 1**

To specify drive A for a 1.2 Mbyte diskette drive on a VAXmate workstation, add the following command line to your CONFIG.SYS file:

```
DEVICE=DRIVER.SYS /D:000 /F:1
```

### **Example 2**

To create a 720 Kbyte quad density drive on a VAXmate workstation, add the following command line to your CONFIG.SYS file:

```
DEVICE=DRIVER.SYS /D:000 /F:2
```

## **EDLIN**

EDLIN is a line editor designed to edit ASCII files.

### **Format**

```
[drv1:][\path1\]EDLIN [drv2:][\path2\]filename2.ext
```

Where:

|               |                                                                                                                                                       |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the EDLIN command. If you omit this drive, the MS-DOS operating system searches for the EDLIN command on the default drive.   |
| \path1\       | Is the path containing the EDLIN command. If you omit this path, the MS-DOS operating system searches for the EDLIN command in the current directory. |
| drv2:         | Is the drive containing the file you want to load. If you omit this drive, EDLIN uses the default drive.                                              |
| \path\        | Is the path containing the file you want to load. If you omit this path, EDLIN uses the current directory.                                            |
| filename2.ext | Is the file name and file extension of the file you want to edit.                                                                                     |

### **Comments**

Table 4-6 lists the EDLIN commands.

**Table 4-6: EDLIN Commands**

| Command               | Purpose                                  |
|-----------------------|------------------------------------------|
| Number                | Displays the specified line for editing. |
| (A)ppend              | Appends lines.                           |
| (C)opy                | Copies lines.                            |
| (D)ele <del>t</del> e | Deletes lines.                           |
| (E)nd                 | Ends editing.                            |
| (I)nsert              | Inserts lines.                           |
| (L)ist                | Lists text with line numbers.            |
| (M)ove                | Moves lines.                             |
| (P)age                | Pages text.                              |
| (Q)uit                | Quits editing.                           |
| (R)eplace             | Replaces lines.                          |
| (S)earch              | Searches text.                           |
| (T)ransfer            | Transfers text.                          |
| (W)rite               | Writes lines.                            |

When using EDLIN commands, type the letter in parentheses, not the entire command.

The following pages contain information about each EDLIN command.

For more information about editing and function keys, see Chapter 6.

## **(A)ppend**

Using the Append command, you can add the specified number of lines from the diskette to the file being edited in memory. The lines are added at the end of lines that are currently in memory.

### **Format**

[n]A

Where:

n        Is the number of lines you want to append.

### **Comments**

Use the Append command only if the file being edited is too large to fit into memory. First, edit the lines at the beginning of the file. Then, write the edited lines at the beginning of the file out to disk using the Write command (discussed later in this section). Finally, use the Append command to add lines to the end of the file in memory.

### **NOTE**

If you omit the number of lines to append, lines are appended to memory until available memory is three-fourths full. No action is taken if available memory is already three-fourths full.

The message "End of input file" is displayed when the Append command has read the last line of the file into memory.

## (C)opy

Using the Copy command, you can copy a range of lines to a specified line number. You can copy the lines as many times as you want by using the count option.

### Format

```
[line1],[line2],line3,[count]C
```

### Where:

- |       |                                                                                                                                          |
|-------|------------------------------------------------------------------------------------------------------------------------------------------|
| line1 | Is the line number of the first line you want to copy. If you omit line1, the default is the current line.                               |
| line2 | Is the line number of the last line you want to copy. If you omit line2, the default is the current line.                                |
| line3 | Is the line number before which you want to copy the specified lines.                                                                    |
| count | Is the number of times you want to copy the specified line. If you omit the count, the Copy command copies the specified lines one time. |

### Comments

The lines are renumbered automatically after the copy.

The line numbers must not overlap or you will get an "Entry error" message. For example, 3,20,15C will result in an error message.

### Example

Assume TEST.TXT contains the following information:

```
this is line one
this is line two
this is line three
this is line four
this is line five
this is line six
this is line seven
this is line eight
this is line nine
this is line ten
```

*Operating System Commands*  
(C)opy

To edit TEST.TXT using EDLIN, type:

```
A:\>EDLIN TEST.TXTReturn
End of input file
*
```

To display the contents of TEST.TXT, type:

```
* LReturn
1:*this is line one
2: this is line two
3: this is line three
4: this is line four
5: this is line five
6: this is line six
7: this is line seven
8: this is line eight
9: this is line nine
10: this is line ten
*
```

To copy lines 1 through 3 to a position after line 8, type:

```
* 1,3,9CReturn
* LReturn
1: this is line one
2: this is line two
3: this is line three
4: this is line four
5: this is line five
6: this is line six
7: this is line seven
8: this is line eight
9:*this is one
10: this is two
11: this is three
12: this is line nine
13: this is line ten
*
```

## (D)delete

Using the Delete command, you can erase a specified range of lines in a file.

### Format

```
[line1],[line2]D
```

### Where:

**line1** Is the line number of the first line you want to delete. If you omit line1, the default is the current line.

**line2** Is the line number of the last line you want to delete. If you omit line2, the default is the current line.

### Comments

When lines are deleted, the line immediately after the deleted section becomes the current line and has the same line number that the first deleted line had before the deletion occurred.

### Example

Assume TEST.TXT contains the following information:

```
this is line one
this is line two
this is line three
this is line four
this is line five
this is line six
this is line seven
this is line eight
this is line nine
this is line ten
```

*Operating System Commands*  
*(D)delete*

To delete lines 7 through 9, type:

\*7,9DReturn

\*LReturn

```
1: this is line one
2: this is line two
3: this is line three
4: this is line four
5: this is line five
6: this is line six
7:*this is line ten
```

\*

## Edit

Using the `Fedit` command, you can change a line of text.

### Format

[line]

### Comments

When a line number is typed, EDLIN displays the line number and text; then, on the next line, EDLIN reprints the line number. The line is now ready for editing. You can use any of the EDLIN editing commands to edit the line. The existing text of the line serves as the template until the Return key is pressed. If no line number is typed (that is, if only the Return key is pressed), the line after the current line [marked with an asterisk (\*)] is edited. If no changes to the current line are needed and the cursor is at the beginning or end of the line, press the Return key to accept the line as it is.

### CAUTION

If the Return key is pressed while the cursor is in the middle of the line, the remainder of the line is deleted.

### Example

Assume `TEST.TXT` contains the following information:

```
this is line one
this is line two
this is line three
this is line four
this is line five
this is line six
this is line seven
this is line eight
this is line nine
this is line ten
```

To edit line 10, type:

```
*10Return
```

EDLIN displays the contents of line 10 and the asterisk prompt:

```
10:*this is line ten
10:*
```

*Operating System Commands*  
*Edit*

You can use the MS-DOS editing and function keys to insert, copy, and delete text from the specified line. For example, to insert the word "not" before the word "line" in line 10, type:

```
10:*[F2][I][ns]not [F3]Return
```

The result is:

```
1: this is line one
2: this is line two
3: this is line three
4: this is line four
5: this is line five
6: this is line six
7: this is line seven
8: this is line eight
9: this is line nine
10:*this is not line ten
```

To remove the word "not" from line 10, type:

```
*10[Return]
10:*[F2][N][Del][Del][Del][Del][F3]Return
```

## **(E)nd**

Using the End command, you can stop the editing session.

### **Format**

E

### **Comments**

This command:

- Saves the edited file on diskette
- Renames the original input file by giving it a file extension of .BAK
- Exits EDLIN

If the file was created during the editing session, no .BAK file is created.

The E command takes no options. Therefore, you cannot tell EDLIN on which drive to save the file. The drive on which you want to save the file must be specified when you start the editing session.

### **NOTE**

Make sure the disk contains enough free space for the entire file. If the diskette does not contain enough free space, the write is ended and the edited file is lost, although part of the file might be written out to the diskette.

## **(I)nsert**

Using the Insert command, you can add text immediately before the specified line.

### **Format**

[line]I

Where:

line      Is the line number of the line you want to insert. If you omit line, the default is the current line number and lines are inserted immediately before the current line. If line is any number larger than the last line number, or if a pound sign (#) is specified as line, the inserted lines are appended to the end of the file. In this case, the last line inserted becomes the current line.

### **Comments**

If you are creating a new file, you must specify the I command before you can insert text. Text begins with line number 1. Successive line numbers display automatically each time you press the Return key.

EDLIN remains in insert mode until you press <Ctrl/C>. When you exit insert mode, the line immediately following the inserted lines becomes the current line. All line numbers following the inserted section are incremented by the number of lines inserted.

### **Example**

Assume TEST.TXT contains the following information:

```
this is line one
this is line two
this is line three
this is line four
this is line five
this is line six
this is line seven
this is line eight
this is line nine
this is line ten
```

To insert a line before line 3, type:

```
* 3 I Return
 3: *This is the new line I want to insert
 4: *Ctrl/C
* I Return
 1: this is line one
 2: this is line two
 3: this is the new line I want to insert
 4: *this is line three
 5: this is line four
 6: this is line five
 7: this is line six
 8: this is line seven
 9: this is line eight
 10: this is line nine
 11: this is line ten
```

## Operating System Commands

### (L)ist

### (L)ist

Using the List command, you can display a range of lines, including the two lines specified.

#### Format

```
[line1][,line2]L
```

#### Where:

- line1      Is the line number of the first line you want to list. If you omit line1, the List command displays 11 lines before the current line and ends with the specified line.
- line2      Is the line number of the last line you want to list. If you omit line2, the List command displays 23 lines, starting with the specified line.

#### Comments

If you omit both parameters, 23 lines are displayed (the 11 lines before the current line, the current line, and the 11 lines after the current line). If there are fewer than 11 lines before the current line, EDLIN displays more than 11 lines after the current line, for a total of 23 lines.

#### NOTE

If the specified line is more than 11 lines before the current line, the display is the same as if you omitted both options.

#### Example

Assume TEST.TXT contains the following information:

```
this is line one
this is line two
this is line three
this is line four
this is line five
this is line six
this is line seven
this is line eight
this is line nine
this is line ten
```

To display lines 6 through 8, type:

```
*6,8LReturn
 6: this is line six
 7: this is line seven
 8: this is line eight
*
```

*Operating System Commands*  
*(M)ove*

**(M)ove**

Using the Move command, you can move a range of text to the line specified.

**Format**

[line1],[line2],line3M

**Where:**

line1      Is the line number of the first line you want to move.

line2      Is the line number of the second line you want to move.

line3      Is the line number after which you want to move the specified lines.

**Comments**

The lines are renumbered according to the direction of the move.

**Example**

Assume TEST.TXT contains the following information:

```
this is line one
this is line two
this is line three
this is line four
this is line five
this is line six
this is line seven
this is line eight
this is line nine
this is line ten
```

To move lines 1 through 3 from their current position to a position after line 8, type:

```
*1,3,9MReturn
*IReturn
 1: this is line four
 2: this is line five
 3: this is line six
 4: this is line seven
 5: this is line eight
 6:*this is line one
 7: this is line two
 8: this is line three
 9: this is line nine
 10: this is line ten
```

\*

To move lines 6 through 8 back to their original position, type:

```
*6,8,1MReturn
*IReturn
 1:*this is line one
 2: this is line two
 3: this is line three
 4: this is line four
 5: this is line five
 6: this is line six
 7: this is line seven
 8: this is line eight
 9: this is line nine
 10: this is line ten
```

*Operating System Commands*  
*(P)age*

**(P)age**

Using the Page command, you can move through a file 23 lines at a time.

**Format**

[line1][,line2]P

**Where:**

line1      Is the line number of the first line you want to see. If you omit line1, the Page command uses the current line plus one.

line2      Is the line number of the last line you want to see. If you omit line2, 23 lines are displayed. The line at the bottom of the screen becomes the current line.

## **(Q)uit**

Using the Quit command, you can end the editing session and return to the MS-DOS operating system. The Quit command does not save any changes made to the file.

### **Format**

Q

### **Comments**

EDLIN asks if you are sure you do not want to save your changes. Press the Y key if you want to quit the editing session. No editing changes are saved and no .BAK file is created. Press the N key if you want to continue the editing session.

### **CAUTION**

When started, EDLIN erases any previous copy of the file with a file extension of .BAK to make room to save the new copy. If you reply Y to the "Abort edit (Y/N)?" message, your previous backup copy no longer exists.

## (R)eplace

Using the Replace command, you can substitute all occurrences of a string of text in the specified range with a different string of text or blanks.

### Format

```
[line1][,line2][?]Rstring1Ctrl/Zstring2
```

Where:

- |         |                                                                                                                                                                                                                                                                                                                                                         |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| line1   | Is the line number where you want to begin replacing string1. If you omit line1, line1 defaults to the line after the current line.                                                                                                                                                                                                                     |
| line2   | Is the line number where you want to end replacing string1. If you omit line2, line2 defaults to #. This is the same as line,#. The # indicates the line after the last line of the file.                                                                                                                                                               |
| ?       | Prompts you before string1 is replaced by string2.                                                                                                                                                                                                                                                                                                      |
| string1 | Is the string you want to replace. If you omit string1, the Replace command takes the old string1 as its value. If there is no old string1 the first time you perform a replace, the process terminates immediately. If you press Ctrl/Z after string1 and there is no string2, string2 is taken as an empty string and becomes the new replace string. |
| string2 | Is the string with which you want to replace string1. If you omit string2, end the command line by pressing the Return key.                                                                                                                                                                                                                             |

### Example

Assume TEST.TXT contains the following information:

```
this is line one
this is line two
this is line three
this is line four
this is line five
this is line six
this is line seven
this is line eight
this is line nine
this is line ten
```

To replace all occurrences of "line" with "row," type:

```
*1,10rlineCtrl/ZrowReturn
1: this is row one
2: this is row two
3: this is row three
4: this is row four
5: this is row five
6: this is row six
7: this is row seven
8: this is row eight
9: this is row nine
10:*this is row ten
```

\*

## (S)earch

Using the Search command, you can search the specified range of lines for a specified string of text. The search is case sensitive.

### Format

```
[line1][,line2][?]Sstring
```

### Where:

- line1** Is the line number of the line where you want to begin searching. If you omit line1, line1 defaults to the line after the current line.
- line2** Is the line number of the line where you want to stop searching. If you omit line2, line2 defaults to # (the line after the last line of the file).
- ?** Prompts you for a response. Press the Y key to make the displayed line the current line. Press the N key to continue the search.
- If you omit the question mark, the Search command ends when a match is found. If you include the question mark option, the EDLIN command displays the first line with a matching string; it then prompts you with the message "O.K.?"
- string** Is the string for which the Search command searches. String defaults to any string specified by a previous Replace or Search command.
- If you omit string, the Search command takes the old string, if there is one. (Old refers to a string specified in a previous Search or Replace command.) If there is not an old string (for example, no previous search or replace has been done), the command terminates immediately.

### Comments

You end the command line by pressing the Return key. The first line that matches the string is displayed and becomes the current line. If no line contains a match for the string, the message "Not found" is displayed.

**Example**

Assume TEST.TXT contains the following information:

```
this is line one
this is line two
this is line three
this is line four
this is line five
this is line six
this is line seven
this is line eight
this is line nine
this is line ten
```

To search for "ten" in lines 1 through 9, type:

```
*1,9StenReturn
Not found
*
```

To search for "ten" in lines 1 through 10, type:

```
*1,10StenReturn
 10:*this is line ten
*
```

## **(T)ransfer**

Using the Transfer command, you can insert (merge) the contents of a file into the file currently being edited.

### **Format**

```
[line]T filename.ext
```

### **Where:**

line        Is the line number of the line before which you want to insert the contents of a file. If you omit line, the EDLIN command uses the current line.

### **Comments**

After the EDLIN command inserts the file, it rennumbers the lines.

### **Example**

Assume TEST.TXT contains the following information:

```
this is line one
this is line two
this is line three
this is line four
this is line five
this is line six
this is line seven
this is line eight
this is line nine
this is line ten
```

Assume TEST1.TXT contains the following information:

```
this is row one
this is row two
this is row three
this is row four
this is row five
this is row six
this is row seven
this is row eight
this is row nine
this is row ten
```

To transfer the contents of TEST1.TXT into TEST.TXT, **before** line 1,  
type:

```
A:\>EDLIN TEST.TXT[Return]
End of input file
* 1T TEST1.TXT[Return]
* L[Return]
 1:*this is row one
 2: this is row two
 3: this is row three
 4: this is row four
 5: this is row five
 6: this is row six
 7: this is row seven
 8: this is row eight
 9: this is row nine
 10: this is row ten
 11: this is line one
 12: this is line two
 13: this is line three
 14: this is line four
 15: this is line five
 16: this is line six
 17: this is line seven
 18: this is line eight
 19: this is line nine
 20: this is line ten
```

\*

*Operating System Commands*  
*(W)rite*

**(W)rite**

Using the Write command, you can write a specified number of lines to disk from the lines that are being edited in memory. EDLIN writes lines beginning with line number 1.

**Format**

[n]W

**Comments**

This command is meaningful only if the file you are editing is too large to fit into memory. When you start EDLIN, EDLIN reads lines into memory until memory is three-fourths full.

To edit the remainder of your file, you must write edited lines in memory to diskette. Then you can load additional unedited lines from diskette into memory by using the Append command.

**NOTE**

If you omit the number of lines, lines are written until memory is three quarters full. No action is taken if available memory is already more than three-fourths full. All lines are renumbered, so that the first remaining line becomes line number 1.

## ERASE

To delete files from a specified directory, use the ERASE command. You can also use the DEL command to erase files.

### Format

```
ERASE [drv:][\path\]filename.ext
```

### Where:

|              |                                                                                                                                                                             |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv:         | Is the drive containing the file you want to delete. If you omit this drive, the ERASE command uses the default drive.                                                      |
| \path\       | Is the path containing the file you want to delete. If you omit this path, the ERASE command uses the current directory.                                                    |
| filename.ext | Is the file name and file extension of the file you want to erase. If you specify a drive and a path and omit a file name, all files in the specified directory are erased. |

### Example 1

To remove MYFILE.TXT from drive A, type:

```
A:\> ERASE MYFILE.TXT
A:\>
```

### Example 2

To remove LETTER.TXT from A:\USERS\ACCOUNTS, type:

```
A:\> ERASE A:\USERS\ACCOUNTS\LETTER.TXT
A:\>
```

### Example 3

To remove MEMO1.TXT, MEMO2.TXT, and MEMOS.TXT from drive A, type:

```
A:\> ERASE MEMO?.TXT
A:\>
```

*Operating System Commands*  
ERASE

**Example 4**

To erase all the files in the current directory of drive A, type:

```
A:\>ERASE *.*
Are you sure (Y/N)?
A:\>
```

Press the Y key and the Return key to delete all the files on drive A.

Press the N key and the Return key to stop the erase process on drive A.

## EXE2BIN

To convert .EXE files to binary files, which are smaller and load faster, use the EXE2BIN command.

### Format

```
[drv1:][\path1\]EXE2BIN [drv2:][\path2\]filename2[.ext]
[drv3:][\path3\][filename3.ext]
```

### Where:

|               |                                                                                                                                                                           |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the EXE2BIN command. If you omit this drive, the MS-DOS operating system searches for the EXE2BIN command on the default drive.                   |
| \path1\       | Is the path containing the EXE2BIN command. If you omit this path, the MS-DOS operating system searches for the EXE2BIN command in the current directory.                 |
| drv2:         | Is the drive containing the file you want to convert. If you omit this drive, the EXE2BIN command uses the default drive.                                                 |
| \path2\       | Is the path containing the file you want to convert. If you omit this path, the EXE2BIN command uses the current directory.                                               |
| filename2.ext | Is the file name and file extension of the file you want to convert. If you omit a file extension for the input file, the default file extension is .EXE.                 |
| drv3:         | Is the drive containing the converted file. If you omit this drive, the EXE2BIN command uses the default drive.                                                           |
| \path3\       | Is the path containing the converted file. If you omit this path, the EXE2BIN command uses the current directory.                                                         |
| filename3.ext | Is the file name and file extension of the converted file. If you omit a file name, the EXE2BIN command uses the original .EXE file name. The new file extension is .BIN. |

### Comments

The input file is converted to binary file format (memory image of the program) and placed in the output file.

The input file must be in valid .EXE format produced by the linker. (The linker processes object modules to produce machine language that the VAXmate workstation can understand directly.) The resident code and data part of the file must be less than 64 Kbytes.

## Operating System Commands

### EXE2BIN

There must be no stack segment.

Two conversions are possible, depending on whether the initial CS:IP (Code Segment:Instruction Pointer) is specified in the .EXE file:

- If you omit CS:IP in the .EXE file, the EXE2BIN command assumes a pure binary conversion. If segment fixups are necessary, you are prompted for the fixup value. This value is the absolute segment at which the program is to be loaded. The resulting program is usable only when it is loaded at the absolute memory address specified by a user application. The command processor is not capable of properly loading the program.
- If you specify CS:IP as 0000:100H, the EXE2BIN command assumes that the file is to run as a .COM file, with the location pointer set at 100H by the assembler statement ORG. The first 100H bytes of the file are deleted. No segment fixups are allowed, because .COM files must be segment relocatable. Once the conversion is complete, you can rename the resulting file with a .COM file extension. Then the command processor is able to load and execute the program in the same way as the .COM programs supplied on your MS-DOS operating system disk.

#### NOTE

Not all .EXE files that have code and data segments less than 64 Kbytes function correctly when converted to binary files.

#### Example

To convert TEST.EXE to TEST.BIN, type:

```
L:\> EXE2BIN TEST.EXE
```

```
L:\>
```

## EXIT

To exit from COMMAND.COM and return to a previous level, use the EXIT command. You can also use the EXIT command when you are running an application program, and want to start the command processor and then return to your program.

### Format

EXIT

### Comments

If you execute COMMAND.COM while in MS-Windows, you have to use the EXIT command before you return to MS-Windows.

### Example

To close the COMMAND.COM file after executing it, type:

```
A:\> EXIT
```

```
A:\>
```

To return to the MS-DOS Executive window, expand the MS-DOS Executive window icon.

## **FASTOPEN**

To find and open a frequently used file quickly, use the FASTOPEN command. This command reduces access time due to complex directory structures and numerous files. FASTOPEN stores the location of all directories and all recently opened files. When you execute a command that accesses a file with the FASTOPEN command resident, a memory list is searched first. If the specified file is in the list, it is found more quickly when FASTOPEN is resident.

You cannot use the FASTOPEN command on diskette drives or network drives.

### **IMPORTANT**

Each entry in the list takes up 40 bytes.

### **Format**

```
[drv1:] [\path1\]FASTOPEN drv2:[=nnn] [drv:[=nnn]] ...
```

### **Where:**

- drv1:** Is the drive containing the FASTOPEN command. If you omit this drive, the MS-DOS operating system searches for the FASTOPEN command on the default drive.
- \path1\** Is the path containing the FASTOPEN command. If you omit this path, the MS-DOS operating system searches for the FASTOPEN command in the current directory.
- drv2:** Is the drive containing the directories to be searched. You cannot specify an assigned, joined or substituted drive.
- =nnn** Is the number of directories and file entries to store for the specified drive. The minimum is 10; the maximum is 999. The default is 34. The value should be greater than the level of the deepest subdirectory. For example, if you have 14 subdirectories, nnn should be at least 15.

### **Comments**

Do not use this command from MS-Windows.

Use the FASTOPEN command in your AUTOEXEC.BAT file to define the parameters at system startup.

You can repeat drv: =nnn for each disk on your VAXmate workstation.

You can invoke the FASTOPEN command only once. If you want to change the settings, you must restart the MS-DOS operating system.

**NOTE**

If you are running a VAXmate server, running the FASTOPEN command will help users who access the same files continually.

**Example 1**

To store 100 entries in the memory list for drive C, add the following line to your AUTOEXEC.BAT file:

```
FASTOPEN C:=100
```

**Example 2**

To store 50 entries in the memory list for drive C and drive D, add the following line to your AUTOEXEC.BAT file:

```
FASTOPEN C:=50 D:=50
```

## FC

To compare two text files or two binary files, use the FC command.

### Format

```
[drv1:] [\path1\]FC [[/A /B /C /L /N /T /W /nnnn] [/LBnnn]
 [drv2:] [\path2\]filename2.ext
 [drv3:] [\path3\]filename3.ext]
```

### Where:

- drv1:** Is the drive containing the FC command. If you omit this drive, the MS-DOS operating system searches for the FC command on the default drive.
- \path1\** Is the path containing the FC command. If you omit this path, the MS-DOS operating system searches for the FC command in the current directory.
- /A** Abbreviates the output of an ASCII comparison. Only the beginning and ending lines in each set of differences are displayed. The intermediate lines are represented by ellipses.
- /B** Specifies a binary compare of the two files. The two files are compared byte to byte, with no attempt to resynchronize after a mismatch. The FC command displays the relative address of the pair of bytes, followed by the mismatched bytes from file1 and file2. If you omit this qualifier, the compare is done line by line.
- The /B qualifier is the default for files with COM, EXE, OBJ, and SYS file extensions.
- /C** Ignores the case of letters. All letters in both files are considered as capital letters.
- /L** Compares the files in ASCII mode. /L is the default when you compare files without the .EXE, .COM, .SYS, .OBJ, .LIB, or .BIN file extensions.
- /N** Displays the line numbers during an ASCII comparison. You cannot use this qualifier if you use the /B qualifier.

|               |                                                                                                                                                                                                                                                                 |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /T            | Does not expand tabs to spaces. The default is to treat tabs as eight spaces. Use this qualifier only during ASCII compares.<br><br>Do not use the /T qualifier with the /W qualifier.                                                                          |
| /W            | Compresses tabs and spaces during the comparison. Tabs and spaces are considered as a single white space. Beginning and ending white space is ignored. Use this qualifier only during ASCII compares.<br><br>Do not use the /W qualifier with the /T qualifier. |
| /nnnn         | Specifies the number of required, matching lines for the files to be considered matching again after a difference is found.                                                                                                                                     |
| /LBnnn        | Sets the internal line buffer to "nnn" lines. The default internal buffer length is 100 lines. Files that have more than this number of consecutive, differing lines abort the file comparison. The range for nnn is 1 through 100.                             |
| drv2:         | Is the drive containing the first file in the compare. If you omit this drive, the FC command uses the default drive.                                                                                                                                           |
| \path2\       | Is the path containing the first file in the compare. If you omit this path, the FC command uses the current directory.                                                                                                                                         |
| filename2.ext | Is the file name and file extension of the first file in the compare.                                                                                                                                                                                           |
| drv3:         | Is the drive containing the second file in the compare. If you omit this drive, the FC command uses the default drive.                                                                                                                                          |
| \path3\       | Is the path containing the second file in the compare. If you omit this path, the FC command uses the current directory.                                                                                                                                        |
| filename3.ext | Is the file name and file extension of the second file in the compare.                                                                                                                                                                                          |

### Comments

The FC command reports differences between two files by displaying the first file name, followed by the lines that differ between files, followed by the first line to match in both files. FC then displays the second file name, followed by the lines that are different, followed by the first line that matches.

## Operating System Commands

### FC

The default compare is a line-by-line, ASCII compare. If you specify the /B qualifier, the FC command performs a byte-by-byte compare of the two files.

You can redirect output to a file, which you can print to see the differences between the two files.

#### Example 1

To display the FC help message, type:

```
A:\>FC
```

#### Example 2

To compare TEST1.TXT and TEST2.TXT line-by-line, type:

```
A:\>FC TEST1.TXT TEST2.TXT
```

#### Example 3

To compare TEST1.TXT and TEST2.TXT and specify that four lines constitute a match, type:

```
A:\>FC /4 TEST1.TXT TEST2.TXT
```

#### Example 4

To perform a binary compare of TEST1.TXT and TEST2.TXT, type:

```
A:\>FC /B TEST1.TXT TEST2.TXT
```

#### Example 5

To compare TEST1.TXT and TEST2.TXT, display the line numbers, compress white space and tabs, and send the output to DIFFER.TXT, type:

```
A:\>FC /N /W TEST1.TXT TEST2.TXT > DIFFER.TXT
```

## FDISK

To prepare a hard disk for use, and to add or delete partitions, use the FDISK command. Using the FDISK command, you can:

- Set the drive type
- Initialize your hard disk
- Add or delete a partition
- Set the startup partition
- Prepare the drive for shipping
- Select network startup priority

### Format

[drv: ] [ \path\ ] FDISK

Where:

- drv: Is the drive containing the FDISK command. If you omit this drive, the MS-DOS operating system searches for the FDISK command on the default drive.
- \path\ Is the path containing the FDISK command. If you omit this path, the MS-DOS operating system searches for the FDISK command in the current directory.

### Comments

For more information about the FDISK command and preparing your hard disk, see Chapter 2.

The FDISK command displays menus from which you make selections. The menus you see depend on your system configuration.

You can have up to four partitions on a hard disk, but you can have only one MS-DOS startup partition. The maximum size of an MS-DOS partition is either 32 Mbytes or the size of the hard disk, whichever is smaller.

### NOTE

If you have a 40 Mbyte hard disk, you must have at least two partitions.

Each partition is a percentage of the overall storage capacity of the hard disk. The FDISK command indicates the percentage of the overall storage capacity available.

*Operating System Commands*  
**FDISK**

**Initializing the hard disk:**

- **Initializes the boot code and partition table**

The boot code determines whether the disk is a system disk by checking to see if the first two files on the disk are IO.SYS and MSDOS.SYS, in that order. If the files are absent, or not in the correct order, the boot code prompts the user to exchange the disk for a system disk.

The partition table contains information about the number and size of the partitions on a hard disk.

FDISK creates the partition table and stores the boot code at the beginning of the hard disk. After you partition the hard disk, choose a startup partition, and start the VAXmate workstation, the boot code reads the system files on the startup partition.

- **Erases all data stored on the hard disk**

Deleting a partition erases all data stored on that partition.

**Example**

To start the FDISK command, type:

```
A:\>FDISK
```

For more information about the FDISK command, see Chapter 2.

## FIND

To search for a string of text in a file or files, use the FIND command. You can also use the FIND command as a filter. For more information about filters, see Chapter 3 of this manual.

### Format

```
[drv1:][\path1\]FIND [/C][/N][/V] ``string``
[drv2:][\path2\]filename2.ext [...]
```

### Where:

- drv1:** Is the drive containing the FIND command. If you omit this drive, the MS-DOS operating system searches for the FIND command on the default drive.
- \path1\** Is the path containing the FIND command. If you omit this path, the MS-DOS operating system searches for the FIND command in the current directory.
- /C** Displays the number of lines in each file that contain the specified string.  
If you specify the /C qualifier with the /N qualifier, the /N qualifier is ignored.  
If you specify the /C qualifier with the /V qualifier, the FIND command displays the number of lines in each file that do not contain the specified string.
- /N** Displays each line containing the specified string, preceded by its relative line number in the file.  
If you specify the /N qualifier with the /V qualifier, the FIND command displays the lines in each file that do not contain the specified string, preceded by its relative line number.
- /V** Displays all lines not containing the specified string.
- string** Is the string you want to find. Enclose string in double quotes. Place two sets of double quotes around a string that has double quotes in it. For example, to search for the string "child" in a file, you would type " " "child" " " " .
- drv2:** Is the drive containing the you want the FIND command to search. If you omit this drive, the FIND command uses the default drive.

## Operating System Commands

### FIND

- `\path2\` Is the path containing the file you want the FIND command to search. If you omit this path, the FIND command uses the current directory.
- `filename2.ext` Is the file name and file extension of the file being searched. You cannot use wildcards in the file name or file extension.
- If you omit a file name and file extension, the FIND command acts like a filter, receiving input from the keyboard, a pipe, or a redirected file.

### Comments

If you omit qualifiers, the FIND command displays the file it searched and the lines containing the specified string.

The search is case sensitive. Type the exact string you want to find.

### Example 1

To display all the lines containing "VAXmate" in BOOK1.TXT and BOOK2.TXT (in that order), type:

```
A:\>FIND "VAXmate" BOOK1.TXT BOOK2.TXTReturn
----- book1.txt
read into memory when you turn on your VAXmate workstation.
driver is discussed in the VAXmate System Handbook.
Local directories on your VAXmate workstation

----- book2.txt
A VAXmate workstation MS-DOS diskette may have either 40-tracks
Rainbow-compatible diskettes cannot be formatted on the VAXmate
The program remains resident until you turn off the VAXmate

A:\>
```

### Example 2

To display the lines and relative line numbers that contain the word "computer" in TEST1.TXT and TEST2.TXT, type:

```
A:\>FIND /N "computer" TEST1.TXT TEST2.TXTReturn
----- test1.txt
[1]Turn on your computer.
[3]A printer is supplied with your computer.
[5]cable into the port marked "printer" on the computer
----- test2.txt
[2]The computer screen displays the operating system prompt.
[4]Connect your printer to the computer using the cable provided.
[6]You have successfully connected the printer to your computer.
A:\>
```

### Example 3

To display all the lines that do not contain the word "computer" in TEST1.TXT and TEST2.TXT, type:

```
A:\>FIND /V "computer" TEST1.TXT TEST2.TXTReturn
----- test1.txt
These
lines
do
not
----- test2.txt
contain
the
word
A:\>
```

### Example 4

To use the FIND command as a filter to search for <DIR>, send the output to the DIR command, and display all the subdirectories on drive A, type:

```
A:\>DIR | FIND "<DIR>"Return
COUNTRY <DIR> 11-13-87 2:18p
```

## **FONT**

To load a text font file into memory, use the **FONT** command. The **FONT** command loads text font files that correspond to a specific character set. These font files affect only your screen display.

### **Format**

```
[drv1:][\path1\]FONT [drv2:][\path2\[filename2[.ext]] [/D] [/S]
```

Where:

**drv1:** Is the drive containing the **FONT** command. If you omit this drive, the MS-DOS operating system searches for the **FONT** command on the default drive.

**\path1** Is the path containing the **FONT** command. If you omit this path, the MS-DOS operating system searches for the **FONT** command in the current directory.

**drv2:** Is the drive containing the font file. If you omit this drive, the **FONT** command uses the default drive.

**\path2** Is the path to the directory containing the font file. If you omit a path, the **FONT** command searches the current directory, any appended directories, the root directory, and the current search path, in that order.

**filename2.ext** Is the file name and file extension of the font file. If you omit a file extension, **.FNT** is used. For a full list of supported **.FNT** files, see Appendix D.

**/D** Loads the default character set.

**/S** Displays the current font file.

### **Comments**

If you use the **SELECT** command, you do not need to use the **FONT** command.

The **FONT** command affects only the character set displayed in text mode. For information on graphics mode, see the **GRAFTABL** command in this chapter. For more information on text and graphics modes, see the **MODE** command also in this chapter.

If the MS-DOS operating system finds the **.FNT** file in a valid font file format, the font is loaded. Because this command affects text fonts, the entire screen and video memory immediately reflect the font change, unless you are in a window. Because MS-Windows operates in graphics

mode, the FONT command does not affect the screen if you are in a window.

If the .FNT file is not in the proper format, a message is displayed.

The FONT command determines whether the correct hardware and software exist to support the loading of font files. If the hardware and software are incorrect, a message is displayed. This message describes the minimal hardware requirements to run the program.

#### NOTE

You must ensure that font, keyboard, and country-specific information match. If they do not match, the results are unpredictable.

#### Example 1

To display the FONT help message, type:

```
A:\>FONT
```

#### Example 2

To load MCS.FNT, type:

```
A:\>FONT MCS
```

```
FONT Utility Program Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
MCS.FNT
Has been successfully loaded
A:\>
```

#### Example 3

To load the default character set (STD.FNT), type:

```
A:\>FONT /D
```

```
FONT Utility Program Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

The default font "STD.FNT" has been successfully loaded
A:\>
```

*Operating System Commands*  
*FONT*

**Example 4**

To display the name of the current font file, type:

```
A:\>FONT /SReturn
```

```
FONT Utility Program Version 2.0
```

```
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
Font file = STD.FNT
```

```
A:\>
```

## FORMAT

To format diskettes and hard disks, use the FORMAT command.

