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MS™-DOS
Version 2.11
User's Guide

digital equipment corporation

First Printing, October 1984

The postage-prepaid READER'S COMMENTS form on the last page of this document requests the user's critical evaluation to assist us in preparing future documentation.

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Preface

Welcome to MS-DOS

We congratulate you on the purchase of the Rainbow personal computing system and the MS-DOS Version 2.11 operating system. The Rainbow computer is the only industry standard computer built to DIGITAL's quality specifications and backed by DIGITAL'S commitment to service and support. The Rainbow computer is a sound investment in personal productivity that you'll enjoy using every day.

To get started, we have prepared a set of easy-to-use documentation. In the back of these manuals is a card that welcomes your comments. Please let us hear from you.

Remember that purchasing your first Rainbow computer is just the beginning of your relationship with Digital Equipment Corporation, the world's leading manufacturer of minicomputers. Our dedication to quality manufacturing, our extensive availability of spares and accessories, and our service organization of 16,000 representatives worldwide are your further assurance of total DIGITAL quality. With the Rainbow computer and the MS-DOS Version 2.11 operating system you have an investment that will grow in value as you use it now and in the future.