### Format

```
[drv1:] [\path1\]FORMAT [drv2: [/B] [/S] [/V] [/1] [/4] [/8]
```

### Where:

- drv1:** Is the drive containing the FORMAT command. If you omit this drive, the MS-DOS operating system searches for the FORMAT command on the default drive.
- \path1\** Is the path containing the FORMAT command. If you omit this path, the MS-DOS operating system searches for the FORMAT command in the current directory.
- drv2:** Is the drive you want to format.
- /B** Formats a diskette for low density, 8 sectors per track, and allocates space for the system files. The system files are not copied to the diskette, but you can copy them there using the SYS command.
- /S** Writes the IO.SYS, MSDOS.SYS, and COMMAND.COM files to the newly formatted disk. Use /S when you format a disk from which you want to start the MS-DOS operating system.
- /V** Prompts you for a volume label at the conclusion of the formatting process.
- /1** Formats a diskette so it is single sided. This qualifier is disregarded with a single-sided drive.
- /4** Formats an 8- or 9-sector, double-sided, low density diskette in a high-capacity drive.
- You should not format 8- and 9-sector diskettes on your VAXmate workstation if you plan to use these diskettes in a low-capacity drive.
- /8** Formats the diskette with 8 sectors per track. The default is 9 sectors for low-capacity diskettes and 15 sectors for high-capacity diskettes.

**FORMAT**

**Comments**

The VAXmate workstation has a 5 1/4-inch, high-capacity diskette drive. The recommended diskette type is a 1.2-Mbyte, high-density, double-sided diskette.

Each sector is 512 bytes long, and you can format 8, 9, or 15 sectors per track on a diskette, depending on the density (tracks per inch) of the diskette.

You cannot format Rainbow-compatible diskettes on the VAXmate workstation. Format them on a Rainbow computer.

Because the diskette drive cannot tell what type of diskette is being formatted, you must use the proper FORMAT command qualifiers. Do not format:

- Low-capacity diskettes to have a high-capacity format
- High-capacity diskettes to have a low-capacity format

You can enter qualifiers in any order.

By default, qualifiers are set to the following values:

- 15 sectors per track
- Double-sided

**NOTE**

You cannot use the FORMAT command to format a file server, or an assigned, joined, or substituted drive.

Table 4-7 lists the qualifiers that can be used with each disk type.

**Table 4-7: Disk Types and Valid Qualifiers**

| Disk Type      | Valid Qualifiers  |
|----------------|-------------------|
| 160/180 Kbytes | /1 /4 /8 /B /S /V |
| 320/360 Kbytes | /1 /4 /8 /B /S /V |
| 720 Kbytes     | /S /V             |
| 1.2 Mbytes     | /S /V             |
| 1.44 Mbytes    | /S /V             |
| Hard disk      | /S /V             |

**Example 1**

To display the FORMAT help message, type:

```
A:\>FORMAT
```

**Example 2**

To format a diskette in drive A, copy the system files to it, and add a volume label, type:

```
A:\>FORMAT A: /S /V
```

```
Format Utility Program Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
CAUTION! FORMAT ERASES ALL DATA ON THE DISK!
Type <Ctrl/C> to quit
```

```
Insert new diskette for drive A:
and strike ENTER when ready
```

```
Head: Cylinder:
```

```
Format complete
System transferred
```

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

```
1213952 bytes total disk space
73728 bytes used by system
1213952 bytes available on disk
```

```
Format another (Y/N)?n
```

```
A:\>
```

## *Operating System Commands*

### *FREE*

## **FREE**

To display the number of free bytes on a specific drive, use the FREE command.

### **Format**

**FREE** [drv:]

Where:

drv: Is the drive for which you want to display free byte information. If you omit this drive, the FREE command uses the default drive.

### **Comments**

The FREE command displays information in bytes, Kbytes, or Mbytes.

### **Example**

To display the number of bytes for drive L, type:

```
A:\> FREE L:
37.07 Mbytes free on drive L:
A:\>
```

## GRAFTABL

To load a graphic font file into memory, use the GRAFTABL command. The GRAFTABL command loads a graphic font file that corresponds to a graphic character set.

### Format

```
[drv1:][\path1\]GRAFTABL [drv2:][\path2\][filename2[.ext]]
```

### Where:

|               |                                                                                                                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the GRAFTABL command. If you omit this drive, the MS-DOS operating system searches for the GRAFTABL command on the default drive.                                                                                                     |
| \path1\       | Is the path containing the GRAFTABL command. If you omit this path, the MS-DOS operating system searches for the GRAFTABL command in the current directory.                                                                                                   |
| drv2:         | Is the drive containing the graphic font file. If you omit this drive, the GRAFTABL command uses the default drive.                                                                                                                                           |
| \path2\       | Is the path containing the graphic font file. If you omit this path, the GRAFTABL command searches the current directory, any appended directories, the root directory, and the current search path, in that order.                                           |
| filename2.ext | Is the file name and file extension of the graphic font file. If you omit the file name or the file extension, the GRAFTABL command uses the current text font file name with a .GRF file extension. For a full list of supported .GRF files, see Appendix D. |

### Comments

The GRAFTABL command affects only the character set displayed in graphics mode. For more information on text mode, see the FONT command in this chapter. For more information on text and graphics modes, see the MODE command also in this chapter.

If the .GRF file is not in the proper format, a message is displayed.

*Operating System Commands*  
**GRAFTABL**

**Example 1**

To load the graphic character set that corresponds to the current text font file, type:

```
A:\>GRAFTABL
```

```
Graphic Character Loader Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
Replacing the graphic character set with STD.GRF
A:\>
```

**Example 2**

To load the graphic character set that corresponds to the ISO Latin-1 text font file, type:

```
A:\>GRAFTABL ISO
```

```
Graphic Character Loader Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
Replacing the graphic character set with ISO.GRF
A:\>
```

**Example 3**

To load the graphic character set that corresponds to the French text font file, type:

```
A:\>GRAFTABL FR7.GRF
```

```
Graphic Character Loader Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
Replacing the graphic character set with FR7.GRF
A:\>
```

## GRAPHICS

To print graphic video images on a graphics printer, use the GRAPHICS command. For example, to print MS-Windows screens or any application that has graphic video images, use the GRAPHICS command.

### Format

```
[drv:][\path\]GRAPHICS [printer type][/B][/R]
```

### Where:

- drv:** Is the drive containing the GRAPHICS command. If you omit this drive, the MS-DOS operating system searches for the GRAPHICS command on the default drive.
- \path\** Is the path containing the GRAPHICS command. If you omit this path, the MS-DOS operating system searches for the GRAPHICS command in the current directory.
- printer type** Is STD, LA50, LA75, LA75STD, LA75DEC, LN03, LN03DEC, LN03STD, LA210DEC, LA210STD, LJ250DEC, COLOR4, or COLOR8.
- The LA75 printer is equivalent to an LA75STD.  
LN03 refers to an LN03 Plus printer.  
LN03STD and LN03DEC are reserved for an LN03 Plus printer with the LN03 Plus ISO/PC cartridge.
- /B** Prints the background color. This qualifier is valid only for printer types LJ250DEC, COLOR4, and COLOR8. The default is to not print the background.
- The /B qualifier is relevant only for color printers.
- /R** Is the reverse qualifier, which prints exact graphic video images. If the screen has black video images with a white background, the printer produces black images with a white background. The default is to print black as white and white as black.

## Operating System Commands

### GRAPHICS

Assume you are using a color printer with the /B qualifier disabled and the /R qualifier enabled. The /R qualifier causes white to print as white and black to print as black. If the foreground (text and graphics) is white, and you press the Shift/Prt Sc keys, a blank page is printed. This occurs because you did not specify the /B qualifier. Therefore, if you use the /R qualifier with a white foreground, remember to use the /B qualifier also.

#### Comments

Once you load GRAPHICS, you can print the current graphic video screen from MS-Windows by pressing the Shift/Prt Sc keys.

To change printer types and set the reverse or background qualifier, you must rerun the GRAPHICS command.

To obtain high-quality prints, the GRAPHICS command causes printers in high-resolution video mode to print the upper-right corner of the screen on the upper-left corner of the paper (landscape mode).

There are two ways to set the printer type:

- If you used the MODE command to set the printer, type the GRAPHICS command without the parameter or the qualifier. The GRAPHICS command reads the printer setting in memory.
- If you have not used the MODE command to set the printer, type the GRAPHICS command with the appropriate printer type and qualifier.

The GRAPHICS program stops if there is:

- No paper in the printer
- An input/output (I/O) error during the PRINT operation
- A timeout

If a timeout occurs while the printer is in graphics mode, the printer remains in graphics mode. To reset an LA50, LA75DEC, LA210DEC, LJ250DEC, LN03, or LN03DEC printer type, turn the printer off or complete the graphic printout.

#### Example 1

To display the GRAPHICS help message, if you have not set the printer type using the MODE command, type:

```
A: \>GRAPHICS
```

### Example 2

To set the printer type to LA75 using the MODE command and then load GRAPHICS, type the following sequence of commands:

```
A:\>MODE PRN:LA75
A:\>GRAPHICS
GRAPHICS Utility Program Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Printer type LA75STD
Reverse print is OFF
Print background is OFF
Loading GRAPHICS.

A:\>
```

### Example 3

To change the printer from an LA75 printer to an LN03 Plus printer, type:

```
A:\>GRAPHICS LN03
GRAPHICS Utility Program Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Printer type LN03
Reverse print is OFF
Print background is OFF
Loading GRAPHICS.

A:\>
```

### Example 4

To change the printer to an LN03 and set the reverse qualifier, type:

```
A:\>GRAPHICS LN03 /R
GRAPHICS Utility Program Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Printer type LN03
Reverse print is ON
Print background is OFF
Loading GRAPHICS.

A:\>
```

## JOIN

To create a single directory structure from two, separate, existing disk drives, use the JOIN command. The JOIN command lets you access the contents of a disk as though its contents were in the subdirectory of the drive to which it is joined. You must specify a name for this subdirectory.

### Format

```
[drv1:] [\path1\] JOIN [drv2: drv3:\path3]
```

```
[drv1:] [\path1\] JOIN drv2: /D
```

### Where:

- drv1: Is the drive containing the JOIN command. If you omit this drive, the MS-DOS operating system searches for the JOIN command on the default drive.
- \path1\ Is the path containing the JOIN command. If you omit this path, the MS-DOS operating system searches for the JOIN command in the current directory.
- drv2: Is the physical drive you want to join to another drive.  
After the JOIN operation is in effect, you can no longer access this drive by its previous drive letter.
- drv3: Is the drive to which drv2: is joined.
- \path3 Is the path of the drive to which drv2: is joined. Path3 must be a subdirectory that is nonexistent or empty. When you specify a nonexistent subdirectory, the JOIN command creates it.
- /D Deassigns (cancels) a joined drive. Subdirectories you have created are saved.

### Comments

You can join a drive only at its root directory.

Do not join the COMSPEC= environment variable and then exit MS-Windows. If you do, you have to restart your workstation. For example, assume you type the following command:

```
A:\> SET
PATH=
COMSPEC=C:\COMMAND.COM
```

The COMSPEC= environment variable is drive C. If you join drive C and then exit MS-Windows, the MS-DOS operating system does not know where the COMMAND.COM file is located, and the system stops.

#### NOTE

You cannot use the JOIN command with a file server or with an assigned or substituted drive.

After you issue the JOIN command, the first drive name (drv2:) becomes invalid. If you try to use it, the MS-DOS operating system displays the "Invalid drive specification" message.

#### Example 1

To join drive A to the path C:\MEMOS, type:

```
C:\MEMOS> JOIN A: C:\MEMOS
C:\MEMOS>
```

#### Example 2

To display a directory listing of drive A that was joined to drive C:\MEMOS, type:

```
C:\MEMOS> DIR C:\MEMOS
```

#### Example 3

To display the currently joined drives, type:

```
C:\MEMOS> JOIN
A: => C:\MEMOS
C:\MEMOS>
```

#### Example 4

To deassign the effects of a previous JOIN command, type:

```
C:\MEMOS> JOIN A: /D
C:\MEMOS>
```

## **LABEL**

To create, change, or delete a diskette or hard disk volume label, use the LABEL command.

### **Format**

```
[drv1:] [\path1\] LABEL [drv2:] [name]
```

### **Where:**

- drv1:** Is the drive containing the LABEL command. If you omit this drive, the MS-DOS operating system searches for the LABEL command on the default drive.
- \path1\** Is the path containing the LABEL command. If you omit this path, the MS-DOS operating system searches for the LABEL command in the current directory.
- drv2:** Is the drive containing the disk where you want to create, change, or delete a label. If you omit this drive, the LABEL command uses the default drive.
- name** Is the new volume label (11 characters or less). Longer entries are truncated.

### **Comments**

You can use the LABEL command to label virtual disks.

You cannot use wildcards or tabs in labels.

Do not use the LABEL command with assigned, joined, or substituted drives.

### **Example 1**

To name the volume on drive A MEMOS, type:

```
C:\> LABEL A:MEMOS
```

```
C:\>
```

### Example 2

To enter a new label on drive A, type:

```
C:\> LABEL A:
```

The following information is displayed:

```
Volume in drive A has no label
Volume label (11 character, ENTER for none)?
```

Type the new label for drive A and press the Return key.

### Example 3

To delete a volume label, type:

```
C:\> LABEL A:
```

The following information is displayed:

```
Volume in drive A is MEMOS
Volume label (11 character, ENTER for none)?
```

Press the Return key. The following information is displayed:

```
Delete current volume label (Y/N)?
```

Press the Y key and the Return key to delete the volume label. Press the N key and the Return key to retain the volume label.

## LCOUNTRY

To install country-specific information into memory, use the LCOUNTRY command.

### Format

```
[drv1:] [\path1\]LCOUNTRY [drv2:] [\path2\] [filename2[.ext]] [ddd]
```

### Where:

- drv1:** Is the drive containing the LCOUNTRY command. If you omit this drive, the MS-DOS operating system searches for the LCOUNTRY command on the default drive.
- \path1\** Is the path containing the LCOUNTRY command. If you omit this path, the MS-DOS operating system searches for the LCOUNTRY command in the current directory.
- drv2:** Is the drive containing the country-specific information applicable to the current font file. If you omit this drive, the LCOUNTRY command uses the default drive.
- \path2\** Is the path containing the country-specific information applicable to the current font file. If you omit this path, the LCOUNTRY command searches the current directory, any appended directories, the root directory, or the current path.
- filename2.ext** Is the file name and file extension of a table of country-specific information applicable to the current font file. If you omit a file extension, .COU is used. For a full list of supported .COU files, see Appendix D of this manual.
- ddd** Is a three-digit country code. If you specify a file name and a three-digit country code, the country-specific information for that character set is selected. However, if you specify only a three-digit country code, the current country information changes to the country just specified. For a full list of country codes, see Appendix D of this manual.

If you have no COUNTRY command in your CONFIG.SYS file, the default country is the United States.

### Comments

If you use the SELECT command, you do not need to use the LCOUNTRY command.

The LCOUNTRY command installs the following country-specific information into memory:

- Date format
- Time format
- Currency symbols
- Decimal separators
- Case conversion information

If the .COU file is not in the proper format, a message is displayed indicating an improper format.

### NOTE

The LCOUNTRY command does not check to see if the font, keyboard, and country-specific information match. If they do not match, the results are unpredictable.

### Example 1

To load the default country-specific information (STD.COU), type:

```
A:\> LCOUNTRY
Load Country Dependent Information Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
LCOUNTRY loaded STD.COU
Country Code = 001
A:\>
```

*Operating System Commands*  
**LCOUNTRY**

To change the country code, you must use the LCOUNTRY command and specify the new country code. For example, to change the country code to the United Kingdom, type:

```
A:\>LCOUNTRY 044
Load Country Dependent Information Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
Country Code = 044
A:\>
```

**Example 2**

To load the French country-specific information, type:

```
A:\>LCOUNTRY FR7.COU
Load Country Dependent Information Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
LCOUNTRY loaded FR7.COU
Country Code = 033
A:\>
```

**Example 3**

To change the country information to US (using the same character set), type:

```
A:\>LCOUNTRY 001
```

**Example 4**

To load the ISO Latin-1 character set country data and specify the country as France, type:

```
A:\>LCOUNTRY ISO 033
```

## MDRIVE

To reserve a portion of *random access memory* (RAM) as a memory drive, use the MDRIVE command. MDRIVE is a device driver.

A memory drive works like a disk drive but is much faster. Therefore, you can copy files, such as MS-DOS operating system files, that you want to run quickly to the memory drive.

### Format

The following command line must be included in your CONFIG.SYS file to install a memory drive:

```
DEVICE=[drv:][\path\]MDRIVE.SYS [n]
```

```
DEVICE=[drv:][\path\]MDRIVE.SYS [[n][E]]
```

```
DEVICE=[drv:][\path\]MDRIVE.SYS [/E*]
```

### Where:

- drv:** Is the drive containing the MDRIVE.SYS file. If you omit this drive, the DEVICE command uses the drive from which the MS-DOS operating system is started.
- \path\** Is the path to the directory containing the MDRIVE.SYS file. If you omit this path, the DEVICE command uses the directory from which the MS-DOS operating system is started.
- n** Is the memory drive disk size in 64 Kbyte pages. The default value is 64 Kbytes. The range is 1 (64 Kbytes) to the amount of available memory on your VAXmate workstation minus 128 Kbytes of non-extended memory.
- /E** Use extended memory. The memory drive buffer is in extended memory and the device driver is in lower memory.
- /E\*** Use all available extended memory as one memory drive.

### Comments

By default, every VAXmate workstation can have a 256 Kbyte extended memory drive without affecting the 640 Kbyte program space.

Before you turn off the power or restart the MS-DOS operating system, copy all data that is currently on a memory drive to a non-memory drive. Otherwise, the data is lost.

## *Operating System Commands*

### **MDRIVE**

The drive letter associated with the memory drive depends on the number of drives you already have. For example, if you have one diskette drive (A:) and no hard disk, the first memory drive is C, the second is D, and so on.

Each memory drive increases the resident size of the MS-DOS operating system. The resident size is increased by about 1 Kbyte plus the size of the memory drive buffer you specify (if the drive is installed in low memory).

#### **NOTE**

DIGITAL's 2-Mbyte extended memory option increases the amount of memory you have available for RAM drives. Before you can use this memory, you must allocate it using the MDRIVE command.

#### **Example 1**

To install one 64 Kbyte memory drive, add this line to your CONFIG.SYS file:

```
DEVICE=MDRIVE.SYS
```

#### **Example 2**

To install one 256 Kbyte memory drive in extended memory, add this line to your CONFIG.SYS file:

```
DEVICE=MDRIVE.SYS 4 /E
```

#### **Example 3**

To install one memory drive using all your extended memory, add this line to your CONFIG.SYS file:

```
DEVICE=MDRIVE.SYS /E*
```

## MKDIR

To create a subdirectory in the MS-DOS operating system directory structure, use the MKDIR command.

### Format

```
MKDIR [drv:][\]path
```

```
MD [drv:][\]path
```

### Where:

**drv:** Is the drive on which you want to make a subdirectory. If you omit this drive, the MKDIR command uses the current drive.

**path** Is the path you want to make to the new subdirectory.

### Example 1

To create the subdirectory USER in your root directory, type:

```
A:\>MKDIR \USERReturn
```

```
A:\>
```

### Example 2

To create the subdirectory JOE under the subdirectory TOOLS, type:

```
A:\>MKDIR \USER\TOOLSReturn
```

```
A:\>
```

## **MODE**

To redirect (assign) printers, set up printers, set up communications, set keyboard mode, and set video mode, use the MODE command. The following sections contain specific information about each use of the MODE command.

The MODE command has its own help message format.

### **NOTE**

Do not use the MODE command from MS-Windows.

## **Help Mode**

Using the help mode function, you can display a help screen of information listing options and correct syntax for the MODE command.

### **Format**

MODE HELP [subject]

MODE ? [subject]

MODE [subject] [?]

**Where:**

**drv:** Is the drive containing the MODE command. If you omit this drive, the MS-DOS operating system search for the MODE command on the default drive.

**\path\** Is the path containing the MODE command. If you omit this path, the MS-DOS operating system searches for the MODE command in the current directory.

**subject** Is one of the following:

**COMM** Displays a help screen for the communications port parameters.

**SERIAL** Displays a help screen for the serial port parameters.

**PRINT** Displays a help screen for the printer set-up parameters.

**VIDEO** Displays a help screen for the video mode parameters.

**KEY** Displays a help screen for the keyboard mode parameters.

**POUT** Displays a help screen for the printer redirection parameters.

**Example 1**

To display the topics for which help is available, type:

```
A:\> MODE HELP
```

**Example 2**

To display help information for printer redirection commands, type either of the following:

```
A:\> MODE HELP POUT
```

```
A:\> MODE POUT
```

## Printer Redirection

Using the printer redirection function, you can redirect a logical device to a communications port, serial port, or installed parallel port. LPT1 is the default printer port. Because the VAXmate workstation does not have a parallel port, LPT1 is redirected to SPP when you turn on, or restart, your VAXmate workstation.

### Format

```
MODE [LPT#[[:]=port[:]]
```

Where:

LPT# Is the logical drive you want to redirect: LPT1, LPT2, LPT3, or LPT4.

port Is the serial communications port (COM1, COM2, COM3, or COM4) or an installed parallel port (LPT).

The default setting for the communications port when you start your VAXmate workstation is modem control.

The default setting for the serial port when you start your VAXmate workstation is XON/XOFF.

### Comments

After exiting from the MODE program, a message indicates whether the port is redirected.

### Example 1

In the following example, the MODE command redirects output to the the serial printer port COM1:

```
A:\>MODE LPT1:=COM1:Return
Mode Setup Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
Parallel port redirected successfully.
A:\>
```

### **Example 2**

In the following example, the MODE command cancels the redirection specified in Example 1, and assigns LPT1 to the parallel printer port:

```
A:\>MODE LPT1:=LPTReturn
Mode Setup Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
Parallel port redirection canceled successfully.
A:\>
```

### **Example 3**

To redirect output from LPT2 to the printer connected to the serial printer port, type:

```
A:\>MODE LPT2:=SPP:Return
Mode Setup Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
Parallel port redirected successfully.
A:\>
```

## **Printer Setup**

Using the printer setup function, you can tell the VAXmate workstation what type printer and printing format you are using. Table 4-8 lists the supported printers.

**Table 4-8: Supported Printers**

| Printer                    | Printer Type           |
|----------------------------|------------------------|
| LA50                       | LA50                   |
| IBM Proprinter             | STD                    |
| IBM PC Color Printer       | COLOR4, COLOR8         |
| LA75 Companion             | LA75, LA75DEC, LA75STD |
| LN03 (without a cartridge) | LN03                   |
| LN03 (with a cartridge)    | LN03DEC, LN03STD       |
| LA210 Letterprinter        | LA210DEC, LA210STD     |
| LJ250 DEColorwriter        | LJ250DEC, LJ250HP      |

**Format**

MODE LPT#[:][type,width,lpi,retry,qual,bold]

**Where:**

**LPT#** Is the logical device (LPT1, LPT2, LPT3 or LPT4). PRN is equivalent to LPT1.

**type** Is the printer type (STD, LA50, LA75, LA75STD, LA75DEC, LN03, LN03STD, LN03DEC, LA210STD, LA210DEC, LJ250HP, LJ250DEC, COLOR4, COLOR8).

If you omit type, the current setting stays the same. If there is no current setting, the MODE command prompts you for the printer type.

When you specify the printer types LA75STD, LA75DEC, LA210HP, and LA210DEC, the MODE command forces the printer into the appropriate mode.

LA75DEC, LA210DEC, LN03, and LN03DEC are treated as LA50-type printers.

LA75STD, LA210STD, and LN03STD are treated as IBM Proprinter-type printers.

**width** Is the number of characters per line (80, 96, or 132).  
If the printer type is an STD, LA75, LA75STD, LN03STD, LA210STD, COLOR4, or COLOR8, only 80 or 132 characters per line are valid.

**lpi** Is the number of lines per inch (6 or 8).

**retry** Is the number of times to resend data to the printer (p or -).

**p** Enables continuous retry on a timeout; in other words, it keeps sending forever.

**-** Disables continuous retry on a timeout; in other words, it attempts to send only once.

If you omit this parameter, the current setting stays the same. If the printer has been redirected to a communications port, retry is enabled on the communications port to which it was redirected.

**qual** Is the print quality (d, e, or h).

**d** Draft quality.

**e** Enhanced quality.

**h** High quality.

If the printer type is STD, LA75, LA75STD, LN03STD, LA210STD, COLOR4, or COLOR8, only draft and enhanced quality are available.

**bold** Is the number of times the print head passes over each printed line (b or n).

**b** Bold.

**n** Normal.

You can set the print quality and bolding for some, but not all, printer types. For more information about setting print quality and bolding for your printer, see your printer manual.

## Operating System Commands

### MODE

#### Comments

You can enter parameters, separated by commas, in any order.

#### Example 1

To set up the LA75 Companion printer for use, type:

```
A:\>MODE LPT1:LA75
Mode Setup Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
Printer type set successfully.
Printer programmed successfully.
A:\>
```

#### Example 2

To set up the LA75 Companion printer for 80 columns, 8 lines per inch, continuous retry, draft quality, and normal, type:

```
A:\>MODE LPT1:LA75,80,8,p,d,n
Mode Setup Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
Printer type set successfully.
Line width set to 80 columns.
Vertical spacing set to 8 lines per inch.
Print quality set to DRAFT.
Bold print set off.
"Retry forever" set on.
Printer programmed successfully.
```

## Communications Setup

Using the communications setup function, you can set the parameters for the serial and communications ports. To avoid having to reset ports each time you restart your VAXmate workstation, add the MODE command to your AUTOEXEC.BAT file. See your system administrator for help editing your AUTOEXEC.BAT file.

If you change the printer type you have connected to your VAXmate workstation, or if you are using two kinds of printers connected to your VAXmate workstation, you may have to use this command again.

You can specify parameters in any order. They must be separated by one or more commas. Extra commas can precede or follow any parameter.

**Format**

MODE port[:][[baud,parity,databits,stopbits,]retry,bypass]

**Where:**

|          |                                                                                                                                                                                                                                                                                                                                                                              |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| port     | Is the port (COM1, COM2, or SPP). You can use AUX in place of COM1.                                                                                                                                                                                                                                                                                                          |
| baud     | Is the baud rate (50, 75, 110, 134.5, 150, 300, 600, 1200 [default], 1800, 2000, 2400, 3600, 4800, 7200, 9600, or 19200).                                                                                                                                                                                                                                                    |
| parity   | Is the parity (e, o, or n).<br><br>e Even (default).<br>o Odd.<br>n None.                                                                                                                                                                                                                                                                                                    |
| databits | Is the number of data bits (5, 6, 7 [default], or 8).                                                                                                                                                                                                                                                                                                                        |
| stopbits | Is the number of stop bits (1 or 2). The default is 2 for 110 baud, and 1 for all others.                                                                                                                                                                                                                                                                                    |
| retry    | Is the number of times to resend data to the printer (p or -).<br><br>p Enables continuous retry on a timeout; in other words, it keeps sending forever.<br>- Disables continuous retry on a timeout; in other words, it sends only once.<br><br>Use this parameter if the port is being used for a serial printer.<br><br>If you omit this parameter, retries are disabled. |

## Operating System Commands

### MODE

**bypass** Is used to enable or disable modem control signals (b or m). The bypass parameter is used to bypass the modem control signals coming into a port. Normally, modem control signals are used (m).

**b** Bypasses modem control signals.

**m** Uses modem control signals.

### Example

To set up COM1 for 1200 baud, even parity, 7 data bits, 1 stop bit, continuous retry, and bypass modem control, type:

```
A:\>MODE COM1:1200,E,7,1,P,BReturn
```

```
Mode Setup Utility Version 2.0
```

```
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
Serial port programmed successfully.
```

```
A:\>
```

## Keyboard Mode

Using the keyboard mode function, you can enable or disable DIGITAL extended keys, and create an alternate keyboard buffer that allows you to type ahead more than 16 characters.

### NOTE

If you create an alternate keyboard buffer, some applications may not work, because the MS-DOS operating system creates the new keyboard buffer in a different location than the default 16-byte keyboard buffer.

Initially, the default settings are modified mode (DIGITAL extended keys are disabled) and a 16-byte keyboard buffer.

### Format

MODE [keymode][,bufsize]

### Where:

**keymode** Enables or disables DIGITAL extended keys (m or u). Digital extended keys are F11 through F20 and the special editing keypad.

m Disables DIGITAL extended keys.

u Enables DIGITAL extended keys.

If you omit the key mode, it stays the same. You can toggle these modes by pressing the Alt/F17 keys.

**bufsize** Is the size of the new keyboard buffer (1 to 80 characters).

If you specify the buffer size and omit the key mode, you must include the comma before bufsize.

If you omit bufsize, it stays the same. If bufsize is 16, the default buffer is selected.

### Example 1

To set the keyboard to use DIGITAL extended keys and specify a buffer of 80 characters, type:

```
A:\>MODE U,80Return
```

```
Mode Setup Utility Version 2.0
```

```
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
Keyboard mode set successfully.
```

```
Keyboard buffer installed successfully.
```

```
A:\>
```

### Example 2

To set the keyboard buffer to 50 characters, without affecting the current mode, type:

```
A:\>MODE ,50Return
```

```
Mode Setup Utility Version 2.0
```

```
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
Keyboard buffer installed successfully.
```

## Video Mode

Using the video mode function, you can select the display mode.

### Format

MODE vidmode

### Where:

|         |                                                                                                                    |
|---------|--------------------------------------------------------------------------------------------------------------------|
| vidmode | Is one of the following:                                                                                           |
| 40      | Set to 40 columns, shades of gray unchanged.                                                                       |
| 80      | Set to 80 columns, shades of gray unchanged.                                                                       |
|         | These selections are valid only in text modes. The only effect on the monochrome adapter is the screen is cleared. |
| BW40    | Set to text mode, 40 columns, 2 shades of gray.                                                                    |
| CO40    | Set to text mode, 40 columns, 4 shades of gray.                                                                    |
| BW80    | Set to text mode, 80 columns, 2 shades of gray.                                                                    |
| CO80    | Set to text mode, 80 columns, 4 shades of gray.                                                                    |
| BW320   | Set to 320 x 200 pixels, 2 shades of gray.                                                                         |
| CO320   | Set to 320 x 200 pixels, 4 shades of gray.                                                                         |
| BW640   | Set to 640 x 200 pixels, 2 shades of gray.                                                                         |
| DEC2    | Set to 640 x 400 pixels, 2 shades of gray.                                                                         |
| DEC4    | Set to 640 x 400 pixels, 4 shades of gray.                                                                         |
| MONO    | Set up for monochrome screen.                                                                                      |

### Comments

The DEC2 and DEC4 video modes work only on a VAXmate workstation.

**Example 1**

To set the video to 320 x 200 pixels with shades of gray enabled, type:

```
A:\>MODE CO320[Return]
```

```
Video mode set successfully.
```

```
A:\>
```

## **MORE**

To view a file one screen at a time, use the MORE command. The MORE command is a filter that reads standard input from a pipe or a redirected file and displays one screen of information at a time.

### **Format**

```
command [drv:][\path\[filename.ext] | MORE
MORE < filename.ext
```

### **Where:**

|              |                                                                                                                     |
|--------------|---------------------------------------------------------------------------------------------------------------------|
| command      | Is an MS-DOS operating system command.                                                                              |
| drv:         | Is the drive containing the file you want to display. If you omit this drive, the command uses the default drive.   |
| \path\       | Is the path containing the file you want to display. If you omit this path, the command uses the current directory. |
| filename.ext | Is the file name and file extension of the file you want to display.                                                |
|              | Is the pipe separator. For more information about pipes, see Chapter 3 of this manual.                              |
| MORE         | Is the MORE filter.                                                                                                 |

### **Comments**

The MORE command displays one screen of information, pauses, and displays the message:

```
--MORE--
```

To proceed, press any key. Continue pressing any key until all the information has been displayed.

To discontinue displaying a file, press the Ctrl/C keys or the Ctrl/Break keys.

Because the MORE command creates temporary files, you cannot execute it from a read-only drive, or from a write-protected or full disk. You must have write privileges on the drive from which you execute the MORE command.

**Example 1**

To display MYFILES.TXT one screen at a time, type:

```
A:\>TYPE MYFILES.TXT | MORE
```

**Example 2**

To display the redirected file NOTE.TXT one screen at a time, type:

```
A:\>MORE < NOTE.TXT
```

```
A:\>
```

## **MOUSE**

To make DIGITAL's mouse emulate a Microsoft mouse, use the **MOUSE** command. The **MOUSE** command allows applications that assume a Microsoft mouse is present to run with a DIGITAL mouse.

### **Format**

Typed at the MS-DOS prompt:

```
[drv:] [\path\]MOUSE
```

Added to your CONFIG.SYS file:

```
DEVICE=[drv:] [\path\]MOUSE.SYS
```

Where:

- drv:** Is the drive containing the **MOUSE** command. If you omit this drive, the MS-DOS operating system searches for the **MOUSE** command on the default drive.
- \path\** Is the path containing the **MOUSE** command. If you omit this path, the MS-DOS operating system searches for the **MOUSE** command in the current directory.

### **Comments**

DIGITAL supplies two drivers:

- **MOUSE.COM**, which you run when needed. For example, you would run **MOUSE.COM** before running an application that required the Microsoft mouse emulator.
- **MOUSE.SYS**, which you place in your **CONFIG.SYS** file if you frequently use a mouse outside of MS-Windows.

You do not need to run both drivers, just the driver that suits your needs.

If you unplug your mouse after running the **MOUSE** command, and then plug it back in, the mouse will not work. To activate the mouse again, run **MOUSE.COM**, or restart the VAXmate workstation by pressing the Ctrl/Alt/Del keys.

To load **MOUSE.COM** as you need it, type:

```
A:\>MOUSE
```

*Operating System Commands*  
**MOUSE**

To place MOUSE.SYS in your CONFIG.SYS file, edit CONFIG.SYS and add the following line:

```
DEVICE=MOUSE.SYS
```

## **PATH**

To tell the MS-DOS operating system which directories to search for external commands, use the PATH command. For example, if you are in your root directory, and your operating system files are in the directory \SYSTEM, you have to set the path so that the MS-DOS operating system will search \SYSTEM for the command you want to execute. Otherwise, you have to use the CHDIR command to change to the appropriate directory.

### **Format**

```
PATH [drv:\path][;drv:\path][...]
```

Where:

drv:        Is the drive containing the directory you want searched.

\path      Is the path to the directory you want searched.

### **Comments**

The MS-DOS operating system always searches your current directory first.

You must specify the complete path to each directory you want the MS-DOS operating system to search. Otherwise, the MS-DOS operating system does a relative search and may or may not search the desired directory.

The MS-DOS operating system searches the path names in the order specified in the PATH command.

The default value is no path. The MS-DOS operating system searches only the current directory.

If you define a new path, the old path is lost.

### **Example 1**

To set the path to search the directory \USER\TOOLS for external commands, type:

```
A:\> PATH C:\USER\TOOLS
```

```
A:\>
```

**Example 2**

To set the path to search your current directory, and the directories \USER\SYSTEM and \USER\TOOLS on drive A, type:

```
A:\>PATH A:\USER\SYSTEM;A:\USER\TOOLS Return
A:\>
```

**Example 3**

To display the current path, type:

```
A:\>PATH Return
PATH=A:\USER\SYSTEM;A:\USER\TOOLS
A:\>
```

**Example 4**

To set the path to No Path (that is, the MS-DOS operating system searches only the current directory), type:

```
A:\>PATH ; Return
A:\>
```

## PRINT

To print a text file, use the PRINT command.

### Format

```
[drv1:][\path1\]PRINT [/B:buffsize][/D:device][/M:maxticks]
 [/Q:quesize] [/S:timeslice][/U:waitticks]
 [drv2:][\path2\][filename2.ext]
 [/C][/P][/T]
```

### Where:

- drv1:** Is the drive containing the PRINT command. If you omit this drive, the MS-DOS operating system searches for the PRINT command on the default drive.
- \path1\** Is the path containing the PRINT command. If you omit this path, the MS-DOS operating system searches for the PRINT command in the current directory.
- /B:buffsize** Sets the size in bytes of the internal buffer. Increasing the value of /B: speeds up the PRINT command. The range for /B: values is 512 through 16384 bytes. The default is 512 bytes.
- /D:device** Specifies the print device. If not specified, the default device is PRN.
- /M:maxticks** Specifies the number of computer clock ticks available to print a file. The default value is 2 clock ticks. The range for /M:maxticks is 1 through 255 clock ticks.
- For example, /M:8 specifies that the PRINT command can use 8 consecutive clock ticks to print before returning control to the CPU.
- /Q:quesize** Specifies the number of files allowed in the print queue if you want more than the default, which is 10. The range for /Q:quesize values is 4 through 32.
- /S:timeslice** Specifies the interval of time to be used by the MS-DOS scheduler for the PRINT command. The default is 8. The range for /S:timeslice values is 1 through 255.

For example, */S:7* specifies to skip 7 clock ticks and give control to print on the 8th clock tick. Therefore, the printer has 1/8 of the CPU's processing time, assuming that */M:* is set to 1. If */S:* is set to 1 (and */M:* is set to 1), the PRINT command gets 1/2 the CPU's processing time.

You should set */M:* greater than */U:*.

*/U:waitticks* Specifies the number of computer clock ticks that the PRINT command waits for the printer to be available. If the PRINT command waits longer than this value, it gives up its timeslice (see */S:* qualifier). The range for */U:waitticks* values is 1 through 255 clock ticks. The default is 1 clock tick. If you set this value equal to, or greater than, */M:*, */U:* is ignored.

*/U:10* specifies that if the printer is unavailable in 10 clock ticks since the CPU gave print control, then control returns to the CPU on the 11th clock tick without printing.

You should set */U:* less than */M:*.

*drv2:* Is the drive containing the file you want to print. If you omit this drive, the PRINT command uses the default drive.

*\path\* Is the path containing the file you want to print. If you omit this path, the PRINT command uses the current directory.

*filename2.ext* Is the file name and file extension of the file you want to print.

*/C* Turns on cancel mode. The file preceding */C* and all files following it are removed from the print queue. You can use this qualifier any time you use the PRINT command.

*/P* Turns on print mode. The file preceding */P* and all files following it are added to the print queue. You can use this qualifier any time you use the PRINT command.

*/T* Deletes all files in the print queue (waiting to be printed). A message to this effect is displayed. You can use this qualifier any time you use the PRINT command.

*Operating System Commands*  
**PRINT**

**NOTE**

You can only specify the following qualifiers the first time you use the PRINT command after starting the MS-DOS operating system:

/B:buffsize

/D:device

/M:maxticks

/Q:quesize

/S:timeslice

/U:waitticks

**Comments**

Use the NET PRINT command, not the PRINT command, when printing on a remote printer. For more information about the NET PRINT command, see *Using Networks From Your Workstation*.

Each print queue entry can contain a maximum of 64 characters, including the drive name. Therefore, to avoid extensive path names, you may have to change directories.

The computer clock is like a regular clock. A computer clock ticks n times in one second. When you set the preceding qualifiers, you specify computer clock ticks.

Use the following formula to determine the amount of time the PRINT command gets from the CPU:

$$\text{Time} = \text{Maxticks} / (1 + \text{Timeslice}) * 100$$

**Example 1**

To display the contents of the print queue without affecting the queue, type:

```
A:\>PRINT
```

```
A:\>
```

### Example 2

To empty the print queue, type:

```
A:\> PRINT /TReturn
A:\>
```

### Example 3

To remove MEMO1.TXT, MEMO2.TXT and MEMO3.TXT from the print queue, type:

```
A:\> PRINT MEMO1.TXT /C MEMO2.TXT MEMO3.TXTReturn
A:\>
```

### Example 4

To remove MEMO1.TXT from the print queue and add MEMO2.TXT to the print queue, type:

```
A:\> PRINT MEMO1.TXT /C MEMO2.TXT /PReturn
A:\>
```

### Example 5

To specify (after starting the MS-DOS operating system) a 512-byte buffer, maxticks = 100, and timeslice = 1, type:

```
A:\> PRINT /B:512 /M:100 /S:1Return
A:\>
```

### Example 6

To specify (the first time you use the PRINT command after starting the MS-DOS operating system) the print device as the printer connected to LPT1: (a parallel printer port) and to print the file MEMO.TXT, type:

```
A:\> PRINT /D:LPT1 MEMO.TXTReturn
Resident part of PRINT installed
A:\MEMO.TXT is currently being printed
A:\>
```

## PROMPT

To change the MS-DOS operating system command prompt, use the PROMPT command.

### Format

PROMPT text

### Where:

text                      Is the prompt character string that specifies what you want displayed as the prompt.

### Comments

If you type no text, the prompt is the default prompt, which is the default drive designation followed by the ">" character (for example, A>).

Table 4-9 lists the characters you must specify to get a specific prompt.

**Table 4-9: Prompt Characters**

| Type | For the prompt                                                             |
|------|----------------------------------------------------------------------------|
| \$\$ | The '\$' character                                                         |
| \$_  | A carriage return line feed sequence                                       |
| \$b  | The ' ' character                                                          |
| \$d  | The current date                                                           |
| \$e  | ASCII code '1B' (escape)                                                   |
| \$g  | The '>' character                                                          |
| \$h  | A backspace, to erase a character that has been written to the prompt line |
| \$l  | The '<' character                                                          |
| \$n  | The default drive                                                          |
| \$p  | The current directory of the default drive                                 |

**Table 4-9 (Cont.): Prompt Characters**

| Type | For the prompt         |
|------|------------------------|
| \$s  | A space (leading only) |
| \$t  | The current time       |
| \$v  | The version number     |

**Examples**

Table 4-10 contains examples you can enter into your AUTOEXEC.BAT file to display a specific prompt.

**Table 4-10: System Prompt Examples**

| Type          | To get             |
|---------------|--------------------|
| PROMPT \$\$   | \$                 |
| PROMPT \$g    | >                  |
| PROMPT \$l    | <                  |
| PROMPT \$n    | A                  |
| PROMPT \$p    | A:\                |
| PROMPT \$p\$g | A:\> (Recommended) |

In the following example, the PROMPT command displays the default drive letter, the current directory and the > character. If you change to a subdirectory using the CHDIR command, the subdirectory name appears as part of the prompt.

```
A> PROMPT PG
A: \> CHDIR TOOLS
A: \TOOLS>
```

## RECOVER

To recover a file or disk containing bad sectors, use the RECOVER command.

### Format

```
[drv1:][\path1\]RECOVER [drv2:][\path2\]filename2.ext
[drv1:][\path1\]RECOVER drv2:
```

Where:

|               |                                                                                                                                                           |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the RECOVER command. If you omit this drive, the MS-DOS operating system searches for the RECOVER command on the default drive.   |
| \path1\       | Is the path containing the RECOVER command. If you omit this path, the MS-DOS operating system searches for the RECOVER command in the current directory. |
| drv2:         | Is the drive you want recovered.                                                                                                                          |
| \path2\       | Is the path to the directory containing the file you want recovered. If you omit this path, the RECOVER command uses the current directory.               |
| filename2.ext | Is the file name and file extension of the file you want recovered.                                                                                       |

### Comments

If a sector on a disk is bad, you can recover either the file containing that sector (without the bad sector) or the entire disk (if the bad sector was in a directory). The MS-DOS operating system reads the file or disk sector by sector and skips the bad sectors. When it finds bad sectors, it marks them and no longer allocates them to store your data.

If you must recover an entire drive, you may have to use the RECOVER command more than once because of the file entry limit of the root directory. For example, if you want to recover 250 files from a bad 1.2 Mbyte diskette in drive A, you will have to run the RECOVER command twice. The RECOVER command will recover 224 files (file entry limit for the root directory of a 1.2 Mbyte diskette) the first time you run it and will display the following message:

```
Warning - directory full
xxx file(s) recovered
```

Before you can recover the remaining files, you must remove the current recovered files from the root directory. You can delete the files you do not want, and copy the files you want to another diskette. Run the RECOVER command again to recover the rest of the files. Continue this process until the RECOVER command recovers all the files.

Table 4-11 lists the file entry limits for the root directory of various size diskettes.

**Table 4-11: File Entry Limits for Root Directory**

| Diskette Size | Number of Files Allowed in Root Directory |
|---------------|-------------------------------------------|
| 1.2 Mbyte     | 224 files                                 |
| 360 Kbyte     | 112 files                                 |
| 180 Kbyte     | 64 files                                  |

The RECOVER command does not work on drives that have been assigned, joined or substituted.

**NOTE**

You cannot use the RECOVER command on a substituted, assigned, or joined drive.

You cannot use the RECOVER command with a remote network resource as the destination.

**Example 1**

To recover all of the MEMO.TXT file (except the bad sectors), type:

```
A:\> RECOVER MEMO.TXT
```

```
A:\>
```

**Example 2**

To recover all of drive C (except the bad sectors), type:

```
A:\> RECOVER C:
```

```
A:\>
```

## RENAME

To rename a file, use the RENAME command.

### Format

```
RENAME [drv1:][\path1\]filename1[.ext] filename2[.ext]
```

```
REN [drv1:][\path1\]filename1[.ext] filename2[.ext]
```

### Where:

**drv1:** Is the drive containing the file you want to rename. If you omit this drive, the REN command uses the default drive.

**\path1\** Is the path to the directory containing the file you want to rename. If you omit this path, the REN command uses the current directory.

**filename1.ext** Is the file name and file extension of the current file.

**filename2.ext** Is the new file name and file extension.

### Comments

You cannot rename files across drives.

You can use wildcards in both file names and file extensions.

### Example 1

To change all .LST files to .PRN files, type:

```
E:\>REN *.LST *.PRN
```

```
E:\>
```

### Example 2

To rename CHAP10 on drive C to PART10, type:

```
E:\>REN C:CHAP10 C:PART10
```

```
E:\>
```

The file remains on drive C.

## REPLACE

To replace files on, or add files to, the destination disk, with files of the same name from the source disk, use the REPLACE command.

Unlike the COPY command, which just moves files from one place to another, the REPLACE command can add files that are lacking on a disk, copy read-only files to a disk, and search all directories on a disk for a file.

### Format

```
[drv1:] [\path1\]REPLACE [drv2:] [\path2\]filename2[.ext]
[drv3:] [\path3\] [/A] [/P] [/R] [/S] [/W]
```

### Where:

|               |                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the REPLACE command. If you omit this drive, the MS-DOS operating system searches for the REPLACE command on the default drive.       |
| \path1\       | Is the path containing the REPLACE command. If you omit this path, the MS-DOS operating system searches for the REPLACE command in the current directory.     |
| drv2:         | Is the source drive on which the files are located.                                                                                                           |
| \path2\       | Is the path to the source directory where the files are located.                                                                                              |
| filename2.ext | Is the source file or files you want to replace on the destination disk. You can use wildcards in file name specifications.                                   |
| drv3:         | Is the destination drive on which files are to be replaced.                                                                                                   |
| \path3\       | Is the path to the destination directory where the files are to be replaced.                                                                                  |
| /A            | Copies all specified source files that do not exist on the destination drive to the destination drive. You cannot use the /A qualifier with the /S qualifier. |
| /P            | Prompts you before each file is copied to the destination disk.                                                                                               |

## Operating System Commands

### REPLACE

- /R** Replaces all files, including read-only files, on the destination disk. If you do not specify the /R qualifier, the REPLACE command terminates when it encounters the first read-only file on the destination disk.
- /S** Searches all directories on the destination disk for files matching the source file names. You cannot use the /A qualifier with the /S qualifier.
- /W** Waits for you to insert a diskette into the diskette drive before searching for source files.
- If you specify /W alone, the REPLACE command displays the message "Press any key to begin replacing file(s)."
- If you specify the /A qualifier with the /W qualifier, the REPLACE command displays the message "Press any key to begin adding file (s)."

#### Comments

The REPLACE command does not locate system or hidden files on the source drive. Therefore, you cannot use the REPLACE command to replace hidden or system files on the destination drive.

#### Example 1

To copy from drive L all the source files that do not exist on on drive C, type:

```
C:\> REPLACE L:*.* C:\ /A
```

#### Example 2

To copy all the matching source files from drive L to the matching destination files on the root directory and the subdirectories of drive C, type:

```
C:\> REPLACE L:*.* C:\ /S
```

## RESTORE

To restore and make usable backup files from a backup disk created using the BACKUP command, use the RESTORE command.

You can restore files to local drives, network drives, virtual disks, and subdirectories.

### Format

```
[drv1:] [\path1\] RESTORE drv2: [\path2]
 [drv3:] [\path3\] [filename3 [.ext]]
 [/A:mm-dd-yy] [/B:mm-dd-yy]
 [/E:hh:mm:ss] [/L:hh:mm:ss]
 [/M] [/N] [/P] [/S]
```

### Where:

|               |                                                                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the RESTORE command. If you omit this drive, the MS-DOS operating system searches for the RESTORE command on the default drive.                                                       |
| \path1\       | Is the path containing the RESTORE command. If you omit this path, the MS-DOS operating system searches for the RESTORE command in the current directory.                                                     |
| drv2:         | Is the drive containing the BACKUP source files.                                                                                                                                                              |
| \path2        | Is the path to the directory containing the BACKUP source files. If you omit path2, the RESTORE command uses the default directory on drv2:.                                                                  |
| drv3:         | Is the destination drive, the drive to which backup files must be restored.                                                                                                                                   |
| \path3\       | Is the path to the directory where the backup files must be restored. The path must exist, unless you use the /S qualifier. If you use the /S qualifier, a subdirectory will be created if it does not exist. |
| filename3.ext | Is the file name and file extension of the files you want to restore.<br><br>If you specify a file name, you must specify a path name.                                                                        |
| /A:mm-dd-yy   | Restores files modified on or after the specified date. Do not use this qualifier with the /B or the /N qualifiers. The date format depends on the country code you select.                                   |

*Operating System Commands*  
**RESTORE**

RESTORE /A works correctly only when the destination drive contains files with the same names as those you want to restore. This occurs because the RESTORE command must compare the dates of the backup files to the dates of the files on the destination disk.

**/B:mm-dd-yy** Restores files modified on or before the specified date. Do not use this qualifier with the /A or the /N qualifiers. The date format depends on the country code you select.

RESTORE /B works correctly only when the destination drive contains files with the same names as those you want to restore. This occurs because the RESTORE command must compare the dates of the backup files to the dates of the files on the destination disk.

**/E:hh:mm:ss** Restores files modified at or earlier than the specified time. The time format is 24-hour time.

The time separators are country dependent. These time separators are for the United States.

Do not use the /E qualifier with the /L qualifier.

**/L:hh:mm:ss** Restores files modified at or later than the specified time. The time format is 24-hour time.

The time separators are country dependent. These time separators are for the United States.

Do not use the /L qualifier with the /E qualifier.

**/M** Restores files modified or deleted since the last backup.

**/N** Restores files that no longer exist on the destination disk. Do not use this qualifier with the /A or the /B qualifiers.

**/P** Prompts you for permission to restore files that have changed since the last backup or to restore read-only files.

**/S** Restores subdirectories. If the destination disk does not contain the subdirectories from which the files were backed up, they are created and the files are restored.

You can use the /S qualifier without specifying a path, if the destination directory is below the current directory.

### NOTE

If you want to restore files that were backed up using RESTORE /A, RESTORE /B, or RESTORE /M, the destination disk must contain files with the same name as those files you want to restore. This is necessary because the RESTORE command must compare the dates of the files that have the same names. Otherwise, the files are automatically restored.

### Comments

If you back up the files IO.SYS, MSDOS.SYS, and COMMAND.COM using the BACKUP command, the RESTORE command does not restore them.

The RESTORE command restores files only to the directory area where the files originated. For example, if you back up files from C:\DIR1\DIR2, you can restore the files only to \DIR1\DIR2 on the destination device.

You can restore files from one hard disk partition to another hard disk partition.

If you back up files to more than one diskette, the RESTORE command prompts you to insert the diskette you started the backup process with. The RESTORE command prompts you to insert each diskette in sequence. If you insert the wrong diskette, the RESTORE command displays an error message.

### Example 1

To restore all .ASM files from A:\ to their original directory on drive C, type:

```
A:\>RESTORE A: C:*.ASM /s
Insert backup diskette 01 in drive A:
Strike any key when ready

*** Files were backed up 09-03-1987 ***
*** Restoring files from drive A: ***
Diskette: 01
\TEST.ASM
\ALL.ASM
A:\>
```

*Operating System Commands*  
**RESTORE**

**Example 2**

To restore all the files from network drive I to drive C, type:

```
I:\> RESTORE I: C: /S
*** Files were backed up on 09-03-1987***
*** Restoring files from drive I: ***
.
.
.
I:\>
```

## **RMDIR**

To remove a subdirectory from the MS-DOS operating system directory structure, use the RMDIR command.

### **Format**

```
RMDIR [drv:][\]path
```

```
RD [drv:][\]path
```

### **Where:**

**drv:** Is the drive containing the subdirectory you want to remove.

**path** Is the subdirectory you want to remove.

### **Comments**

You must delete all files in a subdirectory, including hidden files, before you use the RMDIR command.

### **Example**

To remove USER from the directory structure, type:

```
A:\>RMDIR \USERReturn
```

```
A:\>
```

## **SELECT**

To append or create information in the AUTOEXEC.BAT and CONFIG.SYS files, use the SELECT command.

### **Format**

```
[drv1:][\path1\]SELECT [cc cs kb [drv2:]]
```

### **Where:**

- drv1:** Is the drive containing the SELECT command. If you omit this drive, the MS-DOS operating system searches for the SELECT command on the default drive.
- \path1\** Is the path containing the SELECT command. If you omit this path, the MS-DOS operating system searches for the SELECT command in the current directory.
- cc** Is the three-digit country code.
- |     |                |
|-----|----------------|
| 001 | United States  |
| 002 | Canada         |
| 031 | Netherlands    |
| 032 | Belgium        |
| 033 | France         |
| 034 | Spain          |
| 039 | Italy          |
| 041 | Switzerland    |
| 044 | United Kingdom |
| 045 | Denmark        |
| 046 | Sweden         |
| 047 | Norway         |
| 049 | Germany        |
| 061 | Australia      |
| 358 | Finland        |
| 972 | Israel         |

When you specify a country code, the SELECT command adds the "COUNTRY=xxx" command to the CONFIG.SYS file.

cs Is the character set code (three characters).

|     |                             |
|-----|-----------------------------|
| CA7 | Canadian 7-bit NRC          |
| CH7 | Swiss 7-bit NRC             |
| DE7 | German 7-bit NRC            |
| DK7 | Danish 7-bit NRC            |
| ES7 | Spanish 7-bit NRC           |
| FI7 | Finnish 7-bit NRC           |
| FR7 | French 7-bit NRC            |
| ISO | ISO Multinational           |
| IT7 | Italian 7-bit NRC           |
| MCS | DIGITAL Multinational       |
| NO7 | Norwegian 7-bit NRC         |
| SE7 | Swedish 7-bit NRC           |
| ST2 | IBM Norway/Denmark Extended |
| STD | IBM Extended                |
| UK7 | United Kingdom 7-bit NRC    |

When you specify a character set, the SELECT command adds the "FONT xxx" and "LCOUNTRY xxx" commands to the AUTOEXEC.BAT file.

kb Is the two-character country keyboard abbreviation.

|    |          |
|----|----------|
| CA | Canadian |
| DE | German   |
| DK | Danish   |
| ES | Spanish  |
| FI | Finnish  |
| FR | French   |

## Operating System Commands

### SELECT

|    |                  |
|----|------------------|
| IT | Italian          |
| NO | Norwegian        |
| SD | Swiss (German)   |
| SE | Swedish          |
| SF | Swiss (French)   |
| UK | English          |
| US | American English |

When you specify the country keyboard, the SELECT command adds the "DECKEYB xxxx" command to the AUTOEXEC.BAT file.

**drv2:** Is the destination drive. If you omit this drive, the SELECT command uses the default drive.

#### Comments

If you use the SELECT command to specify the country code, character set, and country keyboard, you do not need to use the DECKEYB, FONT, or LCOUNTRY commands.

The SELECT command appends or creates the following information in the CONFIG.SYS and AUTOEXEC.BAT files:

- Date and time formats
- Character set selection
- Keyboard layout

This information determines the base system configuration when you start the VAXmate workstation, or when you restart the MS-DOS operating system.

The destination disk must be formatted and you must be able to start the MS-DOS operating system from it.

The data files used by the SELECT command must be in the root directory.

Table 4-12 shows how using the SELECT command affects the CONFIG.SYS file and the AUTOEXEC.BAT file.

**Table 4-12: How SELECT Affects CONFIG.SYS and AUTOEXEC.BAT**

| File         | Exists | Status                                                   | What Happens                                                                                                                 |
|--------------|--------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| CONFIG.SYS   | No     |                                                          | The CONFIG.SYS file is created. It contains the single command line COUNTRY=cc.                                              |
| CONFIG.SYS   | Yes    | No line begins with COUNTRY.                             | The new line is added to beginning of the file.                                                                              |
| CONFIG.SYS   | Yes    | One or more lines begin with COUNTRY.                    | The first occurrence of the line beginning with COUNTRY is replaced. The remaining lines beginning with COUNTRY are deleted. |
| AUTOEXEC.BAT | No     |                                                          | The AUTOEXEC.BAT file is created. It contains the lines:<br><br>FONT cs<br><br>DECKEYB cskb<br><br>LCOUNTRY cs               |
| AUTOEXEC.BAT | Yes    | No lines begin with FONT, DECKEYB, or LCOUNTRY.          | The new lines are added at the beginning of the file. These files must be in the root directory.                             |
| AUTOEXEC.BAT | Yes    | One or more lines begin with FONT, DECKEYB, or LCOUNTRY. | The first occurrence is replaced with the new line. All remaining occurrences are deleted.                                   |

**NOTE**

The SELECT command does not check that the font, keyboard, and country-specific information match. If they do not match, the results are unpredictable.

**Example 1**

To display the SELECT help message, type:

A: \> SELECT Return

*Operating System Commands*  
**SELECT**

**Example 2**

To load the French country-specific information, the multinational character set, and the French keyboard map file, type:

```
A:\>SELECT 033 MCS FRReturn
Country Configuration Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Adding "COUNTRY=033" to \CONFIG.SYS
Adding "FONT MCS" to \AUTOEXEC.BAT
Adding "DECKEYB MCSFR" to \AUTOEXEC.BAT
Adding "LCOUNTRY MCS" to \AUTOEXEC.BAT
Configuration successfully completed.

A:\>
```

## SET

To set one string value in the environment equal to another string value, use the SET command.

### Format

```
SET [string1[=string2]]
```

### Where:

string1            Is the environment variable name.

string2            Is the new string.

### Comments

When the MS-DOS operating system sees a SET command, it inserts the entire string into a part of memory reserved for environment strings. If string1 already exists in the environment, it is replaced by string2.

If you type the SET command and specify only string1, the associated string name is removed from the environment.

If you type the SET command and specify no parameters, the MS-DOS operating system displays the current environment settings.

By examining its environment, an application program can get a listing of all values that have been set. The environment values are passed in the Program Segment Prefix.

The MS-DOS operating system can expand its environment area beyond the normal 512 bytes, but only if no terminate and stay resident programs have been loaded. Therefore, if you want to expand the environment, do it before you load any terminate and stay resident programs.

You can save memory by invoking terminate and stay resident programs before you set a large environment. MS-DOS saves a copy of the environment when running such programs.

If you use the SET command in batch processing, you can define your replaceable parameters with names instead of numbers. For example, if your batch file contains the statement LINK %FILE% (begin and end the name with a percent sign), you can set the name that the MS-DOS operating system uses for that variable with the SET command.

The COMSPEC= command is always in the environment. The MS-DOS operating system uses this command if it has to reload the command processor.

## Operating System Commands

### SET

You do not need to use the SET command to add the PROMPT and PATH commands to the environment. When you specify them, the MS-DOS operating system adds them to the environment.

#### Example 1

To display the current environment settings, type:

```
A:\> SET
COMSPEC=A:\COMMAND.COM
PROMPT=PG
PATH=A:\SYS;A:\SYS\DOS;A:\SYS\WIN;A:\SYS\NET
A:\>
```

#### Example 2

To remove the path from the current environment, type:

```
A:\> SET PATH=
A:\>
```

The current environment looks like the following:

```
A:\> SET
COMSPEC=A:\COMMAND.COM
PROMPT=PG
A:\>
```

#### Example 3

To specify that the COMMAND.COM file is located in the subdirectory SYS on drive A, add the following line to your AUTOEXEC.BAT file:

```
SET COMSPEC=A:\SYS\COMMAND.COM
```

This line is needed if the COMMAND.COM file has to be reloaded after you run an application program.

**Example 4**

To replace the %FILE% parameter with the file name DOMORE in all your batch files, add the following line to your AUTOEXEC.BAT file:

```
SET file=DOMORE
```

Now, you do not need to edit each batch file to change the replaceable parameter names.

## **SHARE**

To install file sharing and locking, use the SHARE command. Use this command only when using the network, and only from a server offering files to more than one user.

### **Format**

`[drv:] [\path\]SHARE [/F:space] [/L:locks]`

### **Where:**

- drv:** Is the drive containing the SHARE command. If you omit this drive, the MS-DOS operating system searches for the SHARE command on the default drive.
- \path\** Is the path containing the SHARE command. If you omit this path, the MS-DOS operating system searches for the SHARE command in the current directory.
- /F:space** Allocates file space (in bytes) for the area the MS-DOS operating system uses to record file-sharing information. Each open file needs the length of the full file name plus 11 bytes (the average path name is 20 bytes). The default value for /F is 2048 bytes.
- /L:locks** Sets the number of opened files that are locked. Only one user can open a locked file. The default value for /L is 20 locks.

### **Comments**

Do not run the SHARE command from MS-Windows.

You can include the SHARE command in the AUTOEXEC.BAT file to install file sharing.

Once you have run the SHARE command in an MS-DOS operating system session, the MS-DOS operating system checks all read and write requests.

If you want to change the allocated file space or the number of open files that are locked, you must restart the VAXmate workstation and run the SHARE command with the new values.

### **NOTE**

You cannot use the SHARE command in the VAXmate standalone environment.

**Example 1**

To load file sharing and use the default values for the /F and /L qualifiers, type:

```
A:\> SHARE
```

```
A:\>
```

**Example 2**

To allocate 4096 bytes of file space for file-sharing information, type:

```
A:\> SHARE/F:4096
```

```
A:\>
```

**Example 3**

To allow a maximum of nine open files to be locked, type:

```
A:\> SHARE/L:9
```

```
A:\>
```

## SORT

To read, sort, and write output to the standard output device, use the SORT command. The SORT command is also a filter that you can use with redirection for input from, and output to, a file.

You can also use the SORT command to alphabetize by columns.

### Format

```
[drv:][\path\]SORT [/R] [/+n] < source
command | SORT [/R] [/+n]
```

### Where:

- drv:** Is the drive containing the SORT command. If you omit this drive, the MS-DOS operating system searches for the SORT command on the default drive.
- \path\** Is the path containing the SORT command. If you omit this path, the MS-DOS operating system searches for the SORT command in the current directory.
- /R** Reverses the sort order (from Z to A).
- /+n** Specifies that the SORT command should start with column n (where n is some number). If you omit this qualifier, the SORT command begins sorting from column 1.
- source** Is a file name and file extension, or a command.
- command** Is a valid MS-DOS command, such as DIR.

### Comments

You can use the SORT command while in MS-Windows, but you must use it with COMMAND.COM. For example, to sort the file NAMES.TXT from MS-Windows:

1. Select the Run command from the MS-DOS Executive File menu.
2. Type:

```
COMMAND.COM /C SORT <NAMES.TXT
```

3. Select the OK command button.

A window containing the sorted names is displayed.

4. Select the Close command from the System menu.

The MS-DOS Executive Window is again displayed.

The SORT program checks the name of the currently loaded font file and searches for a sort file with the same name and a .SRT file. This sort file contains the collating sequence for each character in the font character set.

If the .SRT file does not exist or is not in the proper format, a message is displayed.

The SORT program contains the default sort table STD.SRT.

The SORT command does not distinguish between uppercase and lowercase letters.

Characters above ASCII 127 are sorted based on information found in the COUNTRY.SYS file, or in an alternate file specified by the COUNTRY= command in your CONFIG.SYS file.

#### Example 1

To read the file UNSORT.TXT, reverse the sort, and write the output to SORT.TXT, type:

```
A:\> SORT /R < UNSORT.TXT > SORT.TXTReturn
A:\>
```

#### Example 2

To sort the file UNSORT.TXT type:

```
A:\> SORT < UNSORT.TXTReturn
```

## Operating System Commands

### **SORT**

#### **Example 3**

To sort a directory listing by file extension (the file extension starts in column 10), using SORT as a pipe, and then send the output to the screen, type:

```
A:\>DIR | SORT /+10Return
```

```
Total of 8.41 Kbytes used in 5 Files
MORE COM 282 2-10-86 11:13a
ASSIGN COM 1509 2-10-86 10:21a
APPEND COM 1724 5-05-85 12:02a
 .
 .
 .
ANSI SYS 1903 2-06-86 3:25p
MDRIVE SYS 2996 2-06-86 2:00p
Directory of A:\
A:\>
```

#### **Example 4**

To sort a directory listing by file size (the file size starts in column 14), using SORT as a pipe, and then send the output to the screen, type:

```
A:\>DIR | SORT /+14Return
```

```
Directory of A:\
Total of 25.88 Kbytes used in 6 Files
Volume in drive A is NONAME
00351C41 0 3-01-86 11:51a
00351EOF 0 3-01-86 11:51a
CONFIG SYS 72 1-11-86 1:21p
AUTOEXEC BAT 211 1-11-86 2:43p
SORT EXE 2144 2-06-86 2:58p
COMMAND COM 23450 12-06-85 2:56p
A:\>
```

### Example 5

To sort the directory listing by file size and send it to the screen, one screen at a time, type:

```
A:\>DIR | SORT /+14 | MORE
```

```
Directory of A:\
Total of 25.88 Kbytes used in 6 Files
Volume in drive A is NONAME
00351C41 0 3-01-86 11:51a
00351E0F 0 3-01-86 11:51a
CONFIG SYS 72 1-11-86 1:21p
AUTOEXEC BAT 211 1-11-86 2:43p
SORT EXE 2144 2-06-86 2:58p
COMMAND COM 23450 12-06-85 2:56p
-- More --
```

## SUBST

To substitute a logical drive letter for a valid path name, use the SUBST command. The SUBST command creates a logical drive by associating a path name with a drive letter. This is useful for applications that do not recognize path names.

### Format

```
[drv1:][\path1\]SUBST [drv2: drv3:\path3]
```

```
[drv1:][\path1\]SUBST drv2: /D
```

### Where:

- drv1:** Is the drive containing the SUBST command. If you omit this drive, the MS-DOS operating system searches for the SUBST command on the default drive.
- \path1\** Is the path containing the SUBST command. If you omit this path, the MS-DOS operating system searches for the SUBST command in the current directory.
- drv2:** Is the logical drive for the substituted path name. This drive cannot be assigned, in use, or a network drive.
- drv3:** Is the drive you want to substitute with a logical drive. This drive cannot be a network drive.
- \path3** Is the path you want to substitute with a logical drive. If specified, it is assumed that it starts as the root directory.
- /D** Deletes the substitution.

### Comments

When the MS-DOS operating system sees a drive that was created with the SUBST command, it replaces the reference with the substituted path name.

The letter you specify depends upon the value of the LASTDRIVE command in your CONFIG.SYS file. If you did not specify a letter, the default drive letter is E. To specify a letter greater than E, use the LASTDRIVE command to specify more drives. For more information about the LASTDRIVE command, see Appendix B of this manual.

While substitution is in effect, be careful using the CD, MD, RD, and PATH commands.

While substitution is in effect, do not use the following commands:

|          |          |
|----------|----------|
| ASSIGN   | BACKUP   |
| DISKCOMP | DISKCOPY |
| FDISK    | FORMAT   |
| JOIN     | LABEL    |
| RESTORE  |          |

**NOTE**

You cannot use the SUBST command with any network, assigned, or joined drives.

**Example 1**

To create a logical drive E for the path name A:\USR\FRED\FORMS, type:

```
A:\> SUBST E: A:\USR\FRED\FORMS
A:\>
```

To display the files in A:\USR\FRED\FORMS, type:

```
A:\> DIR E:
```

**Example 2**

To display the names of the logical drives, type:

```
A:\> SUBST
E: => A:\USR\FRED\FORMS
A:\>
```

**Example 3**

To delete the logical drive E, type:

```
A:\> SUBST E: /D
A:\>
```

## SYS

To copy the system files IO.SYS and MSDOS.SYS from one disk to another, use the SYS command.

### Format

```
[drv1:] [\path1\]SYS drv2:
```

### Where:

**drv1:** Is the drive containing the SYS command. If you omit this drive, the MS-DOS operating system searches for the SYS command on the default drive.

**\path1\** Is the path containing the SYS command. If you omit this path, the MS-DOS operating system searches for the SYS command in the current directory.

**drv2:** Is the drive to which you want to transfer the system files.

### Comments

The destination disk must be completely blank or already contain the system files IO.SYS and MSDOS.SYS. If IO.SYS and MSDOS.SYS exist on the destination disk, the IO.SYS and MSDOS.SYS you are copying to the destination disk must be the same size, or smaller.

Because the SYS command only copies IO.SYS and MSDOS.SYS, use the COPY command to copy COMMAND.COM to a disk.

IO.SYS and MSDOS.SYS are both hidden files that are not displayed when you type the DIR command.

### NOTE

You cannot use the SYS command to copy IO.SYS and MSDOS.SYS to a network drive. You can use the SYS command to copy IO.SYS and MSDOS.SYS from a network drive to a local drive or a virtual disk.

### Example 1

To copy IO.SYS and MSDOS.SYS from E:\SYSTEM to drive A:, type:

```
E:\SYSTEM>SYS A: [Return]
System transferred
E:\SYSTEM>
```

**Example 2**

To copy the MS-DOS operating system files to drive C, type:

```
A:\>SYS C:
System transferred
A:\>
```

## TIME

To set and display the time, use the TIME command. The MS-DOS operating system uses this time to time stamp newly created files.

### Format

```
TIME [hh[:mm[:ss[.cc]]]]
```

Where:

hh Is the hours in military time (00 through 24).

mm Is the minutes (00 through 59).

ss Is the seconds (00 through 59).

cc Is the hundredths of seconds (00 through 99).

### Comments

Separate time elements with the separator defined in the country dependent information file. For the United States, use the colon. You can change the TIME command format by changing the COUNTRY command in the CONFIG.SYS file. For more information about the COUNTRY command, see Appendix B of this manual.

### Example 1

To enter a new time, type:

```
A:\>TIME[Return]
Current time is 1:25:45.00
Enter new time:
A:\>
```

Press the Return key if you do not want to change the time shown.

### Example 2

To set the time to 4:15 PM, type:

```
A:\>TIME 16:15[Return]
A:\>
```

## TREE

To display all the directory paths on a specified drive, or to list all files in the root directory and all subdirectories, use the TREE command.

### Format

```
[drv1:][\path1\]TREE [drv2:][/F]
```

### Where:

**drv1:** Is the drive containing the TREE command. If you omit this drive, the MS-DOS operating system searches for the TREE command on the default drive.

**\path1\** Is the path containing the TREE command. If you omit this path, the MS-DOS operating system searches for the TREE command in the current directory.

**drv2:** Is the drive containing the directory path names you want to display. If you omit this drive, the TREE command displays the path names for the default drive.

**/F** Displays the names of the files in the root directory and in all subdirectories.

### Comments

For each drive you specify, the TREE command displays the complete path name of each directory and all subdirectories under the directory.

The TREE command always starts from the root directory on the default drive.

### Example 1

To display the directory paths in the root directory and all subdirectories on drive C one screen at a time, type:

```
A:\>TREE C: | MORE[Return]
DIRECTORY PATH LISTING
Path: \PIF
Subdirectories: None
```

```
A:\>
```

*Operating System Commands*  
**TREE**

**Example 2**

To display the directory paths and the file names in the root directory and all subdirectories on drive C, one screen at a time, type:

```
A:\>TREE C: /F | MORE
DIRECTORY PATH LISTING
Files: IO .SYS
 MSDOS .SYS
 .
 .
 .
 EDLIN .COM
-- More --
 .
 .
 .
 XCOPY .EXE

Path: \PIF
Sub-directories: None
Files: APPEND .PIF
 ASSIGN .PIF
 .
 .
 .
 XCOPY .PIF

A:\>
```

## TYPE

To display the contents of a file, use the TYPE command. Although this command displays the contents of a file, you cannot use it to edit a file.

### Format

```
TYPE [drv:][\path\]filename.ext
```

Where:

|              |                                                                                                                          |
|--------------|--------------------------------------------------------------------------------------------------------------------------|
| drv:         | Is the drive containing the file you want to display. If you omit this drive, the TYPE command uses the default drive.   |
| \path\       | Is the path containing the file you want to display. If you omit this path, the TYPE command uses the current directory. |
| filename.ext | Is the file name and file extension of the file you want to display.                                                     |

### Comments

To temporarily suspend the display, press <Ctrl/S>.

When you use the TYPE command to display a file with tabs in it, all tabs expand to 8 spaces.

Do not use the TYPE command to display a binary file. A binary file usually has a .EXE or .COM file extension.

### Example 1

To display the file MEMO.TXT on the screen, type:

```
A:\>TYPE MEMO.TXTReturn
A:\>
```

### Example 2

To display the file REPORT.TXT in the subdirectory \USER\SCOTT on the screen, type:

```
A:\>TYPE \USER\SCOTT\REPORT.TXTReturn
A:\>
```

*Operating System Commands*  
**TYPE**

**Example 3**

To display the file REPORT.TXT, which is in the subdirectory \USER\SCOTT, one screen at a time, type:

```
A:\>TYPE \USER\SCOTT\REPORT.TXT | MORE
```

```
A:\>
```

To see the next screen, press the Return key.

## **VER**

To display the MS-DOS operating system version number, use the VER command.

### **Format**

VER

### **Example**

To display the MS-DOS operating system version number, type:

```
A:\>VER
```

```
Digital Equipment Corporation MS-DOS Version 3.30
```

```
A:\>
```

## **VERIFY**

To verify that a file is written correctly to a disk, use the **VERIFY** command. This command has the same purpose as the **COPY /V** command.

### **Format**

**VERIFY** [ON | OFF]

### **Comments**

**VERIFY OFF** is the default when you turn on the VAXmate workstation.

When **VERIFY** is **ON**, all data written by the MS-DOS operating system is verified. Because verification takes extra time, the system runs slower when **VERIFY** is **ON**. If a write operation is unsuccessful, the MS-DOS operating system displays an error message.

Once initiated, **VERIFY ON** remains in effect until you turn it off.

### **Example 1**

To set **VERIFY** to **ON**, type:

```
A:\> VERIFY ON
```

```
A:\>
```

### **Example 2**

To display the current setting of **VERIFY**, type:

```
A:\> VERIFY
VERIFY is on
```

```
A:\>
```

## VOL

To display a drive's label, use the VOL command.

### Format

VOL [drv: ]

### Where:

drv: Is the drive whose volume label you want to see. If you omit this drive, the VOL command displays the volume label of the default drive.

### Example

To display the label of the disk in drive C, type:

```
A:\>VOL C:
Volume in drive C is MSDOSV330
A:\>
```

If drive C has no label, the following message is displayed:

```
Volume in drive C has no label
```

If you want to add a label, type one in. If you do not want to add a label, press the Return key.

## XCOPY

To copy groups of files from one drive to another, use the XCOPY command. Unlike the COPY command, which just copies files, or the BACKUP command, which saves files, (although you cannot use them in their backup format), the XCOPY command can copy an entire directory structure, including subdirectories, from one drive to another.

### Format

```
[drv1:][\path1\]XCOPY [drv2:][\path2\]filename2[.ext]
 [drv3:][\path3\][filename3[.ext]]
 [/A][/D:mm-dd-yy][/E][/M][/P]
 [/S][/V][/W]

[drv1:][\path1\]XCOPY [drv2:]path2[\filename2[.ext]]
 [drv3:][\path3\][filename3[.ext]]
 [/A][/D:mm-dd-yy][/E][/M][/P]
 [/S][/V][/W]

[drv1:][\path1\]XCOPY drv2:[\path2\][filename2[.ext]]
 [drv3:][\path3\][filename3[.ext]]
 [/A][/D:mm-dd-yy][/E][/M][/P]
 [/S][/V][/W]
```

Where:

- drv1:** Is the drive containing the XCOPY command. If you omit this drive, the MS-DOS operating system searches for the XCOPY command on the default drive.
- \path1\** Is the path containing the XCOPY command. If you omit this path, the MS-DOS operating system searches for the XCOPY command in the current directory.
- drv2:** Specifies the source drive with which you want the XCOPY command to start. If you omit this drive, the XCOPY command uses the default drive.
- \path2\** Specifies the source directory with which you want the XCOPY command to start.
- filename2.ext** Specifies the source file with which you want the XCOPY command to start with.
- drv3:** Specifies the destination drive where the XCOPY command is to copy files.
- \path3\** Specifies the destination directory where the XCOPY command is to copy files.
- filename3.ext** Specifies the destination file name. You can specify a different file name if you want to rename the file.
- /A** Copies only files that have the archive bit set. The archive bit of the source file remains unchanged.  
  
The archive bit marks a file that has been created or modified, but not backed up. If you back up a file, and then restore it, the archive bit is cleared.
- /D:mm-dd-yy** Copies files whose date is the same or later than the date specified.
- /E** Creates subdirectories on the destination diskette, even if they are empty. If you omit the /E qualifier, the XCOPY command does not create empty directories. You must use this qualifier with the /S qualifier.
- /M** Copies files that have the archive bit set. The archive bit of the source file is cleared once the copy is complete.
- /P** Prompts you before copying each file. You must press the Y key or the N key for each file.

## Operating System Commands

### XCOPY

- /S** Copies files in the source directory and in all its subdirectories. /S does not create empty subdirectories like the /E qualifier. You must specify the /E qualifier to create empty subdirectories on the destination disk.
- /V** Verifies that the sectors written on the destination diskette are correct. If you specify the /V qualifier, the XCOPY command runs more slowly than it would otherwise. If the VERIFY command is set ON, you do not need to use this qualifier.
- /W** Waits for you to insert a diskette into the diskette drive.

#### Comments

The XCOPY command cannot copy to or from the reserved names CON or LPT1.

The XCOPY command cannot perform any operations on files that you cannot read from or write to.

The path name, file name, and file extension cannot exceed 63 characters.

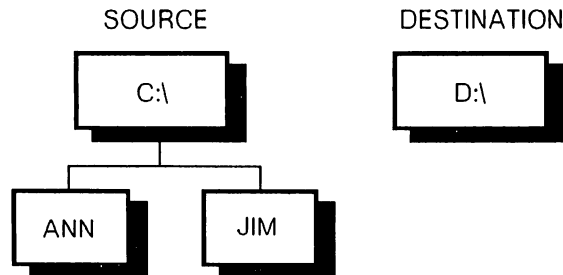
Do not use the XCOPY command if APPEND is in effect.

You can use wildcards in the file name field. The default file name is \*.\*.

The XCOPY command creates the directories to which you are copying if they do not already exist.

#### Example 1

Assume the following directory structure:

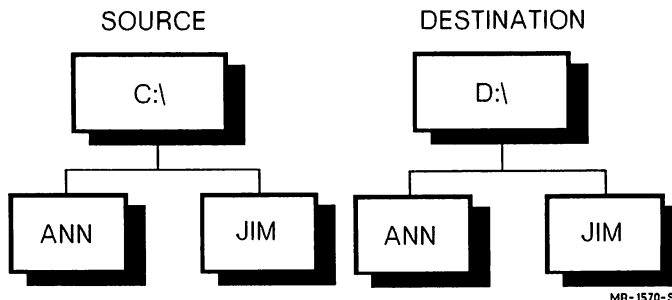


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To copy all the files in the source directory and all the subdirectories in the source directory to the destination directory, type:

```
A:\> XCOPY C:\ D:\ /S
```

The result is:



### Example 2

To copy the entire directory structure from drive A to drive C, including subdirectories, and to create empty subdirectories on drive C (if they exist on drive A), type:

```
A:\> XCOPY A:\ C:\ /S /E
```

### Example 3

To copy every file, from drive A to drive C, that has its archive bit set, and to retain the archive bit setting on the source files, type:

```
A:\> XCOPY A:\ C:\ /A
```

### Example 4

To copy every file, from drive A to drive C, that has its archive bit set, and to clear the archive bit setting on the source files, type:

```
A:\> XCOPY A:\ C:\ /M
```

*Operating System Commands*  
**XCOPY**

**Example 5**

To copy all files from drive A to drive C, and have the XCOPY command prompt you for a "Yes/No" response before copying each file, type:

```
A:\>XCOPY A:\ C:\ /P
A:\>ANSI.SYS (Y/N)? y
A:\>APPEND.COM (Y/N)? y
A:\>ASSIGN.COM (Y/N)? y
A:\>ATTRIB.EXE (Y/N)? y
 4 File(s) copied
```

Press the Y key to copy a file. Press the N key to proceed to the next file.

## XONXOFF

Before you can use the MODE command to set retries for the communications port and the serial port, use the XONXOFF command.

### Format

[drv:][\path\]XONXOFF

### Where:

**drv:** Is the drive containing the XONXOFF command. If you omit this drive, DOS searches for the XONXOFF command on the default drive.

**\path\** Is the path containing the XONXOFF command. If you omit this path, DOS searches for the XONXOFF command in the current directory.

### Comments

You must execute the XONXOFF command before you run the MODE command to set retries for the communications port and the serial port.

### Example

To run the XONXOFF command, type:

```
A:\> XONXOFF
```

# Chapter 5

---

## Batch Processing

This chapter explains:

- What batch processing is
- Common information about batch processing
- Creating a batch file
- Executing a batch file
- Batch files with replacement parameters
- The AUTOEXEC.BAT file

### What Is Batch Processing?

Using batch processing, you can execute a number of commands as if you typed each command separately on the command line. However, because the commands are in a batch file, you only need to type the batch file name. Therefore, batch processing saves time and keystrokes.

Batch files have the following format:

```
[drv:][\path\]filename.BAT [parameter] [...]
```

## Batch Processing

### Where:

|           |                                                                                                                                           |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------|
| drv:      | Is the drive containing the batch file. If you omit drv:, the MS-DOS operating system uses the default drive.                             |
| \path\    | Is the path to the directory containing the batch file. If you omit the path, the MS-DOS operating system searches the current directory. |
| filename  | Is the file name of the batch file.                                                                                                       |
| .BAT      | Is the file extension of the batch file. A batch file must have the .BAT file extension.                                                  |
| parameter | Is a replaceable parameter that you pass to the batch command when it is executed.                                                        |

## Common Information About Batch Processing

The following list contains information you should know before you create or execute a batch process using the MS-DOS operating system:

- Each batch file must have an extension of .BAT.
- You only need to type the file name to execute a batch file. If you include the file extension, the MS-DOS operating system also executes the batch file. For example, to execute the batch file named NEWFILE.BAT, type:

```
A: \>NEWFILE Return
```

- If you press Ctrl/C while the batch file is running, the MS-DOS operating system displays the following message:

```
Terminate batch job (Y/N)?
```

To stop processing the batch file and return to the MS-DOS operating system prompt, press the Y key.

To continue processing with the next command in the batch file, press the N key.

- If you remove the diskette containing a batch file that is currently being executed, the MS-DOS operating system prompts you to insert it again before the next command can be read.

- You can redirect input and output in a batch file using the < , > , and >> symbols. For example, to sort the names in the file NAMES.TXT and redirect the output to the file SORTED.TXT, add the following line to a .BAT file:

```
SORT < NAMES.TXT > SORTED.TXT
```

NAMES.TXT is the input file to the SORT command, and SORTED.TXT is the output file from the sort operation.

- You can insert a @ character before a command line to prevent that line from being displayed.
- You can use the pipe symbol ( | ) in a batch file.
- Setting the directory or drive affects every subsequent command in the batch file.
- Setting environment strings affects every subsequent command in the batch file.

## **Creating a Batch File**

You can create a batch file using:

- EDLIN
- The COPY command
- A word processor that saves files as ASCII text

Using the COPY command, you can copy information you type from the keyboard to a file. For example, to create a batch file named NEWDISK.BAT that formats and checks a new diskette:

## Batch Processing

### 1. Type:

```
A:\>COPY CON NEWDISK.BAT[Return]
```

This statement tells the MS-DOS operating system to copy the information from the keyboard into the file NEWDISK.BAT.

### 2. Now type:

```
ECHO OFF
REM This is a file to check new diskettes[Return]
REM It is named NEWDISK.BAT[Return]
PAUSE Insert a new diskette into drive A:[Return]
FORMAT A:[Return]
CHKDSK A:[Ctrl/Z][Return]
```

The ECHO OFF command disables the display of MS-DOS commands from the batch file.

The two REM command lines contain remarks about the batch file.

The PAUSE command stops processing and displays a message on the VAXmate workstation screen. In this example, the PAUSE command prompts the user to insert a new diskette into drive A.

The FORMAT command formats the new diskette in drive A.

The CHKDSK command checks the new diskette in drive A for errors and produces a status report.

## Executing a Batch File

To execute the NEWDISK.BAT file, type:

```
A:\>NEWDISK[Return]
```

Each command is executed as if you entered it from the keyboard.

## Batch Files with Replacement Parameters

When used in MS-DOS commands, a parameter is an option that you define. Using the MS-DOS operating system, you can create a batch file with replaceable parameters. These parameters, named %0 through %9, can be replaced by values supplied when the batch file executes.

For example, to create a batch file that deletes the destination file that was created from a previous append, appends two files together into a third file, and prints the new destination file:

1. Type:

```
A:\>COPY CON NEWFILE.BATReturn
```

This statement tells the MS-DOS operating system to copy the information from the keyboard into the NEWFILE.BAT file.

2. Type:

```
DEL %3.DOCReturn
COPY %1.DOC + %2.DOC %3.DOCReturn
PRINT %3.DOC Ctrl/ZReturn
```

```
1 File(s) copied
```

```
A:\>
```

The file NEWFILE.BAT, which consists of three commands, now resides on the disk in the default drive.

The parameter %0 is always replaced by the drive and the file name of the batch file, if specified. For example, if you wanted to perform some specific task based on the file name you entered, you could add the following command to your batch file:

```
IF "%0" == "NEWFILE" GOTO DO_TASK
```

The MS-DOS operating system replaces the %0 parameter with NEWFILE. Thus, because %0 is NEWFILE, the GOTO statement would branch to the commands after the label :DO\_TASK. Because no batch file name is used in NEWFILE.BAT, %0 is not used.

The parameters %1, %2 and %3 are replaced sequentially by the parameters you supply when you execute the file.

## Batch Processing

You can specify a maximum of 10 replacement parameters (%0 through %9), unless you use the SHIFT command. Each command line, including those generated by replacement characters, can contain 1 to 128 characters. For more information, see the SHIFT command later in this chapter.

### NOTE

To use a percent sign in a file name within a batch file, you must type the percent sign twice. For example, if you have a file named TAX%.TXT, and you want to use the file within a batch file, you must type TAX%%.TXT.

To execute the batch file NEWFILE.BAT, type:

```
A:\>NEWFILE A:MEMO1 B:MEMO2 B:BIGFILE[Return]
```

A:MEMO1 is substituted for %1, B:MEMO2 for %2, and B:BIGFILE for %3.

The result is the same as if you typed:

```
A:\>DEL B:BIGFILE[Return]
A:\>COPY A:MEMO1 + B:MEMO2 B:BIGFILE[Return]
A:\>PRINT B:BIGFILE[Return]
```

## The AUTOEXEC.BAT File

Use an AUTOEXEC.BAT file to execute programs automatically whenever you start the MS-DOS operating system.

When you start the MS-DOS operating system, the command processor searches the MS-DOS operating system disk for a file named AUTOEXEC.BAT. If the AUTOEXEC.BAT file is found, it is executed automatically.

If the AUTOEXEC.BAT file is not found, the date and time prompts are displayed.

The AUTOEXEC.BAT file must be located in your root directory.

The following sections describe:

- Creating an AUTOEXEC.BAT file
- Executing an AUTOEXEC.BAT file

## Creating an AUTOEXEC.BAT File

If you are using your VAXmate workstation in a networking environment, an AUTOEXEC.BAT will be set up for you.

To create an AUTOEXEC.BAT file that changes your MS-DOS operating system prompt, reads the COMMAND.COM file on drive C, and prompts you for the date and the time,

1. Type:

```
A:\>COPY CON AUTOEXEC.BAT Return
```

This statement tells the MS-DOS operating system to copy the information from the keyboard into the AUTOEXEC.BAT file.

2. Type:

```
PROMPT PG Return
SET COMSPEC=C:\COMMAND.COM Return
DATE Return
TIME Ctrl/Z Return
```

```
1 File(s) copied
```

```
A:\>
```

### NOTE

When you use an AUTOEXEC.BAT file, the MS-DOS operating system does not prompt you for a current date and time unless you include the DATE and TIME commands in the AUTOEXEC.BAT file. You should include these two commands in your AUTOEXEC.BAT file because the MS-DOS operating system uses the date and time to keep your directory current.

If your VAXmate workstation has the optional expansion box containing a battery, the date and time are set automatically.

## **Executing an AUTOEXEC.BAT File**

If your VAXmate workstation contains an AUTOEXEC.BAT file, that file will be executed when you turn on, or reset, your VAXmate workstation.

If your system administrator makes changes to your AUTOEXEC.BAT file, those changes will not take affect until you do one of the following:

- Turn on the VAXmate workstation.
- Reset the VAXmate workstation by pressing the Ctrl/Alt/Del keys.
- Type:

AUTOEXEC

## **Batch Commands**

### **CALL**

To call one batch file from another batch file, use the CALL command.

#### **Format**

```
CALL [drv:][\path\]filename.BAT
```

#### **Where:**

- drv:** Is the drive containing the batch file you want to call. If you omit this drive, the CALL command uses the default drive.
- \path\** Is the path to the directory containing the batch file you want to call. If you omit this path, the CALL command uses the current directory.
- filename.BAT** Is the file name and file extension of the batch file you want to call. The file extension must be .BAT.

#### **Comments**

When the called batch file terminates, the calling batch file resumes execution at the command immediately following the CALL command.

Do not use pipes or redirection with the CALL command.

A batch file can call itself, but there should be a termination condition that is eventually met.

#### **Example**

To call and execute NEWFILE.BAT from TEST.BAT, add the following line to the TEST.BAT file:

```
CALL NEWFILE
```

## **ECHO**

To display and prohibit the display of MS-DOS commands, use the ECHO command.

### **Format**

ECHO [ON | OFF | message]

### **Where:**

message                    Is a message you want displayed.

### **Comments**

When you start your VAXmate workstation, the ECHO command is ON. That is, the command processor sees commands in a batch file and displays them on the screen. If you specify ECHO OFF, commands in a batch file are no longer displayed. If you specify ECHO ON, commands are again displayed.

### **Example 1**

To disable the display of commands in a batch file, type:

```
A:\>ECHO OFFReturn
```

### **Example 2**

To enable the display of commands in a batch file, type:

```
A:\>ECHO ONReturn
```

### **Example 3**

To display the current setting of the ECHO command, type:

```
A:\>ECHOReturn
ECHO is on
A:\>
```

#### **Example 4**

To display the message "This file checks new disks" from the batch file created earlier (NEWDISK.BAT), add the following line:

```
ECHO This file checks new disks
```

The result is:

```
REM This is a file to check new disks
REM It is named NEWDISK.BAT
ECHO This file checks new disks
PAUSE Insert a new diskette into drive A:
FORMAT A:
DIR A:
CHKDSK A:
```

## FOR

To repeatedly execute an MS-DOS command in a batch file or at the MS-DOS prompt, use the FOR command.

### Format

For batch processing (in a .BAT file):

```
FOR %%variable1 IN set DO command [%%variable2]
```

For interactive processing (at the MS-DOS prompt):

```
FOR %variable1 IN set DO command [%variable2]
```

Where:

|           |                                                                                            |
|-----------|--------------------------------------------------------------------------------------------|
| variable1 | Is any number or letter.                                                                   |
| set       | Is a series of file names, a file specification containing wildcards, or a count pattern.  |
| command   | Is any MS-DOS operating system command.                                                    |
| variable2 | Is the same character as variable1. Specify variable2 if the command requires a parameter. |

### Comments

The FOR command sequentially sets %%variable1 to each member of set, and then command is evaluated.

If a member of set is an expression involving \* or ?, the variable is set to each matching pattern from the disk. In this case, only one item can be in the set, and any item other than the first is ignored.

### Example 1

To execute, from a batch file, the MASM command on all your .ASM files, add this line to your .BAT file:

```
FOR %%f IN (*.ASM) DO MASM %%f
```

### Example 2

To execute, from the MS-DOS prompt, the MASM command on all your .ASM files, type:

```
FOR %g IN (*.ASM) DO MASM %g
```

### Example 3

To execute, from a batch file, the TYPE command on all your .TXT files, add this line to your .BAT file:

```
FOR %%k IN (*.TXT) DO TYPE %%k
```

When you execute the batch file containing this command line, the FOR command executes as if you typed:

```
C:\>TYPE MEMO.TXT|Return|
C:\>TYPE LETTER.TXT|Return|
C:\>TYPE NOTE.TXT|Return|
```

### Example 4

To execute, from the MS-DOS prompt, the TYPE command on all your .TXT files, type:

```
C:\>FOR %f IN (*.TXT) DO TYPE %f
```

The FOR command executes as if you typed:

```
C:\>TYPE MEMO.TXT|Return|
C:\>TYPE LETTER.TXT|Return|
C:\>TYPE NOTE.TXT|Return|
```

*Batch Processing*  
*GOTO*

## **GOTO**

To jump to a specified label in a batch file, use the GOTO command. The GOTO command begins command execution with the line following the label.

### **Format**

GOTO label

Where:

label                    Is the location to jump to in a batch file. If you omit label, the batch file stops executing.

### **Comments**

Do not use the GOTO command at the MS-DOS operating system prompt.

### **Example**

In the following example, program execution jumps from GOTO TWO to CHKDSK A:

```
:ONE
REM FIRST PROGRAM
GOTO TWO
.
.
.
:TWO
CHKDSK A:
```

## IF

To conditionally execute commands in a batch file, use the IF command.

### Format

```
IF ERRORLEVEL number command
 or
IF "string1" == "string2" command
 or
IF EXIST filename command
 or
IF NOT EXIST filename command
```

### Where:

|                        |                                                                                                                                                                                                                                                                                                                           |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ERRORLEVEL number      | Is true only if the previous program executed by the command processor (COMMAND.COM) had an exit code of "number" or higher. An <i>exit code</i> is set by a specific program. It is returned by the operating system after the program finishes. Later program tasks may be performed based on the value of this number. |
| "string1" == "string2" | Is true only if "string1" and "string2" are identical after parameter substitution. Strings cannot have embedded separators. However, you should place quotes around all strings. The result is embedded quotes.                                                                                                          |
| EXIST filename         | Is true only if the file name exists.                                                                                                                                                                                                                                                                                     |
| NOT EXIST filename     | Is true only if the file name does not exist.                                                                                                                                                                                                                                                                             |
| command                | Is the command executed if the condition is true.                                                                                                                                                                                                                                                                         |

### Comments

Using the IF command, you can conditionally execute commands from a batch file. When the condition is true, the command is executed. Otherwise, the command is ignored.

### NOTE

Surround all strings with quotes.

## *Batch Processing*

### *IF*

#### **Example 1**

To display the message "Can't find datafile" if DATA1 does not exist, add the following line to your batch file:

```
IF NOT EXIST DATA1 ECHO Can't find datafile
```

#### **Example 2**

To branch to the label :YES if the file NEWFILE.BAT exists, add the following line to your batch file:

```
IF EXIST newfile.bat GOTO yes
```

The command lines between the IF command line and the label :YES are not executed. The next command executed is the command following the :YES label.

#### **Example 3**

To branch to the label :YES if the file TEST.TXT exists, add the following line to your batch file:

```
IF "%1" == "test.txt" GOTO yes
```

If your batch file name is SEARCH.BAT, you would type the following command line to invoke it:

```
C:\>SEARCH test.txt
```

## **PAUSE**

To suspend program execution in a batch file, use the PAUSE command.

### **Format**

PAUSE [comment]

### **Where:**

comment            Is a message displayed by the PAUSE command if ECHO is ON.

### **Comments**

When you execute a batch file, you can change disks or perform some other action. The PAUSE command suspends execution until you press any key, except <Ctrl/C>.

If you press <Ctrl/C> while executing a batch file, the MS-DOS operating system stops execution and displays the following message:

```
Terminate batch job (Y/N)?
```

If you press the Y key, the MS-DOS operating system exits from the batch job and displays its prompt. If you press the N key, the MS-DOS operating system displays its prompt, followed by the next command in the batch file.

Use the PAUSE command to break a batch file into pieces, enabling you to end the batch command file at any intermediate point.

### **Example**

To stop program execution and display the message "Insert a diskette into drive A," add the following line to your batch file:

```
PAUSE Insert a diskette into drive A
```

After you type the batch file name (CHECK in this example), the batch command displays the following:

```
C:\>Insert a diskette into drive A
Strike a key when ready . . .
```

To continue program execution, press any key.

*Batch Processing*  
*REM*

## **REM**

To display remarks from a batch file, use the REM command.

### **Format**

REM [comment]

### **Where:**

comment                   Is the text following the REM command. You cannot specify more than 123 characters in a comment.

### **Comments**

Set ECHO ON to display remarks.

Use the REM command without a comment to add blank lines for readability.

### **Example**

To display comments using the REM command, use the following batch file as an example:

```
ECHO ON
REM This file runs the CHKDSK command on drive C
REM It also runs the DIR command on drive C
REM It is named CHECK.BAT
```

## SHIFT

Usually, command files are limited to handling 10 parameters (%0 through %9). To access more than 10 parameters, use the SHIFT command.

### Format

SHIFT

### Comments

You can specify any number of parameters. However, you cannot type more than 127 characters at one time on the command line.

You should use the SHIFT command only in batch files. Do not use it at the MS-DOS operating system prompt.

### NOTE

There is no backward shift. Once the SHIFT command is executed, the 0 parameter (%0) that existed before the shift cannot be recovered.

The first parameter (%0) before any shift is the name of the batch file.

### Example 1

Assume the following batch file named MYCMD.BAT

```
REM Example to show how SHIFT works
ECHO %0 %1 %2 %3 %4 %5 %6 %7
SHIFT
ECHO %0 %1 %2 %3 %4 %5 %6 %7
SHIFT
ECHO %0 %1 %2 %3 %4 %5 %6 %7
SHIFT
ECHO %0 %1 %2 %3 %4 %5 %6 %7
SHIFT
ECHO %0 %1 %2 %3 %4 %5 %6 %7
SHIFT
ECHO %0 %1 %2 %3 %4 %5 %6 %7
SHIFT
ECHO %0 %1 %2 %3 %4 %5 %6 %7
SHIFT
ECHO %0 %1 %2 %3 %4 %5 %6 %7
SHIFT
```

*Batch Processing*  
**SHIFT**

Assume, also, that you type the following command:

```
C:\>MYCMD FILE1 FILE2 FILE3 FILE4 FILE5 FILE6 FILE7 Return
```

The results are:

```
C:\>REM Example to show how SHIFT works
C:\>ECHO MYCMD FILE1 FILE2 FILE3 FILE4 FILE5 FILE6 FILE7
MYCMD FILE1 FILE2 FILE3 FILE4 FILE5 FILE6 FILE7
C:\>SHIFT
C:\>ECHO FILE1 FILE2 FILE3 FILE4 FILE5 FILE6 FILE7
FILE1 FILE2 FILE3 FILE4 FILE5 FILE6 FILE7
C:\>SHIFT
C:\>ECHO FILE2 FILE3 FILE4 FILE5 FILE6 FILE7
FILE2 FILE3 FILE4 FILE5 FILE6 FILE7
C:\>SHIFT
C:\>ECHO FILE3 FILE4 FILE5 FILE6 FILE7
FILE3 FILE4 FILE5 FILE6 FILE7
C:\>SHIFT
C:\>ECHO FILE4 FILE5 FILE6 FILE7
FILE4 FILE5 FILE6 FILE7
C:\>SHIFT
C:\>ECHO FILE5 FILE6 FILE7
FILE5 FILE6 FILE7
C:\>SHIFT
C:\>ECHO FILE6 FILE7
FILE6 FILE7
C:\>SHIFT
C:\>ECHO FILE7
FILE7
C:\>SHIFT
C:\>ECHO
C:\>SHIFT
```

## Example 2

Assume that the file MYCMD.BAT contains the following command lines:

```
REM Processes an unknown number of files
:AGAIN
IF [%1] == [] GOTO DONE
TYPE %1
SHIFT
GOTO AGAIN
:DONE
```

Assume, also, that you type the following command:

```
C:\>MYCMD A1.TXT A2.TXT A3.TXT A4.TXT A5.TXT A6.TXT A7.TXT
```

After you press the Return key, the TYPE command displays A1.TXT on the screen. After the first shift, the parameters are:

```
%1 = A2.TXT
%2 = A3.TXT
%3 = A4.TXT
%4 = A5.TXT
%5 = A6.TXT
%6 = A7.TXT
%7 =
%8 =
%9 =
```

Processing continues until there are no more files to display on the screen.

## Chapter 6

---

# MS-DOS Editing and Function Keys

This chapter discusses:

- MS-DOS editing keys
- MS-DOS control characters
- The Prt Sc key
- Accessing characters on a keycap with multiple characters
- Industry standard compose sequences

### MS-DOS Editing Keys

Using the MS-DOS operating system editing keys, you can:

- Repeat a command line instantly
- Edit and execute a command line with a minimum of typing

When you type a command and press the Return key, the command line is sent to the command processor for execution. A copy of the command line is also sent to a template, where it is stored. A *template* is the pattern of words and switches that made up the last command line entered into the 128-byte buffer reserved for the storage of commands lines.

Table 6-1 lists the MS-DOS operating system editing keys you can use to edit or repeat the template. These editing keys can also be used with EDLIN.

**Table 6-1: MS-DOS Editing Keys**

| Key            | Editing Function                                                                                                                                                                                                              |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <F1>           | Copies and displays, from the template, one character.                                                                                                                                                                        |
| <F2> Character | Copies and displays, from the template, characters up to the specified character.                                                                                                                                             |
| <F3>           | Copies and displays, from the template, all remaining characters.                                                                                                                                                             |
| <F4> Character | Copies and displays, from the template, the first occurrence of the specified character and the remainder of the characters in the template.                                                                                  |
| <Del>          | Skips over (does not copy) a character in the template.                                                                                                                                                                       |
| <Ins>          | Enters/exits insert mode.<br><br>The <Ins> key is a toggle. When you start your VAXmate workstation, you are not in insert mode. To enter insert mode, and add character to a command line, for example, press the <Ins> key. |
| <Return>       | Stores the new line in the new template.                                                                                                                                                                                      |

### Example 1

To display information about the file PROG.COM, type:

```
A:\>DIR PROG.COM
```

The command line (DIR PROG.COM) is saved in the template. To repeat the command, press:

```
F3
```

When you press the F3 key, the contents of the template are copied to the command line. When you press the Return key, the command line is sent to the command processor for execution.

## Example 2

To display information about a file named PROG.ASM, use the contents of the template from Example 1 and press:

**F2**c

In this example, all characters are copied from the template to the command line, up to, but not including, C. The MS-DOS operating system displays:

```
A:\>DIR PROG.
```

Now type:

```
ASM
```

The result is:

```
A:\>DIR PROG.ASM
```

The command line DIR PROG.ASM is now in the template and ready to be sent to the command processor for execution. To execute the command, press the Return key.

To cancel the command, press <Ctrl/C>.

## Control Character Functions

A control character function affects the command line. Table 6-2 contains control character functions.

**Table 6-2: Control Character Functions**

| Control Character | Function                                                                                                                                                                          |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <Ctrl/C>          | Stops the current command.                                                                                                                                                        |
| <Ctrl/H>          | Removes the last character from the command line, and erases the character from the screen.                                                                                       |
| <Ctrl/J>          | Inserts a physical end of line (EOL), but does not empty the command line. You can use this to extend the current logical line beyond the physical limits of the terminal screen. |
| <Ctrl/P>          | Sends all output from the VAXmate workstation to a local printer. If you press <Ctrl/P> again, no more output is sent to the printer.                                             |
| <Ctrl/S>          | Suspends the display of output on the screen. Press any key to continue.                                                                                                          |
| <Escape>          | Cancels the current line, empties the command line, and then outputs a Backslash, Return, and Linefeed.                                                                           |
| <Ctrl/Z>          | Inserts an end-of-file character into the new template.                                                                                                                           |

## The Prt Sc Key

You can use the Shift key with the Prt Sc key to print an image of the information displayed on your VAXmate workstation screen. However, escape sequences and bolding are not recognized. For example, to print a screen image of the information displayed on your VAXmate workstation screen, press:

Shift/Prt Sc

Before you can print a screen in a graphics mode, you must load GRAPHICS.

## Accessing Multiple Keycap Characters

Some international keyboards have keycaps that contain three and four characters on the keycap. Table 6-3 describes how to access each character displayed on the keycap.

**Table 6-3: Accessing Keycap Characters**

| Character Location | How to Access                                 |
|--------------------|-----------------------------------------------|
| Lower left         | Press the key                                 |
| Upper left         | Press the Shift key and the key               |
| Lower right        | Press the Alt key and the key                 |
| Upper right        | Press the Shift key, the Alt key, and the key |

## Industry Standard Compose Sequences

You can use industry standard compose sequences on your VAXmate workstation. Therefore, regardless of the current keyboard map file, you can display the character at a given location.

To display the character at location 1, press and hold the Alt key and press the 1 key on the numeric keypad. When you release the Alt key, the character at location 1 ( ^A ) is displayed.

## Chapter 7

---

# DEBUG

This chapter discusses:

- Starting DEBUG
- Information common to all DEBUG commands
- Specific DEBUG commands

DEBUG is a utility that provides a controlled testing environment for binary and executable object files. EDLIN is used to create or alter source files; DEBUG is EDLIN's counterpart for binary files.

DEBUG eliminates the need to reassemble a program to see if a problem has been fixed by some minor change. It allows you to alter the contents of a file or of a CPU register, and then immediately re-execute the program to check the validity of the changes.

You can stop any DEBUG command at any time by pressing the Ctrl/C keys. You can suspend the display of information on the screen by pressing the Ctrl/S keys. Pressing any keys other than Ctrl/C and Ctrl/S resumes the display.

## Starting DEBUG - Method 1

If you use this method, DEBUG has the following command format:

```
DEBUG
```

After you type this command, DEBUG responds with the hyphen (-) prompt. You can work on current memory, disk sectors, or disk files.

Once it is started, DEBUG sets up a program header at offset 0 in its program work area. Previous versions allowed you to overwrite the program header without problems. This is still true for the default program header if you start DEBUG and specify no file name.

If you debug a .COM or .EXE file, you must not tamper with the program header of the program below address 5CH. If you do, DEBUG will terminate.

Do not restart a program once the "program terminated normally" message is displayed. To restart a program, first reload it using the NAME and LOAD commands.

## Starting DEBUG - Method 2

If you use this method, DEBUG has the following command format:

```
DEBUG [filename.ext [arglist]]
```

Where:

|              |                                                                                                                                                                                               |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| filename.ext | Is the name of the file you want DEBUG to load into memory. DEBUG loads the file starting at 0100H in the lowest available sector. BX:CX contains the number of bytes DEBUG placed in memory. |
| arglist      | Is a list of parameters and switches to be passed to the file DEBUG loaded.                                                                                                                   |

## Information Common to All DEBUG Commands

Each DEBUG command consists of a single letter followed by one or more parameters.

If a syntax error occurs in a DEBUG command, DEBUG reprints the command line and indicates the error in the following manner:

```
DCS:100 CS:110
 ^ Error
```

You can use any combination of uppercase and lowercase letters in commands and parameters.

Table 7-1 lists the DEBUG commands and their formats. Each of these commands is described in detail in the remainder of this chapter.

**Table 7-1: DEBUG Commands**

| Command  | Format                                                          |
|----------|-----------------------------------------------------------------|
| ASSEMBLE | A [<address>]                                                   |
| COMPARE  | C address1[, ]address2 address3<br>C address1 L length address3 |
| DUMP     | D [address1[, ]address2]<br>D [address1 L length]               |
| ENTER    | E <address> [<list>]                                            |
| FILL     | F address1[, ]address2 values<br>F address1 L length values     |
| GO       | G [= <address1> [<address2> ...]]                               |
| HEX      | H <value1> <value2>                                             |
| INPUT    | I <value>                                                       |
| LOAD     | L [<address> [<drive> <record1> <record2>]]                     |
| MOVE     | M address1[, ]address2 address3<br>M address1 L length address3 |
| NAME     | N <filename> [<filename>]                                       |

**Table 7-1 (Cont.): DEBUG Commands**

| <b>Command</b> | <b>Format</b>                                    |
|----------------|--------------------------------------------------|
| OUTPUT         | O <value> <byte>                                 |
| PTRACE         | P [= <address>] [<value>]                        |
| QUIT           | Q                                                |
| REGISTER       | R [<registername>]                               |
| SEARCH         | S <range> <list>                                 |
| TRACE          | T [= <address>] [<value>]                        |
| UNASSEMBLE     | U [address1[,]address2]<br>U [address1 L length] |
| WRITE          | W [<address> [<drive> <record1> <record2>]]      |

All DEBUG commands accept parameters, except the QUIT command. You can separate parameters by delimiters (spaces or commas), but a delimiter is required only between two consecutive hexadecimal values. Thus, the following commands are equivalent:

```
-DCS:100 110
-D CS:100 110
-D,CS:100,110
```

## ASSEMBLE

To assemble 8086/8087/8088 mnemonics directly into memory, use the ASSEMBLE command.

### Format

A [<address>]

Where:

<address> Is a two-part designation consisting of either an alphabetic segment register plus an offset value or a four-digit segment address plus an offset value. The default segment is DS.

### Comments

All numeric values are hexadecimal and can be entered as 1 to 4 characters.

Enter prefix mnemonics in front of the opcode to which they refer. You can also enter them on a separate line.

The segment override mnemonics are CS:, DS:, ES:, and SS:.

String manipulation mnemonics must explicitly state the string size. For example, the MOVSW must move word strings and MOVSB must move byte strings.

The mnemonic for the far return is RETF.

The assembler automatically assembles short, near or far jumps and calls depending on the byte displacement to the destination address. You can override these with the NEAR or FAR prefix. For example:

```
0CBE:0500 JMP 502 ; a 2 byte short jump
0CBE:0502 JMP NEAR 505 ; a 3 byte near jump
0CBE:0505 JMP FAR 50A ; a 5 byte far jump
```

The NEAR prefix can be abbreviated to NE.

DEBUG cannot tell whether some operands refer to a word memory location or a byte memory location. In this case, the data type must be explicitly stated with the prefix WORD PTR or BYTE PTR. DEBUG also accepts the abbreviations WO and BY. For example:

```
NEG BYTE PTR [128]
DEC WO [SI]
```

## DEBUG ASSEMBLE

DEBUG cannot tell whether an operand refers to a memory location or to an immediate operand. DEBUG uses the common convention that operands enclosed in square brackets refer to memory. For example:

```
MOV AX,21 ;Load AX with 21H
MOV AX,[21] ;Load AX with the contents
 ;of memory location 21H
```

The DB opcode assembles byte values directly into memory.

```
DB 1,2,3,4,"THIS IS AN EXAMPLE"
DB 'THIS IS A QUOTE: ''
DB "THIS IS A QUOTE: '"
```

The DW opcode assembles word values directly into memory. For example:

```
DW 1000,2000,3000,"BACH"
```

DEBUG supports all forms of the register indirect commands. For example:

```
ADD BX,34[BP+2].[SI-1]
POP [BP+DI]
PUSH [SI]
```

DEBUG supports all opcode synonyms. For example:

```
LOOPZ 100
LOOPE 100

JA 200
JNBE 200
```

For 8087 opcodes, you must explicitly specify the WAIT or FWAIT prefix. For example:

```
FWAIT FADD ST,ST(3) ; This line will assemble a FWAIT prefix
FLD TBYTE PTR [BX] ; This line will not
```

## COMPARE

To compare a portion of memory to another portion of the same size, use the COMPARE command.

### Format

C address1[, ]address2 address3

or

C address1 L length address3

### Where:

- address1            Is the address where you want to begin the compare. You can specify a segment:offset or a four-digit segment address. The default segment is DS.
- address2            Is the address where you want to stop the compare.
- length              Is the number of bytes you want to compare. Do not specify address2 if you specify the length.
- address3            Is the beginning address of the memory you want to compare with address1. You can specify a segment:offset or a four-digit segment address. The default segment is the segment specified in address1.

### Comments

If the two areas of memory are identical, DEBUG displays its prompt. If there are differences, they are displayed:

address1 byte1 byte2 address2

DEBUG  
COMPARE

**Example**

To compare the block of memory from 100H to 1FFH with the block of memory from 200H to 2FFH, type:

```
-C100,1FF 200
OCBE:0100 41 52 OCBE:0200
OCBE:0101 52 41 OCBE:0201
OCBE:0102 43 45 OCBE:0202
OCBE:0103 45 54 OCBE:0203
OCBE:0104 49 47 OCBE:0204
OCBE:0105 53 43 OCBE:0205
OCBE:0106 55 51 OCBE:0206
OCBE:0107 48 47 OCBE:0207
OCBE:0108 40 49 OCBE:0208
OCBE:0109 42 54 OCBE:0209
OCBE:010A 41 55 OCBE:020A
OCBE:010B 47 51 OCBE:020B
OCBE:010C 46 49 OCBE:020C
OCBE:010D 53 52 OCBE:020D
OCBE:010E 55 50 OCBE:020E
OCBE:010F 41 43 OCBE:020F
.
.
.
OCBE:01FF 41 8B OCBE:02FF
```

## DUMP

To display the contents of the specified region of memory, use the DUMP command.

### Format

D [address1][[,]address2]

or

D [address1 L length]

### Where:

- address1            Is the address where you want to begin the dump. You can specify a segment:offset or a four-digit segment address. The default segment is DS.
- address2            Is the address where you want to stop the dump.
- length              Is the number of bytes you want to dump. Do not specify address2 if you specify the length.

### Comments

If you type the D command without parameters, 128 bytes are displayed at the first address (DS:100) after the address displayed by the previous DUMP command.

The DUMP command is displayed in two portions: a hexadecimal dump (each byte is shown as a hexadecimal value) and an ASCII dump (the bytes are shown in ASCII characters). Nonprinting characters are denoted by a period ( . ) in the ASCII portion of the display. Each display line shows 16 bytes with a hyphen between the eighth and ninth bytes. At times, displays are split in this manual to fit them on the page. Each displayed line begins on a 16-byte boundary.

### Example 1

To display the contents of the 10 bytes at CS:100 through CS:110, type:

```
-DCS:100 110[Return]
OCBE:0100 37 50 83 C4 02 B8 FF FF-5E 8B E5 5D C3 55 8B EC
```

*DEBUG*  
*DUMP*

**Example 2**

To display the contents of 128 bytes in memory, type:

```
D[Return]
```

Each line of the display begins with an address, incremented by 16 from the address on the previous line. Each subsequent D (typed without parameters) displays the bytes immediately following the previous bytes displayed.

**Example 3**

To display 20H bytes in memory, type:

```
-DCS:100 L 20[Return]
```

```
0CBE:0100 37 50 83 C4 02 B8 FF FF-5E 8B E5 5D C3 55 8B EC
```

```
0CBE:0110 5A E8 04 01 56 33 C0 50-8B 50 04 D1 E3 FF B7 9B
```

To display all bytes in the range of lines from 100H to 115H in the CS segment, type:

```
-DCS:100 115[Return]
```

```
0CBE:0100 37 50 83 C4 02 B8 FF FF-5E 8B E5 5D C3 55 8B EC
```

```
0CBE:0110 5A E8 04 01 56 33
```

## ENTER

To enter byte values into memory at the specified address, use the ENTER command.

### Format

E <address> [<list>]

### Where:

<address> Is a two-part designation consisting of either an alphabetic segment register plus an offset value, or a four-digit segment address plus an offset value. The default segment is DS.

<list> Is a series of byte values or string values. <List> must be the last value on the command line.

### Where:

<byte> Is a two-digit hexadecimal value to be placed in or read from an address or register.

<string> Is any number of characters enclosed in either single or double quotes. If quotes appear in the string, they must be doubled.

If you specify <list>, the replacement of byte values occurs automatically.

### Comments

If you specify <address> without specifying <list>, DEBUG displays the address and its contents, then repeats the address on the same line and waits for your input. Perform one of the following actions:

- Type a new value to replace the current value. If you type either an illegal hexadecimal value or more than two digits, the illegal or extra character is not echoed.
- Press the spacebar to advance to the next byte. If you space beyond an eight-byte boundary, DEBUG starts a new display line with the address displayed at the beginning.

**DEBUG  
ENTER**

- Type a hyphen (-) to return to the previous byte. To change a byte behind the current position, type the hyphen to return the current position to the previous byte. When you type the hyphen, a new line is started with the address and its byte value displayed.
- Press the Return key to terminate the ENTER command. You can press the Return key at any time.

**Example**

Assume you type the following command:

```
-ECS:100[Return]
```

DEBUG displays:

```
0CBE:0100 EB._
```

To change EB to 41, type:

```
41
```

The line looks like:

```
0CBE:0100 EB.41_
```

To step through the subsequent bytes, press the spacebar:

```
0CBE:0100 EB.41 10. 00. BC._
```

To change BC to 42, type:

```
42
```

The line looks like:

```
0CBE:0100 EB.41 10. 00. BC.42_
```

To change 10 to 6F, press the hyphen key until you return to the 10 (in this example you press the hyphen key twice), and type 6F:

```
0CBE:0100 EB.41 10. 00. BC._
0CBE:0102 00._
0CBE:0101 10.6F_
```

Press the Return key to end the ENTER session and return to the DEBUG command level.

## FILL

To fill the addresses in a range with the values in a list, use the FILL command.

### Format

F address1[, ]address2 values

or

F address1 L length values

### Where:

- address1** Is the address where you want to begin filling. You can specify a segment:offset or a four-digit segment address. The default segment is DS.
- address2** Is the address where you want to stop filling.
- If any of the memory in the range of address1 and address2 is bad or nonexistent, an error occurs in all succeeding locations.
- length** Is the number of bytes you want to fill. Do not specify address2 if you specify the length.
- values** Is a series of two-digit byte values, or a series of string values. Each string value must be enclosed in single or double quotes. If quotes appear in the string, they must be doubled.
- If the range contains more bytes than the number of values specified, then values are used repeatedly until all bytes in the range are filled.
- If value contains more entries than the number of bytes in the range, the extra entries are ignored.
- Value must be the last parameter on the command line.

### Example

To fill the 100H bytes beginning at location 0CBE:100, type:

```
-FOCBE:100 L 100 42 45 52 54 41 Return
-
```

DEBUG fills the memory locations 0CBE:100 through 0CBE:1FF with the bytes specified. The five values are used repeatedly until the 100H bytes are filled.

DEBUG  
GO

## GO

To execute the program currently in memory, use the GO command.

### Format

G [= <address1> [<address2>... ]]

### Where:

= <address1> Is the start address. It is a two-part designation consisting of either an alphabetic segment register plus an offset value or a four-digit segment address plus an offset value. The default segment is CS.

If you specify = <address1>, execution begins there. The equal sign is required so that DEBUG can distinguish the start address from the breakpoint addresses.

<address2> Are optional breakpoint addresses. Each address is a two-part designation consisting of either an alphabetic segment register plus an offset value, or a four-digit segment address plus an offset value. The default segment is CS.

If you specify the optional addresses, DEBUG stops execution at the first address it encounters, regardless of the position of that address in the list of addresses to stop program execution or program branching. When DEBUG reaches a breakpoint, the registers, the flags, and the decoded instruction are displayed for the last instruction executed. The result is the same as if you typed the REGISTER command for the breakpoint address. If you want to set more breakpoint addresses after one is reached, you have to reenter them again.

You can set up to 10 breakpoints, and each breakpoint can be set only at an address containing the first byte of an 8086 opcode. If you set more than 10 breakpoints, an error message is displayed.

### Comments

If you type the GO command without parameters, the program is executed as if it were started at CS:IP.

The user stack pointer must be valid and have six bytes available for the GO command. The GO command uses an IRET instruction to jump to the program under test. The user stack pointer is set, and the user flags and CS:IP are pushed on the stack. If the user stack is not valid or is too small, the operating system can crash. An interrupt code (0CCH) is placed at the specified breakpoint addresses.

*DEBUG*  
*GO*

When an instruction with the breakpoint code is encountered, all breakpoint addresses are restored to their original instructions. If execution is not halted at one of the breakpoints, the interrupt codes are not replaced with the original instructions.

### **Example**

To execute a program and halt it at CS:7550, type:

```
-GCS:7550[Return]
Program terminated normally
-
```

DEBUG displays the registers and flags, and then the GO command terminates.

If you type the GO command again after a breakpoint is encountered, the program resumes execution at the instruction following the breakpoint.

DEBUG  
HEX

## HEX

To perform hexadecimal arithmetic on the specified parameters, use the HEX command.

### Format

H <value1> <value2>

Where:

<value1>            Is a one- to four-digit hexadecimal number.

<value2>            Is a one- to four-digit hexadecimal number.

### Comments

DEBUG first adds the two values, then subtracts <value2> from <value1>. The sum and the difference are displayed on one line.

### Example

To find the sum and difference between 19FH and 10AH, type:

```
-H19F 10A
02A9 0095
-
```

02A9 is the sum of the two values; 0095 is the difference between the two values.

## INPUT

To input and display one byte from the port specified by a value, use the INPUT command.

### Format

I <value>

### Where:

<value>            Is a one- to four-digit hexadecimal number. <Value> specifies a port number.

### Example

Assume that the byte at port 42H is FF. If you type the following command, DEBUG inputs the byte and displays it:

```
-I42[Return]
FF
```

DEBUG  
LOAD

## LOAD

To load a file or to load absolute disk sectors into memory, use the LOAD command.

### Format

L [<address> [<drive> <record1> <record2>]]

### Where:

|           |                                                                                                                                                                                                                          |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <address> | Is a two-part designation consisting of either an alphabetic segment register plus an offset value or a four-digit segment address plus an offset value. If the segment is omitted, the default segment (CS) is used.    |
| <drive>   | Is a one-digit hexadecimal value that indicates which drive a file will be loaded from or written to. Valid values are 0, 1, 2, and 3, which designate drives 0=A:, 1=B:, 2=C:, 3=D:.                                    |
| <record1> | Is a one- to three-digit hexadecimal value used to indicate the logical record number on the disk. Logical records correspond to sectors, but their numbering is different because they represent the entire disk space. |
| <record2> | Is a one- to three-digit hexadecimal value used to indicate the number of disk sectors to be loaded.                                                                                                                     |

### Comments

You must set the BX:CX registers to the number of bytes loaded. You must name the file when you start DEBUG or use the NAME command. Both methods format a file name properly in the normal format of a file control block at CS:5C.

If the file has a .EXE file extension, it is relocated to the load address specified in the program header of the .EXE file. <Address> is always ignored for .EXE files. The program header itself is stripped off the .EXE file before DEBUG loads it into memory. Thus, the size of the .EXE file on disk differs from its size in memory.

The following rules apply to the use of the LOAD command with and without parameters:

- If you type the LOAD command without parameters, DEBUG begins at CS:100 to load into memory the file specified in the NAME command. It then sets BX:CX to the number of bytes loaded.

If the file has a .HEX extension and you type the LOAD command without parameters, DEBUG loads the file beginning at the address specified in the .HEX file.

- If you type the LOAD command with only the <address> parameter, loading begins at <address>.

If the file has a .HEX extension and you type the LOAD command with <address>, DEBUG adds <address> to the address found in the .HEX file to determine the start address for loading the file.

- If you type the LOAD command with all parameters, absolute disk sectors are loaded, not a file. The records are taken from <drive>. DEBUG begins loading with <record1> and continues until the number of sectors specified in <record2> have been loaded.

### Examples

Assume you type the following commands:

```
A:\>DEBUG
-NFILE.COM
```

Now, to load FILE.COM, type:

```
-1L
```

DEBUG loads the file, beginning at CS:100, sets BX:CX to the number of bytes loaded, and displays the DEBUG prompt.

Assume you want to load only portions of a file or certain records from a disk. To do this, type:

```
-LOCBE:100 2 0F 6D
```

DEBUG loads 109 (6DH) records, from drive C, into memory at 0CBE:100, beginning with logical record number 0FH. When DEBUG finishes loading the records, it displays its prompt (-).

## MOVE

To move a block of memory specified by a range to the location beginning at the specified address, use the MOVE command.

### Format

M address1[, ]address2 address3

or

M address1 L length address3

### Where:

- |          |                                                                                                                                                                                                                                            |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| address1 | Is the address where you want to begin the move. You can specify a segment:offset or a four-digit segment address. The default segment is DS.                                                                                              |
| address2 | Is the address where you want to stop the move.                                                                                                                                                                                            |
| length   | Is the number of bytes you want to move. Do not specify address2 if you specify the length.                                                                                                                                                |
| address3 | Is the beginning address where you want to move the bytes specified in the range of address1 through address2. You can specify a segment:offset or a four-digit segment address. The default segment is the segment specified in address1. |

### Comments

You can perform overlapping moves (that is, when part of the block overlaps some of the current addresses) without loss of data. Addresses that could be overwritten are moved first. The sequence for moves from higher addresses to lower addresses is to move the data beginning at the block's lowest address and then to move towards the highest. The sequence for moves from lower addresses to higher addresses is to move the data beginning at the block's highest address and then to move towards the lowest.

### NOTE

If the addresses in the block being moved do not have new data written to them, the data there before the move remains. The MOVE command copies the data from one area into another, in the sequence described, and writes over the new addresses.

**Example**

Assume that you type:

```
-MCS:100 110 CS:500
-
```

DEBUG first moves address CS:110 to address CS:510, then CS:10F to CS:50F, and so on until CS:100 is moved to CS:500. Use the DUMP command, with the address specified for the MOVE command, to see the results of the move.

DEBUG  
NAME

## NAME

To set file names and format file control blocks for the first two file names, use the NAME command.

### Format

N <filename1> [<filename2>...]

Where:

- <filename1> Is the file name of the first file for which you want to set up a file control block.
- <filename2> Is the file name of the second file for which you want to set up a file control block.

### Comments

The NAME command does the following:

- Assigns a file name for a later LOAD or WRITE operation. Therefore, if you start DEBUG without naming any file to be debugged, you must type the following command before a file can be loaded:  

```
N <filename><Return>
```
- Assigns file name parameters to the file being debugged. In this case, NAME accepts a list of parameters that are used by the file being debugged.

These two assignments overlap. Consider the following DEBUG commands:

```
- N FILE1.EXE<Return>
- L<Return>
- G<Return>
```

These commands cause the following:

1. The NAME command assigns the file name FILE1.EXE to the file name to be used in any later LOAD or WRITE operations.
2. The NAME command assigns the file name FILE1.EXE to the first file name parameter used by any program that is later debugged.
3. The LOAD command loads FILE1.EXE into memory.

4. The GO command causes FILE1.EXE to be executed with FILE1.EXE as the single file name parameter (that is, FILE1.EXE is executed as if you typed FILE1.EXE from the command line).

You can also use the NAME command to specify parameters required by a program that is loaded. Consider the following example:

```
- NFILE1.EXE[Return]
- L[Return]
- NFILE2.DAT FILE3.DAT[Return]
- G[Return]
```

In this example the following occurs:

1. The NAME command sets FILE1.EXE as the file name for the subsequent LOAD operation.
2. The LOAD command loads FILE1.EXE into memory.
3. The next NAME command specifies that FILE2.DAT and FILE3.DAT are to be used by FILE1.EXE.
4. The GO command executes FILE1.EXE as if you typed the following on the command line:

```
FILE1 FILE2.DAT FILE3.DAT[Return]
```

Note that if you execute the WRITE command at this point, FILE1.EXE would be saved as FILE2.DAT. To avoid such results, you should always execute the NAME command before either a LOAD or a WRITE operation.

The NAME command can affect four regions of memory:

|       |                                                                                                                                                                                                                           |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS:5C | FCB for the first file parameter given to the NAME command.                                                                                                                                                               |
| CS:6C | FCB for the second file parameter (if one is typed) given to the NAME command.                                                                                                                                            |
| CS:80 | Contains the number of characters typed in the NAME command (excluding the N).                                                                                                                                            |
| CS:81 | Contains the actual stream of characters typed in the NAME command (excluding the N). This stream of characters can contain switches and delimiters that would be legal in any command typed at the MS-DOS command level. |

*DEBUG*  
*NAME*

**Example**

In the following example:

- **DEBUG** loads **PROG.COM**.
- The **NAME** command formats a file control block for **PARAM1** and **PARAM2**. The file control block for **PROG.COM** is overwritten.
- The **GO** command executes the file in memory.

```
DEBUG PROG.COM[Return]
-NPARAM1 PARAM2/C[Return]
-g[Return]
-
```

The **GO** command executes the file in memory as if you typed:

```
A:\>PROG PARAM1 PARAM2/C[Return]
```

## OUTPUT

To send a specified byte to the specified output port, use the OUTPUT command.

### Format

O <value> <byte>

### Where:

<value>                   Is a one-to-four-digit hexadecimal number that specifies a port number.

<byte>                    Is a two-digit hexadecimal value placed in or read from an address or register.

### Comments

You can specify a 16-bit address for <value>.

### Example

To output the byte value 4F to port 2F8, type:

```
-O2F8 4FReturn
```

DEBUG  
PTRACE

## PTRACE

To execute one instruction and display the contents of all registers, flags, and the decoded instruction, use the PTRACE command.

The PTRACE command is identical to the TRACE command except that it automatically executes and returns from any calls or software interrupts it encounters. The TRACE command always stops after executing the call or interrupt, leaving execution control inside the called routine.

### Format

P [= <address>] [<value>]

Where:

= <address> Is a two-part designation consisting of either an alphabetic segment register plus an offset value or a four-digit segment address plus an offset value. If the segment is omitted, the default segment is used. CS is the default segment for the PTRACE command. If specified, the PTRACE begins at this address.

<value> Is a one-to-four-digit hexadecimal number that specifies the number of steps for the PTRACE command.

### Comments

The PTRACE command uses the hardware trace mode of the 8086 or 8088 microprocessor. Therefore, you can also trace instructions stored in ROM. But, you cannot PTRACE through subroutine or software interrupt in ROM.

### Example

To display the registers, flags, and one decoded instruction, type:

-p Return

```
AX=0E00 BX=00FF CX=0007 DX=01FF SP=039D BP=0000 SI=005C DI=0000
DS=04BA ES=04BA SS=04BA CS=04BA IP=011A NV UP DI NG NZ AC PE NC
OCBE:011A CD21 INT 21
```

DEBUG  
PTRACE

If you now type:

-P=011A 10[Return]

```
AX=0000 BX=0000 CX=00FE DX=0000 SP=FFFE BP=0001 SI=005C DI=0000
DS=0CA4 ES=0CA4 SS=0CB4 CS=0CBE IP=011B NV UP EI PL NZ NA PO CY
0CBE:011C 52 PUSH DX
```

```
AX=0000 BX=0000 CX=00FE DX=0000 SP=FFFE BP=0000 SI=005C DI=0000
DS=0CA4 ES=0CA4 SS=0CB4 CS=0CBE IP=011C NV UP EI PL NZ NA PO CY
0CBE:011D 54 PUSH SP
```

.  
.
.

```
AX=0000 BX=0000 CX=0101 DX=0003 SP=FFF2 BP=0004 SI=005C DI=0000
DS=0CA4 ES=0CA4 SS=0CB4 CS=0CBE IP=012A NV UP EI PL NZ NA PO CY
0CBE:012B 52 PUSH DX
```

DEBUG executes 16 (10H) instructions, beginning at 0CBE:011A, displaying all registers and flags for each instruction as it is executed. Press <Ctrl/S> to stop the scrolling of the display. Press any other key to continue.

*DEBUG*  
*QUIT*

## **QUIT**

To end the DEBUG session, use the QUIT command.

### **Format**

Q

### **Comments**

The QUIT command ends the DEBUG session without saving the file currently being operated on.

The QUIT command returns to the MS-DOS command level.

### **Example**

To end the debugging session, type:

-Q[Return]

## REGISTER

To display the contents of one or more CPU registers, use the REGISTER command.

### Format

R [<registername>]

### Where:

<registername>

Is the name of a CPU register. Valid register names are AX, BX, CX, DX, CS, DS, ES, SS, BP, SP, DI, SI, IP, PC, and F.

When you type the command RF, the flags are displayed in the order shown in Table 7-2, which contains the valid flags and their meanings. At the end of the list of flags, DEBUG displays a hyphen. You can enter new flag values as two-letter codes in any order. You do not have to leave spaces between the flag entries. Flags for which you did not enter new values remain unchanged.

### Comments

Table 7-2 lists the flags and the two-letters codes for set and clear.

**Table 7-2: Flags**

| Flag            | Set            | Clear          |
|-----------------|----------------|----------------|
| Overflow        | OV             | NV             |
| Direction       | DN (decrement) | UP (increment) |
| Interrupt       | EI (enable)    | DI (disable)   |
| Sign            | NG (negative)  | PL (plus)      |
| Zero            | ZR             | NZ             |
| Auxiliary Carry | AC             | NA             |
| Parity          | PE (even)      | PO (odd)       |
| Carry           | CY             | NC             |

If you omit a register name, the REGISTER command dumps the register save area and displays the contents of all registers and flags.

## DEBUG REGISTER

If you specify a register, the 16-bit hexadecimal value of that register is displayed. Then a colon is displayed as the prompt. Type a value to change the contents of the register, or press the Return key for no change.

If you specify F as the register, DEBUG displays each flag with a two-letter alphabetic code. To alter any flag, type the opposite two-letter code.

To exit from the REGISTER command, press the Return key.

If you type an invalid two-letter code, a message is displayed. DEBUG changes the flags up to the invalid code. DEBUG does not change the flags at or after the error.

At start up, the segment registers are set to the bottom of free memory. IP is set to 0100H. All flags are clear. The remaining registers are set to zero.

### Examples

To display all registers, flags, and the decoded instruction at the current location, type:

```
-R[Return]
AX=0E00 BX=00FF CX=0007 DX=01FF SP=039D BP=0000 SI=005C DI=0000
DS=04BA ES=04BA SS=04BA CS=04BA IP=011A NV UP DI NG NZ AC PE NC
0CBE:011A CD21 INT 21
```

To display the flags, type:

```
-RF[Return]
NV UP DI NG NZ AC PE NC - _
```

To change any or all flags, type valid flag designations, in any order, with or without spaces:

```
-NV UP DI NG NZ AC PE NC - PLEICY[Return]
-RF
NV UP EI PL NZ AC PE CY - _
```

To leave the flags as they now are, press the Return key.

## SEARCH

To search the range specified for the list of bytes specified, use the SEARCH command.

### Format

S <range> <list>

### Where:

<range> Is either <address><address> or <address>L<value>. <Value> is the number of lines the SEARCH command should work on. A length of 80 is assumed. If another hexadecimal value follows <range>, you cannot use the form <address>L<value> because the second hexadecimal value would be interpreted as the second address.

<list> Is a series of byte or string values. <List> must be the last value on the command line.

### Where:

<byte> Is a two-digit hexadecimal value to be placed in or read from an address or register.

<string> Is any number of characters enclosed in either single or double quotes. If quotes appear in the string, they must be double quotes.

### Comments

<List> can contain one or more bytes, separated by a space or comma. If <list> contains more than one byte, only the first address of the byte string is returned. If <list> contains only one byte, all addresses of the byte in <range> are displayed.

### Example

If you type:

```
-SCS:100 110 41[Return]
0CBE:0104
0CBE:010D
-
```

*DEBUG  
SEARCH*

DEBUG displays information similar to the following:

0CBE:0104

0CBE:010D

These addresses contain the specified byte.

## TRACE

To execute one instruction and display the contents of all registers, flags, and the decoded instruction, use the TRACE command.

The TRACE command is identical to the PTRACE command except that it always stops after executing the call or interrupt, leaving execution control inside the called routine. The PTRACE command automatically executes and returns from any calls or software interrupts it encounters.

### Format

T [=<address>] [<value>]

For more information about the TRACE command, see the PTRACE command in this chapter. Remember, when you use the TRACE command, type "T" and not "P."

## UNASSEMBLE

To disassemble bytes and display their source statements, with addresses and byte values, use the UNASSEMBLE command.

### Format

U [address1[,]address2]

or

U [address1 L length]

### Where:

- |          |                                                                                                                                                     |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| address1 | Is the address where you want to begin to disassemble. You can specify a segment:offset or a four-digit segment address. The default segment is CS. |
| address2 | Is the address where you want to stop the disassemble.                                                                                              |
| length   | Is the number of bytes you want to disassemble. Do not specify address2 if you specify the length.                                                  |

### Comments

If you type the UNASSEMBLE command without parameters, DEBUG disassembles 20H bytes at the first address after the bytes displayed by a previous UNASSEMBLE command.

If the bytes in some addresses are altered, the UNASSEMBLE command alters the instruction statements. You can type the UNASSEMBLE command for the changed locations, the new instructions viewed, and the disassembled code to edit the source file.

**Example**

To disassemble 16 bytes beginning at 0CBE:100, type:

```
-U0CBE:0100 L10[Return]
0CBE:0100 206472 AND [SI+72],AH
0CBE:0103 69 DB 69
0CBE:0104 7665 JBE 016B
0CBE:0106 207370 AND [BP+DI+70],DH
0CBE:0109 65 DB 65
0CBE:010A 63 DB 63
0CBE:010B 69 DB 69
0CBE:010C 66 DB 66
0CBE:010D 69 DB 69
0CBE:010E 63 DB 63
0CBE:010F 61 DB 61
```

To disassemble the bytes from 0CBE:0100 to 0CBE:0108, type:

```
-U0CBE:0100 0108[Return]
0CBE:0100 206472 AND [SI+72],AH
0CBE:0103 69 DB 69
0CBE:0104 7665 JBE 016B
0CBE:0106 207370 AND [BP+DI+70],DH
```

DEBUG  
WRITE

## WRITE

To write the file being debugged to a disk file, use the WRITE command.

### Format

W [<address> [<drive> <record1> <record2>]]

### Where:

<address> Is a two-part designation consisting of either an alphabetic segment register plus an offset value or a four-digit segment address plus an offset value. If the segment is omitted, the default segment is used. CS is the default segment for the WRITE command.

If you type the WRITE command with only an address, the file is written beginning from the address.

<drive> Is a one-digit hexadecimal value that indicates which drive a file is loaded from or written to. Valid values are 0=A:, 1=B:, 2=C:, 3=D:.

<record1> Is a one- to three-digit hexadecimal value used to indicate the logical record number on the disk. Logical records correspond to sectors, but their numbering is different because they represent the entire disk space.

<record2> Is a one- to three-digit hexadecimal value used to indicate the number of disk sectors to be written.

### Comments

If you type the WRITE command without parameters, you must first set BX:CX to the number of bytes to be written. The file is written beginning from CS:100.

### NOTE

If you want to use the WRITE command without parameters, and you have already used a GO or TRACE command, make sure you reset BX:CX.

If you load a file and modify it, the name, length and starting address are all set correctly to save the modified file (as long as the length has not changed).

If you type the WRITE command with parameters, the write begins from the memory address specified. The WRITE command writes the file to <drive>. DEBUG writes the file beginning at the logical record number specified by <record1>. DEBUG continues to write the file until the number of sectors specified in <record2> have been written.

**CAUTION**

Writing to absolute sectors bypasses the file handler and is, therefore, very risky.

**Examples**

To write the currently debugged file to disk, type:

```
-wReturn
```

To write 2BH records, beginning at address CS:100, to drive B and begin writing at logical record 37H, type:

```
-wCS:0100 1 37 2BReturn
```

## Chapter 8

---

# Using MS-DOS with MS-Windows

Your VAXmate workstation uses the MS-DOS Version 3.30 operating system to control all its operations. Using this operating system you can:

- Execute MS-DOS operating system commands
- Use MS-Windows
- Use the network

This chapter contains information about:

- Using external MS-DOS commands with MS-Windows
- Using internal MS-DOS commands with MS-Windows
- Getting help
- Exiting from MS-Windows to MS-DOS

## **Using External Commands with MS-Windows**

There are a number of methods you can use to execute an external command in MS-Windows. However, the following method is the best method because:

- It uses the values contained in the external command's program information file (.PIF).
- You do not need to be in the directory where the external command exists to execute it.

For more information about the characteristics of external commands, see Chapter 4 of this manual.

To use an external command with MS-Windows:

1. Highlight the Run command in the MS-DOS Executive File menu box.
2. Release the left mouse button.  
A dialog box is displayed.
3. Type the command you want to run and its parameters.
4. Click on the OK command button.

To return to the MS-DOS Executive window from a command that ran in a window:

1. Highlight the Close command in the System menu box.
2. Release the left mouse button.

To return to the MS-DOS Executive window from a command or application program that did not run in a window:

1. Exit the command or application program.
2. Press any key to continue.

## Using Internal Commands with MS-Windows

Many of the internal MS-DOS commands have equivalent commands in MS-Windows. Therefore, you should use the equivalent MS-Windows command whenever possible. Table 8-1 contains a list of MS-DOS internal commands and the equivalent MS-Windows command.

For more information about the characteristics of internal commands, see Chapter 4 of this manual.

**Table 8-1: Equivalent MS-Windows Commands**

| <b>MS-DOS Command</b> | <b>Equivalent MS-Windows Command</b> | <b>Location of MS-Windows Command</b>    |
|-----------------------|--------------------------------------|------------------------------------------|
| CHDIR                 | Change Directory                     | MS-DOS Executive Window Special menu box |
| COPY                  | Copy                                 | MS-DOS Executive Window File menu box    |
| DATE                  | Date                                 | Control Panel (CONTROL.EXE)              |
| DEL                   | Delete                               | MS-DOS Executive Window File menu box    |
| DIR                   | <sup>1</sup>                         | MS-DOS Executive Window View menu box    |
| ERASE                 | Delete                               | MS-DOS Executive Window File menu box    |
| EXIT                  | End                                  | MS-DOS Executive Window Special menu box |
| LABEL                 | Set Volume Name                      | MS-DOS Executive Window Special menu box |
| MKDIR                 | Create Directory                     | MS-DOS Executive Window Special menu box |

<sup>1</sup>There is no equivalent MS-Windows command for the MS-DOS DIR command.

**Table 8-1 (Cont.): Equivalent MS-Windows Commands**

| MS-DOS Command | Equivalent MS-Windows Command | Location of MS-Windows Command        |
|----------------|-------------------------------|---------------------------------------|
| REN            | Rename                        | MS-DOS Executive Window File menu box |
| RMDIR          | Delete                        | MS-DOS Executive Window File menu box |
| TIME           | Time                          | Control Panel (CONTROL.EXE)           |

To execute an internal command that lacks an MS-Windows equivalent command:

1. Highlight the Run command in the MS-DOS Executive File menu box.
2. Release the left mouse button.  
A dialog box is displayed.

3. Type:

COMMAND.COM

4. Click on the OK command button.

The MS-DOS operating system prompt is displayed.

5. Type the internal command you want to use and press the Return key.

You can use any of the internal MS-DOS operating system commands (except the CTTY command).

To return to the MS-DOS Executive Window:

1. Type:

A:\>EXIT Return

2. Highlight the Close command in the System menu box.
3. Release the left mouse button.

## **Getting Help**

The Information System provides you with information about the MS-DOS operating system and your VAXmate workstation. The Information System is represented by an icon in the Icon area at the bottom of a window. The icon is a square with the letter "i" inside.

## **Exiting from MS-Windows**

You can use both external and internal MS-DOS operating system commands with MS-Windows. However, if you want to use the MS-DOS operating system commands extensively, we suggest you exit from MS-Windows and use the commands at the MS-DOS operating system prompt.

To exit from MS-Windows:

1. Highlight the Close command in the the System menu box.
2. Release the left mouse button.

The End Session window is displayed.

3. Click on the OK command button.

The MS-DOS operating system exits from MS-Windows and displays its prompt.

# Appendix A

---

## Messages

This chapter lists and discusses:

- Disk and device messages
- MS-DOS operating system messages

The messages are listed alphabetically, followed by an explanation and action to correct the problem.

### Disk and Device Errors

If a disk or device error occurs at any time during a command or program, the MS-DOS operating system displays the following message:

```
(type) (action) drive x
Abort, Retry, Fail?_
```

## Messages

### Where:

|      |                          |                   |
|------|--------------------------|-------------------|
| type | Is one of the following: |                   |
|      | Bad call format error    | Bad command error |
|      | Bad unit error           | Data error        |
|      | FCB unavailable          | General failure   |
|      | Invalid disk change      | Lock violation    |
|      | Non-DOS disk error       | No paper error    |
|      | Not ready error          | Read fault error  |
|      | Sector not found error   | Seek error        |
|      | Sharing violation        | Write fault error |
|      | Write protect error      |                   |

action Is either reading or writing.

drive Is the drive in which the error occurred.

The MS-DOS operating system waits for you to respond in one of the following ways:

- A Aborts the program requesting the disk read or write.
- R Retries the operation. Use this response after you correct the error.
- F Retries the operation.

## Messages

### Access denied

**Cause:** You violated a file, subdirectory, or device access mode. For example, you cannot delete a read-only file.

**Action:** You must supply a different file name, subdirectory name, or device name.

### Allocation error in file, size adjusted

**Cause:** The size of the file indicated in the directory is not consistent with the amount of data actually allocated to the file.

**Action:** Make sure the data in the file is still valid. You may need to restore the backup copy of this file.

**Allocation error, size adjusted**

Cause: An invalid cluster number was found in the file allocation table (FAT). The file was truncated at the end of the last valid cluster.

Action: Make sure the data in the file is still valid. You may need to restore the backup copy of this file.

**Bad call format reading/writing drive 'drivename'**

Cause: The MS-DOS operating system found a request header of incorrect length for the specified device.

Action: To stop the command, press the A key. Review the source code of the program that produced the message.

**Bad command error reading/writing drive 'drivename'**

Cause: The MS-DOS operating system found an invalid command in the command code field of the request header for the specified device.

Action: To stop the command, press the A key. Review the source code of the program that produced the message.

**Bad command or file name**

Cause: The MS-DOS operating system cannot find the specified command or file name.

Action: Make sure you typed the command correctly. Then, make sure you typed the file name correctly. Finally, make sure the file exists on the disk using the DIR command.

**Bad disk**

**Press any key**

Cause: When you started your VAXmate workstation, a hardware problem occurred which prevented the disk from being read.

Action: Turn off the VAXmate workstation and restart it. If this message is displayed again get another system diskette.

**Bad file**

Cause: One of the specified files is defective.

Action: Restore the backup copy of the file.

**Bad or missing 'filename'**

Cause: The CONFIG.SYS file contains a reference to an invalid device.

Action: Make sure the DEVICE command is correct in the CONFIG.SYS file.

**Bad or missing Command Interpreter**

Cause: The MS-DOS operating system cannot find the COMMAND.COM file.

Action: Do any, or all, of the following:

- Make sure the COMMAND.COM file is in your root directory. If it is, make sure it is valid. If you think it is invalid, copy the COMMAND.COM file from your backup disk to the disk you are currently using.
- Make sure COMSPEC= points to a valid copy of COMMAND.COM.

**Bad unit error reading/writing drive 'drivename'**

Cause: The MS-DOS operating system found an invalid subunit code in the request header for the specified device.

Action: To stop the command, press the A key. Review the source code of the program that produced the message.

**bf Error**

Cause: You tried to alter a flag and specified an invalid flag specification.

Action: Enter a valid flag specification and retry the command.

**bp Error**

Cause: You tried to set more than 10 breakpoints as parameters for the GO command.

Action: Specify 10 parameters or less for the GO command.

**br Error**

Cause: You specified an invalid register name for the REGISTER command.

Action: Enter a valid register and retry the command.

**Can't share 'pathname'**

**Drive is redirected**

Cause: The path specified was redirected over the network and cannot be shared with the PERMIT command.

Action: Specify the actual path.

**Cannot Chdir to 'filename'**

**Tree past this point not processed**

Cause: The CHKDSK command is unable to proceed to the specified directory. All subdirectories and files under this directory cannot be verified. Your directory structure could be corrupt. You could also have more subdirectories than are allowed by the MS-DOS operating system.

Action: Save the files that you can save. Restore lost files from your backup diskette.

**Cannot CHKDSK a Network drive**

Cause: You tried to check drives that are redirected over the network.

Action: Make sure the drive is not redirected before you issue the CHKDSK command.

**Cannot Chdir to root -**

**Processing cannot continue**

**Cause:** The CHKDSK command cannot to return to the root directory. The CHKDSK command cannot continue checking the remaining subdirectories to the root. Your disk structure could be corrupt.

**Action:** Remember the path that would not allow you to reach the root. Try restarting the MS-DOS operating system. If this error persists, you cannot use the disk.

**Cannot close file 'filename'**

**Cause:** The file 'filename' cannot be closed. Either the file handle could not be closed or the file handle is invalid.

**Action:** Retry the GRAFTABL command.

**Cannot create a temporary file on destination diskette**

**Cause:** The destination diskette's directory is full.

**Action:** Delete some files from the diskette, or use another diskette.

**Cannot create new output file**

**Cause:** The destination diskette's directory is full.

**Action:** Delete some files from the diskette, or use another diskette.

**Cannot DISKCOPY to or from a network drive**

**Cause:** You tried to use the DISKCOPY command on a network resource.

**Action:** Do not try to execute the DISKCOPY command on a remote network resource.

**Cannot do binary reads from a device**

**Cause:** You tried to execute the COPY command with the /B qualifier when copying from a device.

**Action:** Try one of the following:

- Remove the /B qualifier and retry the COPY command.
- Specify an ASCII copy using the /A qualifier. Retry the COPY command.

**Cannot edit .BAK file—rename file**

**Cause:** You tried to edit a backup copy made by EDLIN.

**Action:** Try one of the following:

- Rename the .BAK file and give it another file extension.
- Copy the .BAK file and give it a different file extension.

**Cannot FORMAT a Network drive**

**Cause:** You tried to format a drive that is redirected over the network.

**Action:** Do not try to format a drive that has been redirected over the network.

**Cannot format an Assigned drive**

**Cause:** You tried to format a drive whose input/output (I/O) is sent to another drive.

**Action:** To clear all drive assignments, type:

```
A>ASSIGNReturn
```

**Cannot format drive.**

**Cause:** You set the drive type improperly.

**Action:** Make sure you specify the correct drive type for your VAXmate workstation hard disk.

**Cannot LABEL a SUBSTed or ASSIGNed drive**

**Cause:** You tried to label a drive that was assigned using the ASSIGN command or substituted using the SUBST command.

**Action:** Use the LABEL command only with valid drives.

**Cannot label a network drive**

**Cause:** You tried to label a drive that is shared on a network.

**Action:** Do not try to label a network drive.

**Cannot open back-up id file on back-up destination disk**

**Cause:** The BACKUP or RESTORE command cannot open the BACKUPID.@@@ file on the destination disk.

**Action:** Make sure you typed the information on the command line correctly. Then make sure the BACKUPID.@@@ file is where you specified it to be.

**Cannot open file 'filename'**

**Cause:** The MS-DOS operating system cannot find the file you specified.

**Action:** Make sure you typed the file name correctly. Then, make sure the file exists. If the file exists, make sure the path is valid. Finally, retry the command.

**Cannot perform a cyclic copy**

**Cause:** You tried an XCOPY operation that has the destination as a subdirectory of the source drive. This creates an endless cycle.

**Action:** Specify a destination that is not a subdirectory of the source drive.

**Cannot read graphic font file 'filename'**

**Cause:** GRAFTABL cannot read from the file you specified on the command line. The file could be closed to reading.

**Action:** Retry the GRAFTABL command. If the message is displayed again, restore the font file from your backup diskette.

**Cannot recover . entry, processing continued**

Cause: The . entry (current directory) is corrupt.

Action: Restore the files and directory structure from your backup diskette.

**Cannot recover .. entry**

Cause: The directory above your current directory is defective. The disk area is probably corrupt.

Action: Use your backup diskette to restore the files and the directory structure.

**Cannot recover a Network drive**

Cause: You tried to recover files on a drive that is redirected over the network.

Action: Do not try to recover file in redirected drives.

**Cannot redirect a network printer**

Cause: You tried to redirect a printer that is a network device.

Action: To delete the connection, type:

```
A>NET USE dev /DReturn
```

Now, retry the redirection.

**Cannot share a SUBSTed drive**

Cause: You specified a drive letter that is directed to another drive with the SUBST command.

Action: Specify the actual path.

**Cannot startup from drive n**

Cause: You entered the Mark Startup Partition Menu when a drive other than drive 1 was selected.

Action: Make drive 1 the startup partition.

**Cannot use PRINT—Use COPY**

**Cause:** You tried to load a second print spooler after one was already loaded.

**Action:** Use the COPY command to print the file.

**Cannot XCOPY from a reserved device**

**Cause:** The source device is a character device, or is NULL.

**Action:** Create a file that contains the source data and use that file as the source for the XCOPY command.

**Cannot XCOPY to a reserved device**

**Cause:** The source device is a character device, or is NULL.

**Action:** The destination must be a file or a block device (drive name).

**Check input line "DEVICE=MDRIVE.SYS" in CONFIG.SYS file**

**Cause:** There is invalid data or an invalid qualifier on the "DEVICE=MDRIVE.SYS" line of the CONFIG.SYS file.

**Action:** Ask your system administrator to correct the error in your CONFIG.SYS file.

**Chdir .. failed, trying alternate method**

**Cause:** The CHKDSK command cannot return to the directory above your current directory. It will try to return to that directory by starting over at the root and traveling down. The disk area is probably corrupt.

**Action:** Use your backup diskette to restore the files and the directory structure.

**Connection failed to 'alias'**

**Cause:** You issued another NET USE command to 'alias.' That would be a second connection, which the PERMIT command does not allow.

**Action:** Do not try to connect to an alias that is PERMITTED more than once.

**Connection failed to 'alias'—session closed**

**Cause:** A client system specified an incorrect alias or password in the NET USE command while trying to connect to your system.

**Action:** The session is closed and the PERMIT command waits for a successful connection. You must inform the person issuing the NET USE command that it was invalid.

**Content of destination lost before copy**

**Cause:** A COPY command source file was overwritten prior to completion of the copy.

**Action:** Retry the COPY command.

**Convert lost chains to files (Y/N)?**

**Cause:** The CHKDSK command found lost blocks while performing its operations.

**Action:** To recover the lost blocks, create a directory entry, and create a file named FILEnnnn.CHK, press the Y key.

To free the lost blocks for reallocation, press the N key.

**Could not create copy of the file**

**Cause:** A write error occurred before the entire file was copied. The destination disk is probably full.

**Action:** Delete some files from the disk, and retry the SELECT command.

**Could not read all of the existing file**

**Cause:** A read error occurred before the end of file was reached. The existing CONFIG.SYS or AUTOEXEC.BAT file is bad.

**Action:** Retry the SELECT command. If this message is displayed again, restore the file from your backup diskette.

**Country code must be three characters long**

**Cause:** You entered a country code that is either too long or too short.

**Action:** Make sure you enter a three-character country code, and retry the SELECT command.

**Country code must be three digits**

**Cause:** You entered a country code that contains a character other than a digit.

**Action:** Make sure you enter the country code correctly, and retry the SELECT command.

**Data error reading/writing drive 'drivename'**

**Cause:** The MS-DOS operating system could not read from, or write to, the disk. You cannot use this disk anymore.

**Action:** To retry the command, press the R key.

If the problem persists and you are performing a backup, restore, or verify operation, press the I key to ignore the problem and continue the operation. There may be a corrupt file.

If you are not performing a backup, restore, or verify operation and the problem persists, press the A key to stop the command. Copy all your files to a new diskette, or back up and reformat your hard disk.

**df Error**

**Cause:** You typed two values for one flag.

**Action:** Retry the RF command and specify only one value per flag.

**Directory is joined**

**Cause:** You tried to execute the CHKDSK command on directories that are joined.

**Action:** Run the JOIN command with the /D qualifier to deassign joined directories.

**Directory is totally empty, no . or ..**

**Cause:** The specified directory did not contain references either to your current directory or to the directory above your current directory.

**Action:** Delete the specified directory and recreate it.

**Directory not empty**

**Cause:** You tried to join a directory that was not empty.

**Action:** Back up or delete all files in the directory and retry the JOIN command.

**Disk error reading/writing drive 'drivename'**

**Cause:** Any of the following occurred:

- The data area of a file is defective.
- Your diskette is bad.

**Action:** Get a new diskette.

**Disk error reading/writing FAT 'fatnumber'**

**Cause:** One of your file allocation tables has a defective sector in it. The MS-DOS operating system automatically uses the other file allocation table.

**Action:** Copy all your files onto another disk.

**Disk full-write not completed**

Cause: The EDLIN program stopped the E command and returned to the MS-DOS operating system. Part of the file may have been written to disk and saved.

Action: Delete the saved portion and restart the editing session. The file is not available after this error.

**Disk full. Edits lost**

Cause: The EDLIN command cannot save your file due to lack of disk space.

Action: Delete some files to increase the available disk space.

**Disk is not properly initialized**

Cause: You tried to format the hard disk without first initializing it.

Action: Run the FDISK program and initialize the disk.

**Disk type unknown**

Cause: Any of the following occurred:

- The drive type is unknown.
- The disk was not initialized on a VAXmate workstation.
- The boot block has been destroyed.

Action: Set the drive type. Then initialize the disk if you have not done so.

**Disk unsuitable for system drive**

Cause: The FORMAT program detected a bad track on the disk where system files should reside.

Action: Use another disk for the system disk. You can use your original disk to store files, but do not use it as a system disk.

**Diskette controller error**

Cause: A problem occurred with the diskette controller.

Action: Make sure all cables are connected properly and reinitialize the diskette. If this message is displayed again, call Field Service.

**Diskette is write protected**

**Remove write protect tab and press any key to continue**

**Or type <CTRL/C> to abort FORMAT**

Cause: You tried to format a write-protected diskette.

Action: Remove the write-protect tab and retry the FORMAT command.

**Diskette or hardware has an unrecoverable error**

**This diskette cannot be formatted**

Cause: Your diskette is bad.

Action: Get a new diskette.

**Divide overflow**

Cause: The divide overflow flag was set. This occurred when a program tried to divide by zero.

Action: Determine which program was running. If the program is one of ours, call Field Service. If the program is yours, check your source code for a bug.

**Drive cannot be formatted**

Cause: The drive you specified cannot be formatted. It could be a memory drive or a network drive.

Action: Retry the FORMAT command and specify a valid drive.

**Drive name must be a letter followed by a colon**

Cause: The fourth parameter was not a letter followed by a colon.

Action: Type a valid drive specification. For example:

```
A>SELECT 001 MCS FR C:
```

**Drive not initialized**

Cause: Either of two things occurred:

- The drive type is not set properly.
- The drive is not initialized.

Action: Set the drive type. If this message is displayed again, initialize the drive.

**Drive types or diskette types not compatible**

Cause: The source and destination diskettes or virtual disks are not compatible.

Action: Use the DISKCOMP command or DISKCOPY command only on compatible diskettes or virtual disks.

**Duplicate file name or file not found**

Cause: Either of two things occurred:

- You tried to rename a file to a file name that already exists.
- You specified a file name that cannot be found.

Action: Use the DIR command to display the files in the current directory. Retry the REN command and specify valid file names.

**Entry error**

Cause: The last command you typed contained a format error.

Action: Retype the command using the correct format.

**Entry has a bad attribute (or link or size)**

Cause: The specified subdirectory has a bad attribute, link, or size. The message may be preceded by one or two periods to indicate which subdirectory is invalid.

Action: Run the CHKDSK program and specify the /F qualifier. The CHKDSK command will try to correct the error.

**Error in .EXE file**

Cause: The .EXE file you wanted the MS-DOS operating system to load has an invalid internal format.

Action: Get another copy of the .EXE file from your backup diskette.

**Error reading file 'filename'**

Cause: The LCOUNTRY program could not read the file 'filename.'

Action: Retry the LCOUNTRY command. If this message is displayed again, restore the file from your backup diskette.

**Error writing allocation table**

Cause: An error occurred while writing the file allocation table.

Action: Reformat the diskette and retry the FORMAT program. If this message is displayed again, you cannot use this diskette anymore.

**Error writing boot record to disk**

Cause: An error occurred while writing the boot record to the disk.

Action: Use another disk as a system disk. You cannot use this disk as a system disk.

**Error writing to device**

**Cause:** You tried to send too much data to a device. The MS-DOS operating system is unable to write the data to the specified device.

**Action:** Make sure the device is on-line and the cables are connected (if the device is a printer). If the device is a printer, turn off the VAXmate workstation and then turn it back on. You may have to restore the backup copy of your file(s).

**Errors found, F parameter not specified**

**Corrections will not be written to disk**

**Cause:** You did not specify the /F qualifier when trying to correct errors using the CHKDSK program.

**Action:** Retry the CHKDSK command and specify the /F qualifier.

**Errors on list device indicate that it may be off-line**

**Please check it**

**Cause:** Your printer is not turned on.

**Action:** Turn the printer on and retry the operation.

**EXEC failure**

**Cause:** Either of two things occurred:

- The MS-DOS operating system finds an error reading a command.
- The FILES command in the CONFIG.SYS file is set too low.

**Action:** Increase the value of the FILES command in the CONFIG.SYS file. Restart the MS-DOS operating system.

**FC: cannot open 'filename'—No such file or directory**

**Cause:** One of the files you specified does not exist.

**Action:** Check your directory for the correct file name.

**FC: incompatible switches**

**Cause:** You specified switches that are not compatible. For example, specifying /B and /L together.

**Action:** Retry the FC command and specify only compatible switches.

**FC: out of memory**

**Cause:** You did not have enough memory to perform the file compare.

**Action:** You can use a memory drive for temporary files. You can also add more memory to your VAXmate workstation.

**FCB unavailable reading/writing drive 'drivename'**

**Cause:** The MS-DOS operating system detected an error while trying to access a file control block. This is often due to a defective disk.

**Action:** Press the R key. To stop the program, press the A key.

**File allocation table bad**

**Cause:** The disk is defective.

**Action:** Use the CHKDSK command to check the disk. Get a new disk and copy what you can from the disk with the bad file allocation table.

**File allocation table bad drive 'drivename'**

**Cause:** The disk is defective.

**Action:** Run the CHKDSK command to check it.

**File cannot be converted**

**Cause:** The input file was not in the correct format.

**Action:** See information about the EXE2BIN command in Chapter 4.

**File cannot be copied onto itself**

**Cause:** The source file name you specified is the same as the destination file name.

**Action:** Specify a different destination file name.

**File creation error**

**Cause:** You tried to add a new file name or replace a file that already existed in the directory. If the file already existed, it is a read-only file and cannot be replaced.

**Action:** Run the CHKDSK program on the disk to determine the cause of the error. You can also use the ATTRIB command to determine whether the file is read-only. If it is, you can use the ATTRIB command to change it.

**File is not a back-up file**

**Cause:** The RESTORE command tried to restore a file that did not have the BACKUP header on it. The file was not saved using the BACKUP command.

**Action:** Use the COPY command to copy the file to your directory.

**File is not a graphic font file 'filename'**

**Cause:** You specified a file that was not a graphic font file.

**Action:** Make sure you typed the correct file name on the command line. Then make sure the file exists. Retry the GRAFTABL command.

**File is READ-ONLY**

**Cause:** You tried to change a file that is a read-only file.

**Action:** Use the ATTRIB command to clear the read-only attribute.

**File not found 'filename'**

Cause: The MS-DOS operating system could not find the file you specified.

Action: Make sure the name is correct and that the file exists in the directory on the disk. Make sure the path is valid.

**Filename must be specified**

Cause: You did not specify a file name when you started the EDLIN program.

Action: Retry the EDLIN command and specify a file name.

**'Filename' contains non-contiguous blocks**

Cause: The file or files you named are not written contiguously on the disk.

Action: Run the CHKDSK command and specify the /F qualifier.

**'Filename' file not found**

Cause: You switched disks before your file in the print queue started to print.

Action: Retry the PRINT command.

**'Filename' is cross-linked on cluster**

Cause: The file allocation table for the file was corrupt.

Action: Run the CHKDSK command and specify the /F qualifier. If this message is displayed again, back up and reformat the disk, and then restore the files to it.

**'Filename' is not in proper format**

Cause: The file you specified is not a valid .COU file.

Action: Make sure you typed the file name correctly. If you did, make sure the country data file is in the proper format (see the *VAXmate Technical Reference Manual*).

**'Filename' too large**

**Cause:** The country data file you specified is too large. The internal country data table is limited to 600 bytes.

**Action:** Split the file into two smaller files. Retry the LOUNTRY command.

**FIND: File not found**

**Cause:** You specified a file that did not exist.

**Action:** Make sure you typed the file name correctly, and make sure the file exists.

**FIND: Invalid number of parameters**

**Cause:** You specified either too many or too few parameters on the command line.

**Action:** Retry the FIND command and specify the correct number of parameters.

**FIND: Invalid parameter**

**Cause:** You specified an invalid parameter.

**Action:** Retry the FIND command.

**FIND: Read error in 'filename'**

**Cause:** The FIND program could not read the specified file.

**Action:** Retry the command. If this message is displayed again, restore the backup copy of the file.

**FIND: Syntax error**

**Cause:** You typed a command incorrectly.

**Action:** Make sure you typed the command correctly. Retry the FIND command.

**First cluster number is invalid**

**Entry truncated**

**Cause:** The file directory entry contained an invalid pointer to the data area. If you specified the /F qualifier, the file is truncated to a zero-length file.

**Action:** Make sure the file is still valid and the data is not corrupt.

**Fixups needed—base segment 'hexnumber'**

**Cause:** The source (.EXE) file contains information indicating that a load segment is required for the file.

**Action:** Specify the absolute segment address at which the finished module is to be located.

**Font code plus keyboard code must be less than 9 characters**

**Cause:** The combined length of the second and third parameters was greater than 8 characters.

**Action:** Make sure the second and third parameters have a combined length of no more than 8 characters.

**For cannot be nested**

**Cause:** You nested FOR commands in a batch file.

**Action:** Remove the nested FOR command from the batch file.

**Format failure**

**Cause:** The MS-DOS operating system could not format the disk.

**Action:** Read the explanation and take the appropriate action. Retry the FORMAT command.

**General failure reading/writing drive 'drivename'**

**Cause:** This message can be displayed for a variety of problems. This error usually requires a knowledgeable programmer to fix the problem.

**Action:** To retry the command, press the R key. To stop the command, press the A key.

**Hard disk does not respond**

Cause: Either of two things occurred:

- Your hard disk is not working.
- Your VAXmate workstation does not contain a hard disk.

Action: Reset the VAXmate workstation by pressing <Ctrl/Alt/Del>. If this message is displayed again, call Field Service.

**Hard disk is not initialized or partitioned**

Cause: Either of two things occurred:

- The hard disk is not initialized.
- The hard disk is not partitioned.

Action: Initialize and partition the hard disk before you try to format it.

**Has invalid cluster, file truncated**

**Incompatible system size**

Cause: The system files IO.SYS and MSDOS.SYS occupy more space on the source disk than is available on the destination disk.

Action: Back up the destination disk. Reformat it using the /S qualifier. Restore the files to the destination disk.

**Incorrect DOS Version**

Cause: You tried to use a command that requires a version of MS-DOS other than the version currently loaded on your workstation.

Action: Contact your system administrator to obtain the correct version of the MS-DOS operating system.

**Incorrect DOS version**

**This program requires MS-DOS V3.30**

**Cause:** You tried to use a command that requires a version of MS-DOS other than the version currently loaded on your workstation.

**Action:** Use DIGITAL's MS-DOS Version 3.30 operating system. Contact your system administrator to obtain the correct version of the MS-DOS operating system.

**Incorrect number of parameters**

**Cause:** You specified either too many or too few parameters on the command line.

**Action:** Check the command format and retry the command. Make sure you specify the correct number of parameters.

**Incorrect parameter**

**Cause:** One of the parameters you specified is invalid.

**Action:** Make sure the parameter is valid and typed correctly.

**Insert DOS diskette in drive 'drivename' and strike any key when ready**

**Cause:** You specified the following command, but the disk in drive 'drivename' does not contain the MS-DOS operating system files:

```
A>FORMAT /SReturn
```

**Action:** Insert a system diskette in drive 'drivename.'

**Insert system diskette in drive 'drivename'**

**Cause:** You did not have a system diskette in the diskette drive.

**Action:** Insert a system diskette into the diskette drive.

### **Insufficient disk space**

**Cause:** There is not enough disk space to complete the specified operation.

**Action:** Delete some files, get a new diskette, or create the file on another partition.

If you are running SETUP and this message is displayed, delete some files from your destination disk and run SETUP again. SETUP requires approximately 446700 bytes on the destination disk to run successfully.

### **Insufficient memory**

**Cause:** There was not enough memory to run the specified command. You may have too many terminate and stay resident programs.

**Action:** Try using a memory drive for temporary files. If you have installed any device drivers, remove some of them. You can also restart the MS-DOS operating system and not install as many terminate and stay resident programs.

### **Insufficient memory for system transfer**

**Cause:** You did not have enough memory to transfer the system files with the /S qualifier. You may have too many terminate and stay resident programs.

**Action:** Try using a memory drive for temporary files. If you have installed any device drivers, remove some of them. You can also restart the MS-DOS operating system and install fewer terminate and stay resident programs.

### **Insufficient room in root directory**

**Erase files in root and repeat the CHKDSK command.**

**Cause:** You have reached the maximum number of files allowable in the root directory.

**Action:** Delete some files in the root directory, or move some files to subdirectories.

### **Intermediate file error during pipe**

**Cause:** One of the temporary files used by the PIPE command had an error.

**Action:** Retry the PIPE command. If this message is displayed again, get another diskette. Copy all files to the diskette, and retry the PIPE command.

### **Internal error**

**Cause:** The FC utility had an internal logic error.

**Action:** Retry the FC command.

### **Invalid alias**

**Cause:** You specified an alias which contains an invalid character.

**Action:** Make sure you type only valid characters in the alias. The alias can have the characters A-Z, 0-9, ^, -, \_, ., %, &, ~, and \$.

### **Invalid characters in volume label**

**Cause:** You typed invalid characters in the volume label.

**Action:** Make sure the volume label contains only letters and numbers.

### **Invalid command line parameters.**

**Cause:** You typed invalid parameters on the command line.

**Action:** Check for misspelling and for missing punctuation. Retry the command.

### **Invalid COMMAND.COM**

### **Insert COMMAND.COM disk in default drive and strike any key when ready**

**Cause:** The MS-DOS operating system needs to reload the COMMAND.COM file from disk. However, either the MS-DOS operating system cannot find the COMMAND.COM file on the disk, or the copy found is invalid.

Action: Insert a disk which contains a copy of the COMMAND.COM file into the default drive.

### **Invalid COMMAND.COM**

**Insert COMMAND.COM disk in drive 'drivename'**

**and strike any key when ready**

Cause: The MS-DOS operating system needs to reload the COMMAND.COM file from disk. However, the MS-DOS operating system cannot find the COMMAND.COM file on the disk, or the copy found is invalid.

Action: Insert a disk that contains a copy of the COMMAND.COM file into drive 'drivename.'

### **Invalid country code**

Cause: You specified an invalid number for the country code in the CONFIG.SYS file.

Action: Specify a valid country code.

### **Invalid date**

**Enter new date (mm-dd-yy):**

Cause: You entered invalid numbers or separators for the date.

Action: Enter a valid date.

### **Invalid destination drive specification**

Cause: You specified a destination drive that does not exist on your system.

Action: Specify a valid destination drive.

### **Invalid device**

Cause: You specified an invalid device.

Action: Make sure you type the device name correctly.

**Invalid directory**

Cause: You specified a directory that is either invalid, or nonexistent.

Action: Run the DIR command to display a list of files and directories.

**Invalid disk change reading/writing drive 'drivename'**

Cause: You changed a disk in a drive when it was not allowed.

Action: To retry the operation, reinsert the disk into the drive and press the R key.

**Invalid drive in search path**

Cause: The drive does not exist.

Action: Specify only valid drives in the search path.

**Invalid drive or file name**

Cause: You specified an invalid drive or file name.

Action: Specify a valid drive or file name.

**Invalid drive specification**

Cause: You specified an invalid drive.

Action: Specify a valid drive.

**Invalid graphic font file name**

Cause: You specified an invalid font file name.

Action: Specify a valid font file name. Use the DIR command to display a list of files in the current directory.

**Invalid input line**

Cause: You specified invalid information on the command line.

Action: Retry the GRAPHICS command and specify valid information.

### Invalid number of parameters

**Cause:** You specified either too many or too few parameters on the command line.

**Action:** Retry the command and specify the correct number of parameters.

### Invalid parameter

**Cause:** One of the parameters you specified is invalid.

**Action:** Make sure you entered the parameter correctly. Retry the command.

### Invalid path

**Cause:** You specified a path that does not exist.

**Action:** To see the current valid paths, type:

```
A>PATH[Return]
```

### Invalid path or file name

**Cause:** This message can be displayed if you:

- Specify an invalid path or file name when trying to access an MS-DOS file.
- Attempt to access a VMS file for which you do not have access privileges, or attempt to access a file that has a different UIC from yours.

**Action:** Do one of the following:

- Specify a valid path or file name for the MS-DOS file.
- Make sure you have access privileges to the VMS file, and that your UIC is the same as the UIC for the file.

**Invalid path, not directory, or directory not empty**

Cause: You tried to remove a directory that is any of the following:

- Invalid
- Not a directory
- Not empty

Action: Try one of the following:

- Specify a valid path.
- Use the RMDIR command and specify a valid directory.
- Empty the directory before you try to remove it.

**Invalid source drive specification**

Cause: You specified a source drive that did not exist.

Action: Make sure the source drive you specify is on your system.

**Invalid sub-directory entry**

Cause: The subdirectory you specified did not exist or was invalid.

Action: Make sure the subdirectory exists and is valid. Retry the command.

**Invalid time**

Cause: You specified an invalid time in response to the time prompt.

Action: Enter a valid time.

**Invalid working directory**

Cause: Your disk is bad.

Action: Replace the disk or make another copy from your backup diskette.

**Label not found**

**Cause:** The batch file you just executed contained a GOTO to a nonexistent label.

**Action:** Edit the batch file and make sure the GOTO command contains a label that exists in the file.

**Last back-up diskette not inserted**

**Cause:** You specified the /A qualifier, but did not insert the last diskette.

**Action:** Find the last diskette and insert it into the diskette drive.

**Last file not backed up**

**Cause:** The last file was not backed up for any of the following reasons:

- You pressed <Ctrl/C>.
- You need to insert a new diskette.
- Your hard disk has no more space.

**Action:** Try one of the following:

- Back up the displayed file.
- Insert a new diskette.
- Delete some files from the hard disk and retry the BACKUP command.

**Line too long**

**Cause:** In your attempt to replace a line, you expanded the line beyond the 253-character limit.

**Action:** Divide your message into two lines and retry the REPLACE command.

**Loading fonts is not supported on this machine**

Cause: You tried to load a font file on a machine other than a VAXmate workstation.

Action: Use the FONT command only on a VAXmate workstation.

**Loading keyboard maps is not supported on this machine**

Cause: You tried to load a keyboard map file on a machine other than a VAXmate workstation.

Action: Use the DECKEYB command only on a VAXmate workstation.

**Lock violation reading/writing drive 'drivename'**

Cause: A program tried to access a file currently being used by another program.

Action: To stop the operation, press the A key. You can also wait a few seconds, and retry the operation by pressing the R key.

**Machine does not have extended memory**

Cause: You ran the MDRIVE command and specified the /E qualifier. Your workstation does not have extended memory.

Action: Ask your system administrator to correct your CONFIG.SYS file. Do not use the /E qualifier unless you have extended memory.

**MDRIVE installation failed**

Cause: A memory drive could not be installed on your VAXmate workstation.

Action: Look at the rest of the message displayed on the screen to determine why the installation failed.

**Memory allocation error**

**Cannot load MS-DOS, system halted**

**Cause:** The MS-DOS operating system could not be loaded at system startup time.

**Action:** Restart the MS-DOS operating system. If this message is displayed again, call Field Service.

**MORE: Incorrect DOS version**

**Cause:** You tried to use the MORE command on a version of the MS-DOS operating system that does not support it.

**Action:** Use the MORE command with MS-DOS Version 3.10 or later.

**Must specify destination line number**

**Cause:** You did not specify a destination line number when you copied and inserted a line using EDLIN.

**Action:** Specify a destination line number when you copy and insert a line using EDLIN.

**Must specify ON or OFF**

**Cause:** You did not specify the ON or the OFF parameter.

**Action:** Retry the command and specify either ON or OFF.

**'Name' is not a registered workstation name**

**Cause:** You specified a name that was not in the permanent or volatile database.

**Action:** Define the VAXmate workstation name using the NET DEFINE command.

**New file**

**Cause:** EDLIN could not find the file you specified.

**Action:** Make sure you typed the file name correctly.

**No files found**

**Cause:** You ran the REPLACE command, but none of the files specified by the source were found on the destination.

**Action:** To run the REPLACE command, the destination must contain files that have the same names as the files on the source.

**No files match 'filename'**

**Cause:** You specified a file name for a file that could not be found.

**Action:** Make sure you typed the file name correctly.

**No files were found to back up**

**Cause:** No files were found on the specified backup source disk to back up.

**Action:** Make sure you typed the file specification correctly. If you did not type the file specification correctly, retry the BACKUP command with the correct file specification.

**No files were found to restore**

**Cause:** No files were found on the source disk to restore.

**Action:** Make sure you typed the file specification correctly. If you did type the file specification correctly, retry the RESTORE command and specify the correct file(s).

**No free file handles**

**Cannot start COMMAND.COM, exiting**

**Cause:** There were not enough free file handles for the COMMAND.COM file to operate properly.

**Action:** Restart the MS-DOS operating system by pressing <Ctrl/Alt/Del>.

If this message is displayed again, increase the value of the FILES command in the CONFIG.SYS file.

**No paper error writing device 'devicename'**

Cause: The printer is out of paper.

Action: Fill the printer with paper.

**No room for system on destination disk**

Cause: There was not enough room for the system files on the destination disk.

Action: Save the contents of the disk. Then, delete all files from the disk. Finally, run the SYS command to copy the system files to the disk.

**No room in directory for file**

Cause: You tried to save a file in a full root directory.

Action: Retry the command and save the file in a subdirectory. Subdirectories are not as limited as the root directory.

**Non-DOS disk error reading/writing drive 'drivename'**

Cause: The MS-DOS operating system did not recognize the disk format.

Action: To stop the command, press the A key.

You cannot use this disk with the MS-DOS operating system. Reformat the disk using the FORMAT command.

**Not a font file**

Cause: The file you specified was not a text font file.

Action: Retry the FONT command and specify a valid font file.

**Not a keyboard map file**

Cause: You specified a file that was not a keyboard map file.

Action: Retry the DECKEYB command and specify a valid keyboard map file.

**Not a system disk**

**Press any key**

**Cause:** The disk does not contain the system files IO.SYS and MSDOS.SYS.

**Action:** Get another diskette that contains the system files IO.SYS and MSDOS.SYS. Restart the MS-DOS operating system.

**Not able to back up file**

**Cause:** The BACKUP command could not back up this file. The file could not be backed up because of a read/write error or because of a file open error.

**Action:** Restart the MS-DOS operating system and retry the BACKUP command. If this message is displayed again, make sure the file exists. If it does exist, save the file using the COPY command, or increase the value of the FILES command in the CONFIG.SYS file.

**Not able to restore file**

**Cause:** No files were found to restore.

**Action:** Make sure you typed the file specification correctly. If you did not type the file specification correctly, retry the RESTORE command with the correct file specification.

**Not enough extended memory to install MDRIVE**

**Cause:** There was not enough extended memory to install a memory drive.

**Action:** Make sure your workstation has extended memory. If it does have extended memory, specify a smaller memory drive. If it does not have extended memory, do not specify the /E qualifier.

### **Not enough memory**

**Cause:** The MS-DOS operating system did not have enough memory to execute the specified command.

**Action:** Decrease the number of device drivers as well as terminate and stay resident programs that you have in memory. If the message is displayed again, edit the CONFIG.SYS file and decrease the value of the BUFFERS command and the FILES command.

### **Not enough memory to install MDRIVE**

**Cause:** Either of two things occurred:

- You need more memory to install a memory drive.
- You need to make the memory drive smaller.

**Action:** Either install more memory or make the memory drive smaller.

### **Not enough room to merge the entire file**

**Cause:** There was not enough memory to hold the file during a TRANSFER command.

**Action:** Use a memory drive for temporary files. Remove some device drivers. Retry the TRANSFER command.

### **Not ready error reading/writing drive 'drivename'**

**Cause:** The MS-DOS operating system could not access the drive you specified.

**Action:** Make sure the disk drive door is closed. Make sure the disk is inserted into the drive right side up. To retry the command, press the R key.

### **Out of environment space**

**Cause:** There was not enough room in the program environment to accept more data.

**Action:** Do the following:

- Make the PATH command shorter.
- Make the APPEND command shorter.

- Decrease the number of SET commands you define.

**Parameters not compatible**

Cause: You used two parameters than cannot be used together.

Action: See Chapter 4 of this manual for the correct command format. Do not specify incompatible parameters.

**Parameters of hard disk cannot be determined.**

Cause: One of the following occurred:

- There is no hard disk.
- The hard disk is installed incorrectly.

Action: Make sure you have a hard disk. Make sure that it is installed correctly.

**Path not found**

Cause: The path you specified does not exist. If you specified a file name with the path name, the file name may not exist.

Action: Retry the command with a valid path name and file name.

**Path too long**

Cause: The path you specified was longer than 63 characters.

Action: Enter a path of 63 characters or less.

**PIF Error**

**Program directly modifies memory.**

**Cannot continue processing.**

Cause: You executed a command or ran a program that directly modified memory.

Action: Restart the system.

Action: Make sure there is a hard disk in your VAXmate workstation. Make sure the hard disk is installed correctly.

**Print quality HIGH is not supported on STD type printers.**

**Cause:** You specified the H parameter for an incompatible printer. The H parameter is valid only on the LA50 type printer.

**Action:** Specify the H parameter only with the LA50 printer. Retry you current request without the H parameter.

**PRINT queue is full**

**Cause:** The print queue was full. The default limit for the print queue is 10 files.

**Action:** Run the PRINT command and specify the /Q qualifier. The /Q qualifier sets the number of files allowed in the print queue. The maximum number you can set is 32 files (minimum is 4).

**Printer type UNKNOWN**

**Cause:** You did not specify a printer type using either the MODE command or the GRAPHICS command.

**Action:** Run the MODE command an specify a printer type, or specify a printer type on the GRAPHICS command line. To see the valid printer types, type:

```
A:\>GRAPHICS
```

**Printing the background is for color printers only**

**Cause:** You specified the /B qualifier on the GRAPHICS command line, but you are not using a color printer.

**Action:** Do not use the /B qualifier with the GRAPHICS command unless you have a color printer.

**Probable non-DOS disk**

**Continue (Y/N)?**

**Cause:** The disk you used was a non-DOS disk. This message usually indicates that the file allocation table is bad.

**Action:** To continue the CHKDSK processing, press the Y key. To stop CHKDSK processing, press the N key.

**Processing cannot continue**

**Cause:** There was not enough memory to execute the CHKDSK command for this disk.

**Action:** Delete some terminate and stay resident programs. Use a memory drive for temporary files. If you have any user-installable device drivers, remove some of them. You can also restart the MS-DOS operating system and install fewer terminate and stay resident programs.

**Program too big to fit in memory**

**Cause:** You tried to load and execute a program that was bigger than your available memory.

**Action:** Delete some terminate and stay resident programs. Try using a memory drive for temporary files. If you have any user-installable device drivers, remove some of them. You can also restart the MS-DOS operating system and install fewer terminate and stay resident programs.

**Read error in 'filename'**

**Cause:** The MS-DOS operating system could not read the specified file.

**Action:** Retry the command. If this message is displayed again, restore the file from your backup diskette.

**Read fault error reading/writing drive 'drivename'**

**Cause:** The MS-DOS operating system could not read from, or write to, drive 'drivename'.

**Action:** To retry the command, press the R key. If this message is displayed again and you want to stop the command, press the A key.

**Redirector already installed**

**Cause:** You tried to install the redirector after it was already installed.

**Action:** Do not try to install the redirector again. You can use the network as you normally would.

**Reinsert diskette for drive 'drivenumber'**

Cause: You removed the diskette in drive A.

Action: Reinsert the diskette being formatted into drive A.

**Restore file sequence error**

Cause: You tried to restore a file in an incorrect order.

Action: Insert another diskette into the floppy diskette drive.

**Resynch failed. Files are too different.**

Cause: The FC command displays this message if the number of lines in the internal line buffer is less than the number of consecutive, differing lines.

Action: To display all the line differences, use the /LB qualifier with a larger number.

**Sector not found error reading/writing drive 'drivename'**

Cause: The MS-DOS operating system could not read from, or write to, the disk. The disk may be unusable.

Action: To retry the command, press the R key. If this message is displayed again and you want to stop the command, press the A key. Copy all files to a new diskette, or back up and reformat your hard disk.

**Sector size too large in file 'filename'**

Cause: The specified device driver loaded by the CONFIG.SYS file uses a sector size larger than that of any other device driver on the system. You cannot run this device driver.

Action: Check your source code for bugs.

**Seek error reading/writing drive 'drivename'**

Cause: The MS-DOS operating system could not read from, or write to, the disk. The disk may be unusable.

Action: To retry the command, press the R key. If this message is displayed again and you want to stop the command, press the A key. Copy all files to a new diskette, or back up and reformat your hard disk.

**Selected country is not contained in 'filename'**

Cause: The country code you specified was not in the file.

Action: Load the .COU file that contains the correct country information.

**SHARE already installed**

Cause: You tried to install file sharing after it was already installed.

Action: Do not try to install file sharing again.

**Sharing violation reading drive 'drivename'**

Cause: A program tried to access a file that was being shared by another program.

Action: To stop the command, press the A key. To retry the command, press the R key.

**Source and target disks are the same**

Cause: You tried to back up files to the same disk from which you copied them.

Action: Make sure the source drive and target drive specifications are different.

**Source diskette cannot be copied**

Cause: The source and target diskettes were incompatible.

Action: Insert a compatible target diskette into the target drive and retry the DISKCOPY command.

**Source does not contain back-up files**

Cause: The source disk had no backup files on it.

Action: Make sure you typed the information on the command line correctly. If you did, make sure the backup files are in the specified directory. If they are not, retry the command and specify the correct directory.

**Source path required**

Cause: The command you specified must have a source path as a parameter.

Action: Retry the command and specify a valid source path.

**Specified drive does not exist, or is non-removable**

Cause: Any of the following occurred:

- You specified a hard disk drive with the DISKCOMP command.
- You specified a hard disk drive with the DISKCOPY command.
- You specified a drive that does not exist.

Action: Specify a valid drive type. The DISKCOMP and DISKCOPY commands work on diskettes or virtual disks.

**Specified MS-DOS search directory bad**

Cause: One of the following occurred:

- The SHELL command in the CONFIG.SYS file is incorrect.
- The COMMAND.COM file does not exist.
- The COMMAND.COM file is not where you specified it to be.

Action: Try the following:

- Check the SHELL command in the CONFIG.SYS file.
- Make sure the COMMAND.COM file is in the directory you specified.

**Syntax error**

Cause: You typed an illegal string when executing the FIND command.

Action: Enclose the string with quotation marks.

**Target disk cannot be used for back-up**

Cause: One of the following occurred:

- The BACKUP command cannot access the disk.
- The floppy diskette is bad.
- There are hardware problems.

Action: Reformat the diskette using the FORMAT command. Retry the BACKUP command. If this message is displayed again, get a new diskette. If there are hardware problems, call Field Service.

**Target diskette is write protected**

**Remove write protect tab and press any key to continue**

**Or press <CTRL/C> to abort DISKCOPY**

Cause: The target diskette was write protected.

Action: Remove the write-protect tab and reinsert the diskette into the target drive.

**Target diskette may be unusable**

Cause: An unrecoverable read, write, or verify was encountered. The target diskette may not be complete because of an I/O error.

Action: If the error is on the destination diskette, replace it with a newly-formatted diskette and retry the DISKCOPY command. If the error is on the source diskette, copy the files from the source diskette to a new diskette and retry the DISKCOPY command.

**Target diskette must be pre-formatted RAINBOW RX50**

**Disk copy failed**

**Cause:** You tried to execute the DISKCOPY command with a target diskette that was not formatted.

**Action:** Format the target diskette using the FORMAT command. Reinsert the diskette into the target drive. Retry the DISKCOPY command.

**Target diskette unusable**

**Cause:** Input/output error indicate that the target diskette is damaged.

**Action:** Replace the destination diskette with a newly-formatted diskette and retry the DISKCOPY command. If the problem persists, contact your system administrator. Your floppy drive could be damaged.

**Target is full**

**Cause:** The target disk had no room to receive restored files.

**Action:** Use another disk as the target disk.

**The 96 column mode is not supported for STD type printers.**

**Cause:** You tried to use 96-column mode with an STD type printer. The 96-column mode is valid only for the LA50-type printers.

**Action:** Do not specify 96-column mode with an STD printer.

**The last file was not restored**

**Cause:** One of the following occurred:

- You pressed <Ctrl/C>.
- It is time to switch diskettes.
- There is no more space on the hard disk.

**Action:** Try one of the following:

- Retry the RESTORE command.
- Insert a new diskette.

- Delete some files from the hard disk and retry the command.

**Too many open files**

Cause: No more system file handles were available for you to use to open a file.

Action: Increase the value of the FILES command in the CONFIG.SYS file.

**Track 0 bad—disk unusable**

Cause: The FORMAT command found bad sectors on the disk.

Action: Use another disk.

**Unable to create directory**

Cause: The MS-DOS operating system could not create the directory you specified.

Action: Make sure there are no other directories or files with the name you specified in the MKDIR command line. Make sure the disk is not full.

**Unable to erase 'filename'**

Cause: The BACKUP or RESTORE command could not erase file 'filename.'

Action: Start with a blank, formatted diskette. You can also delete or move some files on the destination diskette before you execute the BACKUP or RESTORE command again.

**Unrecognized command in CONFIG.SYS**

Cause: Your CONFIG.SYS file contained an unrecognized command.

Action: Make sure the commands in your CONFIG.SYS file are valid.

**Unrecoverable error in directory**

**Convert directory to file (Y/N)?**

**Cause:** The directory structure was corrupt.

**Action:** To convert the bad directory to a file, press the Y key. Now you can delete the bad directory.

To stop the conversion of the bad directory to a file, press the N key.

You may not be able to read from, or write to, the bad directory. Use your backup diskette to restore the directory structure.

**Unrecoverable read error on drive x**

**track xx, side x**

**Cause:** All attempts to read the data from the diskette in the specified drive failed. All the data may not have been read.

**Action:** Copy all the files from the damaged diskette to a newly-formatted diskette and retry the command.

**Unrecoverable read error on source**

**track xx, side x**

**Cause:** All attempts to read the data from the specified location on the source drive failed. The disk copy of the source may be incomplete.

**Action:** Copy all the files from the damaged diskette to a newly-formatted diskette and retry the command.

**Unrecoverable write error on source**

**track xx, side x**

**Cause:** All attempts to write the data to the specified location on the source drive failed.

**Action:** Replace the damaged destination diskette with a newly-formatted diskette and retry the DISKCOPY command.

**Use of the /1 switch is not allowed for the target drive**

Cause: You tried to do either of the following:

- Format the hard disk using the /1 switch.
- Format a single-sided diskette in the high-density RX33 drive.

Action: Format a low-density diskette using the /1 switch together with the /4 switch.

**Use of the /4 switch is not allowed for the target drive**

Cause: You tried to format the hard disk with the /4 switch. The /4 switch indicates that you want to format an 8- or 9-sector diskette on a high-density RX33 drive.

Action: Retry the FORMAT command without specifying the /4 qualifier.

**Use of the /8 switch is not allowed for the target drive**

Cause: You tried to do either of the following:

- Format a hard disk using the /8 switch.
- Format a single-sided diskette in the high-density RX33 drive.

Action: Format a low-density diskette using the /8 switch with the /4 switch.

**Use of the /L switch is only allowed in combination with the /4, /8, or /1 switches**

Cause: You tried to format a disk using the /L switch by itself.

Action: Make sure you specify the /4 switch, the /8 switch, or the /1 switch when you specify the /L switch.

**Warning—directory full**

Cause: The root directory was too full for RECOVER processing.

Action: Save some files to another diskette, and delete some files. Retry the RECOVER command.

**Warning—Read error in EXE file**

**Cause:** The amount of the file read was less than the size specified in the header. This is only a warning message.

**Action:** Get your backup copy of the file. If the source code is yours, reassemble and relink it.

**WARNING, ALL DATA ON NON-REMOVABLE DISK**

**DRIVE X WILL BE LOST!**

**Proceed with Format (Y/N)?**

**Cause:** This is an informational message that is displayed when you try to format a hard disk.

**Action:** To save the files, press the N key. Then copy the files to a different disk. Retry the FORMAT command. To format the hard disk without saving the files, press the Y key.

**WARNING: Diskette is out of sequence**

**Cause:** You inserted a diskette that was not the next diskette in the number sequence.

**Action:** Insert another diskette into the drive.

**Write fault error writing drive 'drivename'**

**Cause:** The MS-DOS operating system could not write to the drive.

**Action:** Check to see if the diskette has a write-protect tab on it. If it does, remove the tab and press the R key to retry the command. If this message is displayed again, press the A key to stop the command.

**Write protect error writing drive 'drivename'**

**Cause:** The diskette has a write-protect tab on it.

**Action:** Remove the write-protect tab and retry the command.

**(.)(..) does not exist**

**Cause:** Either the . or the .. directory entry was invalid.

**Action:** Save as many files as you can using the BACKUP command. Use another disk and restore as many files as you can.

# Appendix B

---

## How to Configure Your System

This appendix discusses:

- What a configuration file is
- How to create a configuration file
- CONFIG.SYS commands
- A sample CONFIG.SYS file

### What Is a CONFIG.SYS File?

When you start the MS-DOS operating system, there are installation-specific settings that you must include in your CONFIG.SYS file. For example, if you want to install a memory drive, you would include this drive in your configuration when you start the MS-DOS operating system.

The configuration file, named CONFIG.SYS, contains CONFIG.SYS commands that the MS-DOS operating system reads at startup. The MS-DOS operating system searches for the CONFIG.SYS file in the root directory of the startup drive.

The CONFIG.SYS file allows you to configure your system with a minimum of effort. You add device drivers to your system by adding commands to the CONFIG.SYS file. You can add device drivers to your system only at startup.

## Creating the CONFIG.SYS File

If your MS-DOS disk is missing a CONFIG.SYS file, you can use the COPY command to create one. For example, to create a CONFIG.SYS file, type:

```
A:\>COPY CON CONFIG.SYS[Return]
BUFFERS=10[Return]
FILES=10[Return]
DEVICE=\BIN\NETWORK.SYS[Return]
BREAK=ON[Return]
SHELL=A:\BIN\COMMAND.COM A:\BIN /P[Return]
LASTDRIVE=P[Ctrl/Z][Return]
```

After you press the Return key, a file named CONFIG.SYS is saved in the root directory of your MS-DOS operating system disk.

## CONFIG.SYS Commands

Table B-1 lists the CONFIG.SYS commands.

**Table B-1: CONFIG.SYS Commands**

| Command   | Use                                                                        |
|-----------|----------------------------------------------------------------------------|
| BREAK     | Sets Ctrl/C check.                                                         |
| BUFFERS   | Sets the number of disk buffers.                                           |
| COUNTRY   | Sets the international time, date, and currency.                           |
| DEVICE    | Installs the device driver into the system.                                |
| FCBs      | Specifies the number of FCBs that can be concurrently open.                |
| FILES     | Sets the number of open files that can access certain MS-DOS system calls. |
| LASTDRIVE | Sets the maximum number of drives that you can access.                     |
| SHELL     | Begins execution of the shell from a specific file.                        |

The BREAK command is described in Chapter 4 of this manual. The remaining commands are described in detail on the following pages.

## BUFFERS

The **BUFFERS** command sets the number of disk buffers that the MS-DOS operating system allocates in memory when you start the system.

### Format

**BUFFERS=X**

### Where:

**X** Is the number of buffers. The default is eight buffers. **X** can be any number from 1 to 99.

### Comments

A *disk buffer* is a block of memory where the MS-DOS operating system can hold data being read from or written to a disk when the amount of data is not an exact multiple of sector size.

For application programs such as word processors, a number between 10 and 20 provides the best performance. If you plan to create many subdirectories, increase the buffers value to between 20 and 30.

### Example

To specify 10 buffers, add the following command to your **CONFIG.SYS** file:

```
BUFFERS=10
```

## COUNTRY

The COUNTRY command sets the international time, date, currency, and case conversion formats. The case conversion table contains a lowercase character and an uppercase character. When a user presses the Shift key and another key, the MS-DOS operating system scans the table for the corresponding uppercase character. For example, the MS-DOS operating system scans this table when the user presses the Shift key and the 'a' key. In the United States, the corresponding uppercase character is 'A.'

### Format

COUNTRY=X

Where:

X Is the international country code. Valid country codes are:

|                    |                 |
|--------------------|-----------------|
| 001 United States  | 002 Canada      |
| 031 Netherlands    | 032 Belgium     |
| 033 France         | 034 Spain       |
| 039 Italy          | 041 Switzerland |
| 044 United Kingdom | 045 Denmark     |
| 046 Sweden         | 047 Norway      |
| 049 Germany        | 061 Australia   |
| 358 Finland        | 972 Israel      |

### Comments

The default country is U.S.

### Example

To set the French currency, time, date, and case conversion, add the following command to your CONFIG.SYS file:

```
COUNTRY=033
```

## **DEVICE**

The **DEVICE** command installs the device driver in the specified path name to the system list.

### **Format**

**DEVICE=filename.ext**

### **Where:**

**filename.ext**            Is the drive, path, file name and file extension of the device driver.

### **Example**

To load the ANSI device driver in the directory C:\VXSYS, add the following command to your CONFIG.SYS file:

```
DEVICE=C:\VXSYS\ANSI.SYS
```

This command causes the MS-DOS operating system to replace all keyboard input and screen output support with the ANSI escape sequences.

## **FCBs**

The FCBs command sets the number of FCBs (File Control Blocks) that can be open simultaneously. This command is relevant to older MS-DOS files that must have a file control block for each opened file.

### **Format**

FCBs=X,Y

### **Where:**

- X Is the number of files, opened by FCBs, that can be opened simultaneously. The default is four. X can be from 1 to 255.
- Y Is the number of files, opened by FCBs, that the MS-DOS operating system cannot close automatically if an application tries to open more than X files by FCBs. The first Y files opened by FCBs are protected from being closed. The default value is zero. Allowed values are from 1 to 255.

### **Example**

To allow four simultaneously opened files and to protect the first two from being automatically closed by the MS-DOS operating system, add the following command to your CONFIG.SYS file:

```
FCBS=4,2
```

## **FILES**

The **FILES** command sets the maximum number of simultaneously open files that MS-DOS system calls can access.

### **Format**

**FILES=X**

### **Where:**

**X** Is the number of open files that system calls can access. The default is eight. X can be any number from 5 to 255.

### **Example**

To specify that MS-DOS system calls can access 16 open files, add the following command to your **CONFIG.SYS** file:

```
FILES=16
```

## **LASTDRIVE**

The LASTDRIVE command sets what the last drive can be.

### **Format**

LASTDRIVE=X

### **Where:**

X Is a letter (A through Z) that represents the last valid drive that the MS-DOS operating system accepts. The default value is E if you have allocated five or fewer drives. If you have allocated more than five drives, LASTDRIVE is equal to the last drive letter you allocated. For example, if you have two diskette drives (A and B), two hard disk partitions (C and D), and four virtual disks (E, F, G, and H), then LASTDRIVE is H.

### **Comments**

This command is primarily used in a network environment. At startup, the MS-DOS operating system recognizes five drive letters (A through E), no matter how many physical drives you have on your system. A network redirection must occur to make any of the extra drives defined by LASTDRIVE valid.

### **Example**

To set the last valid drive to drive M, add the following command to your CONFIG.SYS file:

```
LASTDRIVE=M
```

## SHELL

This command begins execution of the shell (top-level command processor) from a file defined by the specified path name.

### Format

```
SHELL=[drv1:][\path1\]filename.ext [/C][/E:nnnnn][/P]
```

### Where:

|              |                                                                                                                                                                                                                                                                                                             |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:        | Is the drive containing the new command processor.                                                                                                                                                                                                                                                          |
| \path1\      | Is the path to the directory containing the new command processor.                                                                                                                                                                                                                                          |
| filename.ext | Is the drive, path, file name and file extension of the new command processor.                                                                                                                                                                                                                              |
| /C           | If specified, indicates that the remaining command line should be treated as the initial command and arguments.                                                                                                                                                                                             |
| /E:nnnnn     | If specified, the /E: qualifier sets the initial environment to "nnnnn" bytes. The range is 512 bytes to 32768 bytes. If you specify less than 512 bytes, the SHELL command sets the environment to 512 bytes. If you specify more than 32768 bytes, the SHELL command sets the environment to 32768 bytes. |
| /P           | Specifies that the COMMAND.COM file remain in memory and execute the AUTOEXEC.BAT file.                                                                                                                                                                                                                     |

### Comments

This command should be used by system programmers who write their own command processor (the MS-DOS operating system file named COMMAND.COM). The MS-DOS operating system starts the processor specified in drv1:\path1 instead of reading the standard COMMAND.COM. MS-DOS also sets the COMSPEC environment variable equal to the drive, path, and file name specified on the SHELL command line. This new setting overrides the default value for COMSPEC, and enables the operating system to locate and reload the transient portion of the command processor.

### Example

To use the file NEWSHELL in the directory \BIN as the new command processor, add the following line to your CONFIG.SYS file:

```
SHELL=\BIN\NEWSHELL
```

## **Sample CONFIG.SYS File**

If you have a key diskette, your configuration file should look similar to the following:

```
BUFFERS=30 (8 if you do not have an expansion box)
FILES=16
LASTDRIVE=N
DEVICE=\SYSTEM\MDRIVE.SYS /E*
DEVICE=\SYSTEM\ANSI.SYS
```

The **BUFFERS=30** command sets the number of disk buffers available for a hard disk system. The number would be eight for a system without an expansion box.

The **FILES=16** command sets the number of simultaneously open files that the MS-DOS system calls can access.

The **LASTDRIVE=N** command sets what the last drive can be.

The **DEVICE=\SYSTEM\MDRIVE.SYS /E\*** command installs a memory drive in extended memory. This memory drive uses all of the available extended memory.

The **DEVICE=\SYSTEM\ANSI.SYS** command installs the ANSI device driver so that ANSI escape sequences can be used.

## Appendix C

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# Using Diskettes on the VAXmate Workstation

This appendix discusses:

- Using diskettes
- Formatting diskettes
- Diskette read/write compatibility
- DISKCOPY and diskette types

### Using Diskettes

You can use either high-density or standard low-density diskettes on the VAXmate workstation. If you use high-density diskettes, you cannot exchange data with an IBM PC, IBM PC/XT, or a Rainbow computer, because they do not support high-density diskettes.

## Formatting Diskettes

The MS-DOS operating system enables you to format the following diskette types in the VAXmate 5 1/4-inch high-capacity drive:

- Industry standard low-density diskettes:

Single-sided, 8 sectors per track, 40 tracks, 160 Kbytes

FORMAT A: /1/8/4

Single-sided, 9 sectors per track, 40 tracks, 180 Kbytes

FORMAT A: /1/4

Double-sided, 8 sectors per track, 40 tracks, 320 Kbytes

FORMAT A: /4/8

Double-sided, 9 sectors per track, 40 tracks, 360 Kbytes

FORMAT A: /4

- VAXmate high-density diskettes:

The default and recommended format is double-sided, 15 sectors per track, 80 tracks, 1.2 Mbytes.

FORMAT A:

### **IMPORTANT**

Do not attempt to format a low-density diskette at 15 sectors per track. If you do, you cannot use the diskette until you bulk erase it.

Do not attempt to reformat a 15 sector per track diskette at 8 or 9 sectors per track, unless you first bulk erase the diskette. Magnetic interference between the new high-density format and the previous low-density format causes a high degree of unreliability.

## **Diskette Read/Write Compatibility**

The MS-DOS operating system enables you to read from and write to the following diskette types in the VAXmate 5 1/4-inch high-capacity drive:

- Rainbow diskettes (preformatted on a Rainbow computer)  
Single-sided, 10 sectors per track, 80 tracks, 395 Kbytes
- Industry standard diskettes  
Single-sided, 8 sectors per track, 40 tracks, 160 Kbytes  
Single-sided, 9 sectors per track, 40 tracks, 180 Kbytes  
Double-sided, 8 sectors per track, 40 tracks, 320 Kbytes  
Double-sided, 9 sectors per track, 40 tracks, 360 Kbytes
- VAXmate high-density diskettes  
Double-sided, 15 sectors per track, 80 tracks, 1.2 Mbytes

### **IMPORTANT**

If you write to a Rainbow diskette, or to any single- or double-sided industry standard diskette using the VAXmate's high-capacity drive, you may not be able to read the diskette in a low-capacity drive.

## **DISKCOPY and Diskette Types**

Using the DISKCOPY command, you can copy all diskettes mentioned in the "Diskette Read/Write Compatibility" section. You can copy MS-DOS and other operating system diskettes. The destination diskette must be preformatted to the same type as the source diskette. The DISKCOPY command formats the destination diskette to the same format as the source diskette, if it has not already been done. For more information about the DISKCOPY command, see Chapter 4.

### **NOTE**

If you are using the DISKCOPY command to copy Rainbow RX50 diskettes, the destination diskette must be preformatted on a Rainbow computer.

## Appendix D

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# International Features

This appendix lists:

- International country codes
- International character set codes
- Country keyboard abbreviations
- Supported .COU files
- Supported .FNT files
- Supported .GRF files
- Supported .KEY files

## **International Country Codes**

The following list contains international country codes.

|     |                |
|-----|----------------|
| 001 | United States  |
| 002 | Canada         |
| 031 | Netherlands    |
| 032 | Belgium        |
| 033 | France         |
| 034 | Spain          |
| 039 | Italy          |
| 041 | Switzerland    |
| 044 | United Kingdom |
| 045 | Denmark        |
| 046 | Sweden         |
| 047 | Norway         |
| 049 | Germany        |
| 061 | Australia      |
| 358 | Finland        |
| 972 | Israel         |

## **International Character Set Codes**

The following list contains international character set codes.

|     |                             |
|-----|-----------------------------|
| CA7 | Canadian 7-bit NRC          |
| CH7 | Swiss 7-bit NRC             |
| DE7 | German 7-bit NRC            |
| DK7 | Danish 7-bit NRC            |
| ES7 | Spanish 7-bit NRC           |
| FI7 | Finnish 7-bit NRC           |
| FR7 | French 7-bit NRC            |
| ISO | ISO Multinational           |
| IT7 | Italian 7-bit NRC           |
| MCS | DIGITAL Multinational       |
| NO7 | Norwegian 7-bit NRC         |
| SE7 | Swedish 7-bit NRC           |
| ST2 | IBM Norway/Denmark Extended |
| STD | IBM Extended                |
| UK7 | United Kingdom 7-bit NRC    |

## **Country Keyboard Abbreviations**

The following list contains country keyboard abbreviations.

|    |                  |
|----|------------------|
| CA | Canadian         |
| CH | Swiss            |
| DE | German           |
| DK | Danish           |
| ES | Spanish          |
| FI | Finnish          |
| FR | French           |
| IT | Italian          |
| NO | Norwegian        |
| SD | Swiss (German)   |
| SE | Swedish          |
| SF | Swiss (French)   |
| UK | English          |
| US | American English |

## **Supported .COU Files**

The following list contains the supported .COU files for the LCOUNTRY command.

|         |                                           |
|---------|-------------------------------------------|
| default | United States                             |
| CA7.COU | Canada                                    |
| CH7.COU | Switzerland                               |
| DK7.COU | Denmark                                   |
| ES7.COU | Spain                                     |
| FR7.COU | France                                    |
| ISO.COU | ISO Multinational                         |
| IT7.COU | Italy                                     |
| MCS.COU | DIGITAL Multinational                     |
| NO7.COU | Norway                                    |
| SE7.COU | Sweden                                    |
| STD.COU | Industry-standard extended                |
| ST2.COU | Industry-standard Norway/Denmark extended |
| UK7.COU | United Kingdom                            |

## **Supported .FNT Files**

The following list contains the supported .FNT files for the FONT command.

|         |                                           |
|---------|-------------------------------------------|
| default | Industry-standard extended                |
| CA7.FNT | Canadian 7-bit NRC                        |
| CH7.FNT | Swiss 7-bit NRC                           |
| DE7.FNT | German 7-bit NRC                          |
| DK7.FNT | Danish 7-bit NRC                          |
| ES7.FNT | Spanish 7-bit NRC                         |
| FI7.FNT | Finnish 7-bit NRC                         |
| FR7.FNT | French 7-bit NRC                          |
| ISO.FNT | ISO Multinational                         |
| IT7.FNT | Italian 7-bit NRC                         |
| MCS.FNT | DIGITAL Multinational                     |
| NO7.FNT | Norwegian 7-bit NRC                       |
| SE7.FNT | Swedish 7-bit NRC                         |
| ST2.FNT | Industry-standard Norway/Denmark extended |
| UK7.FNT | United Kingdom 7-bit NRC                  |

## **Supported .GRF Files**

The following list contains the supported .GRF files for the GRAFTABL command.

|         |                                           |
|---------|-------------------------------------------|
| default | United States                             |
| CA7.GRF | Canada                                    |
| CH7.GRF | Switzerland                               |
| DE7.GRF | Germany                                   |
| DK7.GRF | Denmark                                   |
| ES7.GRF | Spain                                     |
| FI7.GRF | Finland                                   |
| FR7.GRF | France                                    |
| ISO.GRF | ISO Multinational                         |
| IT7.GRF | Italy                                     |
| MCS.GRF | DIGITAL Multinational                     |
| NO7.GRF | Norway                                    |
| SE7.GRF | Sweden                                    |
| STD.GRF | Industry standard extended                |
| ST2.GRF | Industry standard Norway/Denmark extended |
| UK7.GRF | United Kingdom                            |

## **Supported .KEY Files**

The following list contains the supported .KEY files for the DECKEYB command.

|                  |           |           |           |           |
|------------------|-----------|-----------|-----------|-----------|
| American English | ---       | ISOUS.KEY | MCSUS.KEY | default   |
| Canadian         | CA7CA.KEY | ISOCA.KEY | MCSCA.KEY | STDCA.KEY |
| Swiss-German     | CH7SD.KEY | ISOSD.KEY | MCSSD.KEY | STDSO.KEY |
| Swiss-French     | CH7SF.KEY | ISOSF.KEY | MCSSE.KEY | STDSF.KEY |
| German           | DE7DE.KEY | ISODE.KEY | MCSDE.KEY | STDDE.KEY |
| Danish           | DK7DK.KEY | ISODK.KEY | MCSDK.KEY | ST2DK.KEY |
| Spanish          | ES7ES.KEY | ISOES.KEY | MCSSE.KEY | STDES.KEY |
| Finnish          | FI7FI.KEY | ISOFI.KEY | MCSFI.KEY | STDFI.KEY |
| French           | FR7FR.KEY | ISOFR.KEY | MCSFR.KEY | STDFR.KEY |
| Italian          | IT7IT.KEY | ISOIT.KEY | MCSIT.KEY | STDIT.KEY |
| Norwegian        | NO7NO.KEY | ISONO.KEY | MCSNO.KEY | ST2NO.KEY |
| Swedish          | SE7SE.KEY | ISOSE.KEY | MCSSE.KEY | STDSE.KEY |
| British English  | UK7UK.KEY | ISOUK.KEY | MCSUK.KEY | STDUK.KEY |

## Appendix E

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# VAXmate Workstation Options

### Additional Memory

The system comes with 1 Mbyte of memory. Memory capacity can be increased by installing a 2 Mbyte memory option module. The additional memory is useful when running applications that are capable of using additional memory.

The 2 Mbyte memory option module is a customer installable daughter card which attaches to the CPU module.

### Integral Modem (North America)

An integral modem option is available that allows the user and/or program to establish and maintain asynchronous and synchronous communications with other computer systems using the general switched telephone network (GSTN) in countries where the VAXmate is sold. The integral modem is customer installable within the VAXmate base system and connects directly to the telephone network.

Because the VAXmate workstation is intended for use in a networked environment, this option is primarily used in remote office locations to gain access to the host computer systems at headquarters locations.

This modem also reduces clutter on the desk, allowing the customer to have a one vendor, one box desktop for the first time.

## Printers

There are four printers available for the VAXmate workstation:

- |           |                                                                                                                                                                                                                                                     |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LA75      | An impact dot-matrix printer that is compact, low cost, and suitable for general business applications, including limited word processing in a small to medium computer environment.                                                                |
| LA210     | A desktop, dot-matrix printer that can operate in text or graphics mode. Also, it can print in a unidirectional or bi-directional pattern. It can be used with personal computer systems, office workstations, and small business computer systems. |
| LJ250     | A compact color, dot-matrix printer that uses ink-jet technology. It can be used with personal computer systems, office workstations, and small business computer systems needing color graphics capabilities.                                      |
| LN03 Plus | A desktop, nonimpact page laser printer, that uses laser imaging and xerographic printing techniques, and prints letter quality images at a rate of eight pages per minute.                                                                         |

## 80287 Math Coprocessor

The VAXmate workstation accepts an optional 80287 numeric data coprocessor for floating point operations and increased graphics performance. It operates at 5.33 MHz. This option is a 40-pin DIP integrated chip that is not customer installable.

## Expansion Box with Hard Disk

The RD31 expansion box includes a controller that supports a 20 Mbyte and 40 Mbyte hard disk drive and two option slots for industry standard modules.

# Appendix F

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## Vaxmate Workstation Specifications

### VAXmate Workstation

The VAXmate workstation consists of a base system unit that includes a CPU, I/O video module, power supply and diskette drive, a keyboard, and a mouse.

#### System Unit

##### Physical Dimensions

|           |                                        |
|-----------|----------------------------------------|
| Height    | 28.57 cm (11.25 in) (at highest point) |
| Width     | 40.64 cm (16 in) (at widest point)     |
| Depth     | 38.1 cm (15 in)                        |
| Footprint | 609.6 cm (240 sq in)                   |
| Weight    | 15 kg (35 lbs)                         |

#### CPU

|           |                 |
|-----------|-----------------|
| Processor | 80286 processor |
| Memory    | 1 Mbyte RAM     |

## Power Supply

|                                  |                                  |
|----------------------------------|----------------------------------|
| Type                             | 100 KHz                          |
| <u>AC input (120 V or 220 V)</u> |                                  |
| 120 V (nominal)                  | 90 to 128 Vrms                   |
| 220 V (nominal)                  | 180 to 256 Vrms                  |
| <u>Line current</u>              |                                  |
| 120 V (nominal)                  | 2.7 nominal                      |
| 220 V (nominal)                  | 1.8 nominal                      |
| AC power consumption             | 312 nominal                      |
| Regulated voltages               | +5.1, +12.1, -12, +28 and -9 Vdc |
| Unregulated voltages             | 300 Vdc                          |
| Circuit protection               | fuse                             |
| Over-temperature protection      |                                  |

## Environment - Class A

|                                   |                          |
|-----------------------------------|--------------------------|
| Ambient operating temperature     | 15C°(59F°) to 32C°(90F°) |
| Relative humidity                 | 8% to 80%                |
| Maximum wet bulb (non-condensing) | 25C°(77F°)               |
| Altitude (maximum)                |                          |
| Operating                         | up to 8,000 feet         |
| Non-operating                     | up to 30,000 feet        |

## **Workstation System Expansion**

|                                |                                                                             |
|--------------------------------|-----------------------------------------------------------------------------|
| Additional memory              | 2 Mbytes customer-installable daughter card                                 |
| Math coprocessor               | 80287 numeric data coprocessor for floating point operations                |
| Expansion box                  | 20 Mbyte or 40 Mbyte hard disk drive and two industry standard option slots |
| Integral modem (North America) | Hayes compatible 300/1200/2400 baud                                         |

## **I/O Video Module**

|                      |                                                                           |
|----------------------|---------------------------------------------------------------------------|
| Video Display        | 35.5 cm (14-in), 13-inch viewable, diagonal amber or green phosphor color |
| Active display size  | 240 mm horizontal by 150 mm vertical                                      |
| Text display         |                                                                           |
| Soft font (loadable) | 256 characters                                                            |
| Soft font (matrix)   | 8 pixels horizontal by 16 pixels vertical                                 |
| Scan rates           | 26.4 KHz horizontal, 60 Hz vertical, non-interlaced                       |
| Video input          | 4-bit TTL, 16 intensity levels                                            |

## *Vaxmate Workstation Specifications*

|                      |                                              |
|----------------------|----------------------------------------------|
| Display formats      | 640 pixels horizontal by 400 pixels vertical |
|                      | 800 pixels horizontal by 250 pixels vertical |
| CGA-compatible modes | 80 column x 25 row text                      |
|                      | 40 column x 25 row text                      |
|                      | 640 x 200 x 2 color bitmapped graphics       |
|                      | 320 x 200 x 4 color bitmapped graphics       |
| Additional modes     | 640 x 400 x 2 color bitmapped graphics       |
|                      | 640 x 400 x 4 color bitmapped graphics       |
|                      | 800 x 250 x 4 color bitmapped graphics       |
|                      | 320 x 200 x 16 color bitmapped graphics      |

## **5 1/4-Inch Flexible Disk Drive**

|              |                                   |
|--------------|-----------------------------------|
| Reads/Writes | 1.2 Mbytes IBM PC/AT diskettes    |
| Reads/Writes | 0.4 Mbytes Digital RX50 diskettes |
| Reads        | 0.36 Mbytes IBM PC/XT diskettes   |

## Keyboard

### Physical Description (Low-profile, Detachable)

|                             |                                                                                                                                                                       |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Height                      | 5 cm (2 in) at highest point                                                                                                                                          |
| Length                      | 53.3 cm (21 in)                                                                                                                                                       |
| Width                       | 17.1 cm (6.75 in)                                                                                                                                                     |
| Weight                      | 2 kg (4.5 lb)                                                                                                                                                         |
| Audio and visual indicators | 4 lights and bell tone generator                                                                                                                                      |
| Cord                        | 1.9 m (6 ft) coiled cord; 6 pin, telephone-type modular connector on keyboard end; 6 pin, shielded connector on workstation end; plugs into right side of workstation |
| Keypad                      | Sculptured key array                                                                                                                                                  |
| Home row key height         | 3 cm (1.2 in) above desktop                                                                                                                                           |
| Power                       | +5 V +/- 5% @ 275 mA, 1.4 W maximum                                                                                                                                   |

## Mouse

### Physical Description

|           |                                                                                                          |
|-----------|----------------------------------------------------------------------------------------------------------|
| Size      | 8.8 cm (3.5 in) diameter, 4.0 cm (1.6 in) high                                                           |
| Weight    | 170 grams (6 oz) including cable                                                                         |
| Switches  | Three tactile feel switches actuating force 0.8 newtons (3 oz) +/- 25%                                   |
| Cable     | 1.5 m (5 ft) round .375 cm (0.15 in) diameter, 6-conductor #26 stranded shielded high-flexibility design |
| Connector | 7-pin micro-DIN type (male)                                                                              |

## *Vaxmate Workstation Specifications*

### **Electrical Specifications**

|                            |                                                                    |
|----------------------------|--------------------------------------------------------------------|
| Power                      | +5 volts +/- 5 % at 130 mA, -8 to -13 volts at 20 mA (RS-232 mode) |
| Interface                  | Digital ThinWire                                                   |
| Ethernet Port              | Includes T-connector, terminator, and 3.66 m (12 ft) cable         |
| Serial Communications Port | Includes a modem control                                           |
| Serial Printer Port        | 6-pin modular jack                                                 |

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| Accuracy (product works as described)            | 5         | 4    | 3    | 2    | 1            |
| Clarity (easy to understand)                     | 5         | 4    | 3    | 2    | 1            |
| Completeness (enough information)                | 5         | 4    | 3    | 2    | 1            |
| Organization (structure of subject matter)       | 5         | 4    | 3    | 2    | 1            |
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| Illustrations, examples (useful)                 | 5         | 4    | 3    | 2    | 1            |
| Overall ease of use                              | 5         | 4    | 3    | 2    | 1            |
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- R Specifies the read-only attribute. You can read and execute a file; you cannot change or delete it.
- /L Logs all program activity to the console.
- /S Processes all subdirectories of the specified path.

### Comments

You can type the attributes before or after the file name and file extension.

You can use either the plus sign (+) or the minus sign (-) with an attribute. You cannot use both at the same time with the same attribute.

### Examples

Table 4-3 shows examples of the ATTRIB command.

**Table 4-3: ATTRIB Command Examples**

| Command Line             | Result                                                          |
|--------------------------|-----------------------------------------------------------------|
| ATTRIB                   | Displays the ATTRIB help message.                               |
| ATTRIB MEMO.TXT          | Displays the attributes of MEMO.TXT.                            |
| ATTRIB MEMO.TXT +H       | Sets MEMO.TXT to hidden.                                        |
| ATTRIB +H MEMO.TXT       | Sets MEMO.TXT to hidden.                                        |
| ATTRIB MEMO.TXT -S       | Clears MEMO.TXT of the system attribute.                        |
| ATTRIB -S MEMO.TXT       | Clears MEMO.TXT of the system attribute.                        |
| ATTRIB +H MEMO.TXT -S    | Sets MEMO.TXT to hidden and clears it of the system attribute.  |
| ATTRIB MEMO.TXT +ASHR    | Sets MEMO.TXT to archived, system, hidden, and read-only.       |
| ATTRIB MEMO.TXT +A+S+H+R | Sets MEMO.TXT to archived, system, hidden, and read only.       |
| ATTRIB *.TXT +A +H +S +R | Sets all .TXT files to archived, hidden, system, and read-only. |

**Table 4-3 (Cont.): ATTRIB Command Examples**

| <b>Command Line</b>     | <b>Result</b>                                                                                                                                             |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| ATTRIB *.TXT +A-H+S-R   | Sets all .TXT files to archived and system, and clears them of the hidden and read-only attributes.                                                       |
| ATTRIB MEMO.TXT +SR -AH | Sets MEMO.TXT to system and read-only, and clears it of the archived and hidden attributes.                                                               |
| ATTRIB *.TXT +A /S      | Sets the archive bit for all .TXT files in the current directory and all subordinate subdirectories.                                                      |
| ATTRIB *.TXT +A /S /L   | Sets the archive bit for all .TXT files in the current directory and all subordinate subdirectories. Each file is logged on the screen as it is modified. |

## EXIT

To exit from COMMAND.COM and return to a previous level, use the EXIT command. You can also use the EXIT command when you are running an application program, and want to start the command processor and then return to your program.

### Format

EXIT

### Comments

If you execute COMMAND.COM while in MS-Windows, you have to use the EXIT command before you return to MS-Windows.

### Example

To close the COMMAND.COM file after executing it, type:

```
A:\>EXITReturn
```

```
A:\>
```

To return to the MS-DOS Executive window, expand the MS-DOS Executive window icon.

## FASTOPEN

To find and open a frequently used file quickly, use the FASTOPEN command. This command reduces access time due to complex directory structures and numerous files. FASTOPEN stores the location of all directories and all recently opened files. When you execute a command that accesses a file with the FASTOPEN command resident, a memory list is searched first. If the specified file is in the list, it is found more quickly than if FASTOPEN were not resident.

### Format

```
[drv1:][\path1\]FASTOPEN drv2:[=nnn] [drv:[=nnn]] ...
```

### Where:

- drv1:** Is the drive containing the FASTOPEN command. If you omit this drive, the MS-DOS operating system searches for the FASTOPEN command on the default drive.
- \path1\** Is the path containing the FASTOPEN command. If you omit this path, the MS-DOS operating system searches for the FASTOPEN command in the current directory.
- drv2:** Is the drive containing the directories to be searched. You cannot specify an assigned, joined or substituted drive.
- =nnn** Is the number of directories and file entries to store for the specified drive. The minimum is 10; the maximum is 999. The default is 34. The value should be greater than the level of the deepest subdirectory. For example, if you have 14 subdirectories, nnn should be at least 15.

### Comments

Use the FASTOPEN command in your AUTOEXEC.BAT file to define the parameters at system startup.

You can repeat drv: = nnn for each disk on your VAXmate workstation.

You can invoke the FASTOPEN command only once. If you want to change the settings, you must restart the MS-DOS operating system.

### NOTE

If you are running a VAXmate server, running the FASTOPEN command will help users who access the same files continually.

**Example 1**

To store 100 entries in the memory list for drive L, add the following line to your AUTOEXEC.BAT file:

```
FASTOPEN L:=100
```

**Example 2**

To store 50 entries in the memory list for drive M and drive N, add the following line to your AUTOEXEC.BAT file:

```
FASTOPEN M:=50 N:=50
```

## FC

To compare two text files, or two binary files, use the FC command.

### Format

```
[drv1:][\path1\]FC [[/A /B /C /L /N /T /W /nnnn][/LBnn]
 [drv2:][\path2\]filename2.ext
 [drv3:][\path3\]filename3.ext]
```

### Where:

- drv1:** Is the drive containing the FC command. If you omit this drive, the MS-DOS operating system searches for the FC command on the default drive.
- \path1\** Is the path containing the FC command. If you omit this path, the MS-DOS operating system searches for the FC command in the current directory.
- /A** Abbreviates the output of an ASCII comparison. Only the beginning and ending lines in each set of differences are displayed. The intermediate lines are represented by ellipses.
- /B** Specifies a binary compare of the two files. The two files are compared byte to byte, with no attempt to resynchronize after a mismatch. The FC command displays the relative address of the pair of bytes, followed by the mismatched bytes from file1 and file2. If you omit this qualifier, the compare is done line by line.
- /C** Ignores the case of letters. All letters in both files are considered as capital letters.
- /L** Compares the files in ASCII mode. /L is the default when you compare files without the .EXE, .COM, .SYS, .OBJ, .LIB, or .BIN file extensions.
- /N** Displays the line numbers during an ASCII comparison. You cannot use this qualifier if you use the /B qualifier.
- /T** Does not expand tabs to spaces. The default is to treat tabs as 8 spaces. Use this qualifier only during ASCII compares.
- /W** Compresses tabs and spaces during the comparison. Tabs and spaces are considered as a single white space. Beginning and ending white space is ignored. Use this qualifier only during ASCII compares.

|                            |                                                                                                                                                                                                               |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>/n</code>            | Specifies the number of required, matching lines for the files to be considered matching again after a difference is found.                                                                                   |
| <code>/LB</code>           | Sets the internal line buffer to “ <code>nn</code> ” lines. The default internal buffer length is 100 lines. Files that have more than this number of consecutive, differing lines abort the file comparison. |
| <code>drv2:</code>         | Is the drive containing the first file in the compare. If you omit this drive, the FC command uses the default drive.                                                                                         |
| <code>\path2\</code>       | Is the path containing the first file in the compare. If you omit this path, the FC command uses the current directory.                                                                                       |
| <code>filename2.ext</code> | Is the file name and file extension of the first file in the compare.                                                                                                                                         |
| <code>drv3:</code>         | Is the drive containing the second file in the compare. If you omit this drive, the FC command uses the default drive.                                                                                        |
| <code>\path3\</code>       | Is the path containing the second file in the compare. If you omit this path, the FC command uses the current directory.                                                                                      |
| <code>filename3.ext</code> | Is the file name and file extension of the second file in the compare.                                                                                                                                        |

### Comments

The FC command reports differences between two files by displaying the first file name, followed by the lines that differ between files, followed by the first line to match in both files. FC then displays the second file name, followed by the lines that are different, followed by the first line that matches.

The default compare is a line-by-line, ASCII compare. If you specify the `/B` qualifier, the FC command performs a byte-by-byte compare of the two files.

You can redirect output to a file, which you can print to see the differences between the two files.

### Example 1

To display the FC help message, type:

```
A:\>FC<Return>
```

**Example 2**

To compare TEST1.TXT and TEST2.TXT line-by-line, type:

```
A:\>FC TEST1.TXT TEST2.TXTReturn
```

**Example 3**

To compare TEST1.TXT and TEST2.TXT and specify that four lines constitute a match, type:

```
A:\>FC /4 TEST1.TXT TEST2.TXTReturn
```

**Example 4**

To perform a binary compare of TEST1.TXT and TEST2.TXT, type:

```
A:\>FC /B TEST1.TXT TEST2.TXTReturn
```

**Example 5**

To compare TEST1.TXT and TEST2.TXT, display the line numbers, compress white space and tabs, and send the output to DIFFER.TXT, type:

```
A:\>FC /N /W TEST1.TXT TEST2.TXT > DIFFER.TXTReturn
```

## FORMAT

To format diskettes and hard disks, use the FORMAT command.

### Format

```
[drv1:][\path1\]FORMAT [drv2: [/B][/S][/V][/1][/4][/8]
[/N:nn][/T:nn]
```

### Where:

- drv1:** Is the drive containing the FORMAT command. If you omit this drive, the MS-DOS operating system searches for the FORMAT command on the default drive.
- \path1\** Is the path containing the FORMAT command. If you omit this path, the MS-DOS operating system searches for the FORMAT command in the current directory.
- drv2:** Is the drive you want to format.
- /B** Formats a diskette for low density, 8 sectors per track, and allocates space for the system files. The system files are not copied to the diskette, but you can copy them there using the SYS command.
- /S** Writes the IO.SYS, MSDOS.SYS, and COMMAND.COM files to the newly formatted disk. Use /S when you format a disk from which you want to start the MS-DOS operating system.
- /V** Prompts you for a volume label at the conclusion of the formatting process.
- /1** Formats a diskette so it is single sided. This qualifier is disregarded with a single-sided drive.
- /4** Formats an 8- or 9-sector, double-sided diskette in a high-capacity drive.  
  
You should not format 8- and 9-sector diskettes on your VAXmate workstation if you plan to use these diskettes in a low-capacity drive.
- /8** Formats the diskette with 8 sectors per track. The default is 9 sectors for low-capacity diskettes and 15 sectors for high-capacity diskettes.
- /N:nn** Specifies the number of sectors per track to format.

## Operating System Commands

### FORMAT

Use the /N:nn and /T:nn qualifiers when you want to format less than the maximum capacity of a diskette.

/T:nn Specifies the number of tracks to format.

Use the /N:nn and /T:nn qualifiers when you want to format less than the maximum capacity of a diskette.

#### Comments

The VAXmate workstation has a 5 1/4-inch, high-capacity diskette drive. The recommended diskette type is a 1.2-Mbyte, high-density, double-sided diskette.

Each sector is 512 bytes long, and you can format 8, 9, or 15 sectors per track on a diskette, depending on the density (tracks per inch) of the diskette.

You cannot format Rainbow-compatible diskettes on the VAXmate workstation. Format them on a Rainbow computer.

Because the diskette drive cannot tell what type of diskette is being formatted, you must use the proper FORMAT command qualifiers. Do not format:

- Low-capacity diskettes to have a high-capacity format
- High-capacity diskettes to have a low-capacity format

You can enter qualifiers in any order.

By default, qualifiers are set to the following values:

- 15 sectors per track
- Double-sided

#### NOTE

You cannot use the FORMAT command to format a file server, or an assigned, joined, or substituted drive.

Table 4-7 lists the qualifiers that can be used with each disk type.

**Table 4-7: Disk Types and Valid Qualifiers**

| Disk Type      | Valid Qualifiers        |
|----------------|-------------------------|
| 160/180 Kbytes | /1 /4 /8 /B /N /S /T /V |
| 320/360 Kbytes | /1 /4 /8 /B /N /S /T /V |
| 720 Kbytes     | /N /S /T /V             |
| 1.2 Mbytes     | /N /S /T /V             |
| 1.44 Mbytes    | /N /S /T /V             |
| Hard disk      | /S /V                   |

**Example 1**

To display the FORMAT help message, type:

```
A:\>FORMAT
```

**Example 2**

To format a diskette in drive A, copy the system files to it, and add a volume label, type:

```
A:\>FORMAT A: /S /V
```

```
Format Utility Program Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
CAUTION! FORMAT ERASES ALL DATA ON THE DISK!
Type <Ctrl/C> to quit
```

```
Insert new diskette for drive A:
and strike ENTER when ready
```

```
Head: Cylinder:
```

```
Format complete
System transferred
```

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

```
1213952 bytes total disk space
73728 bytes used by system
1213952 bytes available on disk
```

```
Format another (Y/N)?
```

```
A:\>
```

*Operating System Commands*  
**FREE**

## **FREE**

To display the number of free bytes on a specific drive, use the FREE command.

### **Format**

FREE [drv:]

### **Where:**

drv: Is the drive for which you want to display free byte information. If you omit this drive, the FREE command uses the default drive.

### **Comments**

The FREE command displays information in bytes, Kbytes, or Mbytes.

### **Example**

To display the number of bytes for drive L, type:

```
A:\>FREE L:
37.07 Mbytes free on drive L:
A:\>
```

### Example 2

To set the printer type to LA75 using the MODE command, then load GRAPHICS, type the following sequence of commands:

```
A:\>MODE PRN:LA75[Return]
A:\>GRAPHICS[Return]
GRAPHICS Utility Program Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Printer type LA75STD
Reverse print is OFF
Print background is OFF
Loading GRAPHICS.

A:\>
```

### Example 3

To change the printer from an LA75 printer to an LN03 Plus printer, type:

```
A:\>GRAPHICS LN03[Return]
GRAPHICS Utility Program Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Printer type LN03
Reverse print is OFF
Print background is OFF
Loading GRAPHICS.

A:\>
```

### Example 4

To change the printer to an LN03 and set the reverse qualifier, type:

```
A:\>GRAPHICS LN03 /R[Return]
GRAPHICS Utility Program Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation

Printer type LN03
Reverse print is ON
Print background is OFF
Loading GRAPHICS.

A:\>
```

## JOIN

To create a single directory structure from two separate existing disk drives, use the JOIN command. The JOIN command lets you access the contents of a disk as though its contents were in the subdirectory of the drive to which it is joined. You must specify a name for this subdirectory.

### Format

```
[drv1:][\path1\]JOIN [drv2: drv3:\path3]
[drv1:][\path1\]JOIN drv2: /D
```

### Where:

- drv1:** Is the drive containing the JOIN command. If you omit this drive, the MS-DOS operating system searches for the JOIN command on the default drive.
- \path1\** Is the path containing the JOIN command. If you omit this path, the MS-DOS operating system searches for the JOIN command in the current directory.
- drv2:** Is the physical drive you want to join to another drive.  
After the JOIN operation is in effect, you can no longer access this drive by its previous drive letter.
- drv3:** Is the drive to which drv2: is joined.
- \path3** Is the path of the drive to which drv2: is joined. Path3 must be a subdirectory that is nonexistent or empty. When you specify a nonexistent subdirectory, the JOIN command creates it.
- /D** Deassigns (cancels) a joined drive. Subdirectories you have created are saved.

### Comments

You can join a drive only at its root directory.

#### NOTE

You cannot use the JOIN command with a file server, or an assigned or substituted drive.

After you issue the JOIN command, the first drive name (drv2:) becomes invalid. If you try to use it, the MS-DOS operating system displays a message.

**Example 1**

To join drive A to the path C:\MEMOS, type:

```
C:\MEMOS> JOIN A: C:\MEMOS [Return]
C:\MEMOS>
```

**Example 2**

To display a directory listing of drive A that was joined to drive C:\MEMOS, type:

```
C:\MEMOS> DIR C:\MEMOS [Return]
```

**Example 3**

To display the currently joined drives, type:

```
C:\MEMOS> JOIN [Return]
A: => C:\MEMOS
C:\MEMOS>
```

**Example 4**

To deassign the effects of a previous JOIN command, type:

```
C:\MEMOS> JOIN A: /D [Return]
C:\MEMOS>
```

## **LABEL**

To create, change, or delete a diskette or hard disk volume label, use the LABEL command.

### **Format**

```
[drv1:][\path1\]LABEL [drv2:][name]
```

### **Where:**

**drv1:** Is the drive containing the LABEL command. If you omit this drive, the MS-DOS operating system searches for the LABEL command on the default drive.

**\path1\** Is the path containing the LABEL command. If you omit this path, the MS-DOS operating system searches for the LABEL command in the current directory.

**drv2:** Is the drive containing the disk where you want to create, change, or delete a label. If you omit this drive, the LABEL command uses the default drive.

**name** Is the new volume name (11 characters or less).

### **Comments**

You can use the LABEL command to label virtual disks.

You cannot use wildcards or tabs in labels.

Do not use the LABEL command with joined drives.

### **Example 1**

To name the volume on drive A MEMOS, type:

```
C:\> LABEL A:MEMOS
```

```
C:\>
```

### **Example 2**

To enter a new label on drive A, type:

```
C:\> LABEL A:
```

The following information is displayed:

```
Volume in drive A has no label
Volume label (11 character, ENTER for none)?
```

Type the new label for drive A and press the Return key.

### **Example 3**

To delete a volume label, type:

```
C:\>LABEL A:
```

The following information is displayed:

```
Volume in drive A is MEMOS
Volume label (11 character, ENTER for none)?
```

Press the Return key. The following information is displayed:

```
Delete current volume label (Y/N)?
```

Press the Y key and the Return key to delete the volume label. Press the N key and the Return key to retain the volume label.

## LCOUNTRY

To install country-specific information into memory, use the LCOUNTRY command.

### Format

```
[drv1:][\path1\]LCOUNTRY [drv2:][\path2\][filename2[.ext]] [ddd]
```

### Where:

**drv1:** Is the drive containing the LCOUNTRY command. If you omit this drive, the MS-DOS operating system searches for the LCOUNTRY command on the default drive.

**\path1\** Is the path containing the LCOUNTRY command. If you omit this path, the MS-DOS operating system searches for the LCOUNTRY command in the current directory.

**drv2:** Is the drive containing the country-specific information applicable to the current font file. If you omit this drive, the LCOUNTRY command uses the default drive.

**\path2\** Is the path containing the country-specific information applicable to the current font file. If you omit this path, the LCOUNTRY command searches the current directory, any appended directories, the root directory, or the current path.

**filename2.ext** Is the file name and file extension of a table of country-specific information applicable to the current font file. If you omit a file extension, .COU is used. For a full list of supported .COU files, see Appendix D of this manual.

**ddd** Is a three-digit country code. If you specify a file name and a three-digit country code, the country-specific information for that character set is selected. However, if you specify only a three-digit country code, the current country information changes to the country just specified. For a full list of country codes, see Appendix D of this manual.

If you have no COUNTRY command in your CONFIG.SYS file, the default country is the United States.

### Comments

If you use the SELECT command, you do not need to use the LCOUNTRY command.

The LCOUNTRY command installs the following country-specific information into memory:

- Date format
- Time format
- Currency symbols
- Decimal separators
- Case conversion information

If the .COU file is not in the proper format, a message is displayed.

#### NOTE

The LCOUNTRY command does not check to see if the font, keyboard, and country-specific information match. If they do not match, the results are unpredictable.

### Example 1

To load the default country-specific information (STD.COU), type:

```
A:\>LCOUNTRY[Return]
Load Country Dependent Information Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
LCOUNTRY loaded STD.COU
Country Code = 001
A:\>
```

The country code remains the same. To change the country code, you must use the LCOUNTRY command and specify the new country code. For example, to change the country code to the United Kingdom, type:

```
A:\>LCOUNTRY 044[Return]
Load Country Dependent Information Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
LCOUNTRY loaded STD.COU
Country Code = 044
A:\>
```

*Operating System Commands*  
**LCOUNTRY**

**Example 2**

To load the French country-specific information, type:

```
A:\>LCOUNTRY FR7.COU[Return]
```

```
Load Country D ependent Information Utility Version 2.0
(C) Copyright 1985, 1986, 1987 by Digital Equipment Corporation
```

```
LCOUNTRY loaded FR7.COU
Country Code = 033
```

```
A:\>
```

**Example 3**

To change the country information to US (using the same character set), type:

```
A:\>LCOUNTRY 001[Return]
```

**Example 4**

To load the ISO Latin-1 character set country data and specify the country as France, type:

```
A:\>LCOUNTRY ISO 033[Return]
```

## REPLACE

To replace files on, or add files to, the destination disk, with files of the same name from the source disk, use the REPLACE command.

Unlike the COPY command, which just moves files from one place to another, the REPLACE command can add files that are lacking on a disk, copy read-only files to a disk, and search all directories on a disk for a file.

### Format

```
[drv1:][\path1\]REPLACE [drv2:][\path2\]filename2[.ext]
[drv3:][\path3\][/A][/P][/R][/S][/W]
```

### Where:

|               |                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the REPLACE command. If you omit this drive, the MS-DOS operating system searches for the REPLACE command on the default drive.       |
| \path1\       | Is the path containing the REPLACE command. If you omit this path, the MS-DOS operating system searches for the REPLACE command in the current directory.     |
| drv2:         | Is the source drive on which the files are located.                                                                                                           |
| \path2\       | Is the path to the source directory where the files are located.                                                                                              |
| filename2.ext | Is the source file or files you want to replace on the destination disk. You can use wildcards in file name specifications.                                   |
| drv3:         | Is the destination drive on which files are to be replaced.                                                                                                   |
| \path3\       | Is the path to the destination directory where the files are to be replaced.                                                                                  |
| /A            | Copies all specified source files that do not exist on the destination drive to the destination drive. You cannot use the /A qualifier with the /S qualifier. |
| /P            | Prompts you before each file is copied to the destination disk.                                                                                               |
| /R            | Replaces files that are read-only on the destination disk.                                                                                                    |

## Operating System Commands

### REPLACE

- /S** Searches all directories on the destination disk for files matching the source file names. You cannot use the /A qualifier with the /S qualifier.
- /W** Waits for you to insert a diskette into the diskette drive before searching for source files.
- If you specify /W alone, the REPLACE command displays the message "Press any key to begin replacing file(s)."
- If you specify the /A qualifier with the /W qualifier, the REPLACE command displays the message "Press any key to begin adding file (s)."

### Comments

The REPLACE command does not locate system or hidden files on the source drive. Therefore, you cannot use the REPLACE command to replace hidden or system files on the destination drive.

### Example 1

To copy from drive L all the source files that do not exist on on drive C, type:

```
C:\> REPLACE L:*.* C:\ /A
```

### Example 2

To copy all the matching source files from drive L to the matching destination files on the root directory and the subdirectories of drive C, type:

```
C:\> REPLACE L:*.* C:\ /S
```

## RESTORE

To restore and make usable backup files from a backup disk created using the BACKUP command, use the RESTORE command.

You can restore files to local drives, network drives, and virtual disks.

### Format

```
[drv1:][\path1\]RESTORE drv2:[\path2]
 [drv3:][\path3\][filename3[.ext]]
 [/A:mm-dd-yy][/B:mm-dd-yy]
 [/E:hh:mm:ss][/L:hh:mm:ss]
 [/M][/N][/P][/S]
```

### Where:

|               |                                                                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| drv1:         | Is the drive containing the RESTORE command. If you omit this drive, the MS-DOS operating system searches for the RESTORE command on the default drive.                                                       |
| \path1\       | Is the path containing the RESTORE command. If you omit this path, the MS-DOS operating system searches for the RESTORE command in the current directory.                                                     |
| drv2:         | Is the drive containing the BACKUP source files.                                                                                                                                                              |
| \path2        | Is the path to the directory containing the BACKUP source files.                                                                                                                                              |
| drv3:         | Is the destination drive, the drive to which backup files must be restored.                                                                                                                                   |
| \path3\       | Is the path to the directory where the backup files must be restored. The path must exist, unless you use the /S qualifier. If you use the /S qualifier, a subdirectory will be created if it does not exist. |
| filename3.ext | Is the file name and file extension of the files you want to restore.<br><br>If you specify a file name, you must specify a path name.                                                                        |
| /A:mm-dd-yy   | Restores files modified on or after the specified date. Do not use this qualifier with the /B or the /N qualifiers. The date format depends on the country code you select.                                   |

*Operating System Commands*  
**RESTORE**

RESTORE /A works correctly only when the destination drive contains files with the same names as those you want to restore. This occurs because the RESTORE command must compare the dates of the backup files to the dates of the files on the destination disk.

**/B:mm-dd-yy**

Restores files modified on or before the specified date. Do not use this qualifier with the /A or the /N qualifiers. The date format depends on the country code you select.

RESTORE /B works correctly only when the destination drive contains files with the same names as those you want to restore. This occurs because the RESTORE command must compare the dates of the backup files to the dates of the files on the destination disk.

**/E:hh:mm:ss**

Restores files modified at or earlier than the specified time. The time format is 24-hour time.

The time separators are country dependent. These time separators are for the United States.

Do not use the /E qualifier with the /L qualifier.

**/L:hh:mm:ss**

Restores files modified at or later than the specified time. The time format is 24-hour time.

The time separators are country dependent. These time separators are for the United States.

Do not use the /L qualifier with the /E qualifier.

**/M**

Restores files modified or deleted since the last backup.

**/N**

Restores files that no longer exist on the destination disk. Do not use this qualifier with the /A or the /B qualifiers.

**/P**

Prompts you for permission to restore files that have changed since the last backup or to restore read-only files.

**/S**

Restores subdirectories. If the destination disk does not contain the subdirectories from which the files were backed up, they are created and the files are restored.

You can use the /S qualifier without specifying a path, if the destination directory is below the current directory.

### NOTE

If you want to restore files that were backed up using RESTORE /A, RESTORE /B, or RESTORE /M, the destination disk must contain files with the same name as those files you want to restore. This is necessary because the RESTORE command must compare the dates of the files that have the same names. Otherwise, the files are automatically restored.

### Comments

If you back up the IO.SYS and MSDOS.SYS files using the BACKUP command, the RESTORE command does not restore them.

The RESTORE command restores files only to the directory area where the files originated. For example, if you back up files from C:\DIR1\DIR2, you can restore the files only to \DIR1\DIR2 on the destination device.

You can back up files from one hard disk partition to another hard disk partition.

If you back up files to more than one diskette, the RESTORE command prompts you to insert the diskette you started the backup process with. The RESTORE command prompts you to insert each diskette in sequence. If you insert the wrong diskette, the RESTORE command displays an error message.

### Example 1

To restore all .ASM files from A:\ to their original directory on drive C, type:

```
A:\>RESTORE A: C:*.ASM /SReturn
Insert backup diskette 01 in drive A:
Strike any key when ready

*** Files were backed up 09-03-1987 ***
*** Restoring files from drive A: ***
Diskette: 01
\APPEND.COM
\APPEND.PIF
A:\>
```

*Operating System Commands*  
**RESTORE**

**Example 2**

To restore all the files from network drive I to drive C, type:

```
I:\>
*** Files were backed up on 09-03-1987***
*** Restoring files from drive I: ***
 .
 .
 .
I:\>RESTORE I: C: /s[Return]
```

**Example 4**

To replace the %FILE% parameter with the file name DOMORE in all your batch files, add the following line to your AUTOEXEC.BAT file:

```
SET file=DOMORE
```

Now, you do not need to edit each batch file to change the replaceable parameter names.

## **SHARE**

To install file sharing and locking, use the SHARE command. Use this command only when using the network, and only from a server offering files to more than one user.

### **Format**

```
[drv:][\path\]SHARE [/F:space] [/L:locks]
```

### **Where:**

- drv:** Is the drive containing the SHARE command. If you omit this drive, the MS-DOS operating system searches for the SHARE command on the default drive.
- \path\** Is the path containing the SHARE command. If you omit this path, the MS-DOS operating system searches for the SHARE command in the current directory.
- /F:space** Allocates file space (in bytes) for the area the MS-DOS operating system uses to record file-sharing information. Each open file needs the length of the full file name plus 11 bytes (the average path name is 20 bytes). The default value for /F is 2048 bytes.
- /L:locks** Sets the number of opened files that are locked. Only one user can open a locked file. The default value for /L is 20 locks.

### **Comments**

You can include the SHARE command in the AUTOEXEC.BAT file to install file sharing.

Once you have run the SHARE command in an MS-DOS operating system session, the MS-DOS operating system checks all read and write requests.

If you want to change the allocated file space or the number of open files that are locked, you must restart the VAXmate workstation and run the SHARE command with the new values.

### **NOTE**

You cannot use the SHARE command in the VAXmate standalone environment.

**Example 1**

To load file sharing and use the default values for the /F and /L qualifiers, type:

```
A:\>SHARE
```

```
A:\>
```

**Example 2**

To allocate 4096 bytes of file space for file-sharing information, type:

```
A:\>SHARE /F:4096
```

```
A:\>
```

**Example 3**

To allow a maximum of nine open files to be locked, type:

```
A:\>SHARE /L:9
```

```
A:\>
```

## SORT

To read, sort, and write output to the standard output device, use the SORT command. The SORT command is also a filter that you can use with redirection for input from, and output to, a file.

You can also use the SORT command to alphabetize by columns.

### Format

```
[drv:][\path\]SORT [/R] [/+n] < source
command | SORT [/R] [/+n]
```

### Where:

**drv:** Is the drive containing the SORT command. If you omit this drive, the MS-DOS operating system searches for the SORT command on the default drive.

**\path\** Is the path containing the SORT command. If you omit this path, the MS-DOS operating system searches for the SORT command in the current directory.

**/R** Reverses the sort order (from Z to A).

**/+n** Specifies that the SORT command should start with column n (where n is some number). If you omit this qualifier, the SORT command begins sorting from column 1.

**source** Is a file name and file extension, or a command.

**command** Is a valid MS-DOS command, such as DIR.

### Comments

You can use the SORT command while in MS-Windows, but you must use it with COMMAND.COM. For example, to sort the file NAMES.TXT from MS-Windows:

1. Select the Run command from the MS-DOS Executive File menu.

A dialog box is displayed.

2. Type:

```
COMMAND.COM /C SORT <NAMES.TXT
```

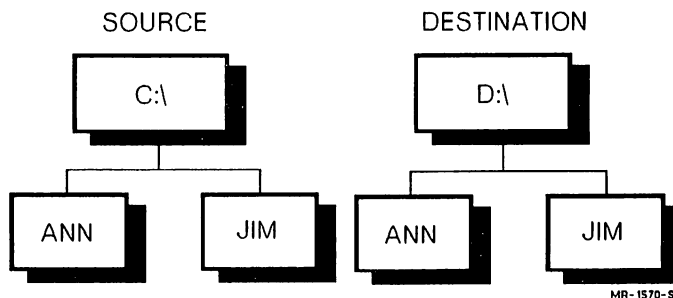
3. Select the OK command button.

A window containing the sorted names is displayed.

To copy all the files in the source directory and all the subdirectories in the source directory to the destination directory, type:

```
A:\>XCOPY C:\ D:\ /S
```

The result is:



### Example 2

To copy the entire directory structure from drive A to drive C, including subdirectories, and to create empty subdirectories on drive C (if they exist on drive A), type:

```
A:\>XCOPY A:\ C:\ /S /E
```

### Example 3

To copy every file, from drive A to drive C, that has its archive bit set, and to retain the archive bit setting on the source files, type:

```
A:\>XCOPY A:\ C:\ /A
```

### Example 4

To copy every file, from drive A to drive C, that has its archive bit set, and to clear the archive bit setting on the source files, type:

```
A:\>XCOPY A:\ C:\ /M
```

*Operating System Commands*  
**XCOPY**

**Example 5**

To copy all files from drive A to drive C, and have the XCOPY command prompt you for a "Yes/No" response before copying each file, type:

```
A:\>XCOPY A:\ C:\ /PReturn
A:\>ANSI.SYS (Y/N)? y
A:\>APPEND.COM (Y/N)? y
A:\>ASSIGN.COM (Y/N)? y
A:\>ATTRIB.EXE (Y/N)? y
 4 File(s) copied
```

Press the Y key to copy a file. Press the N key to proceed to the next file.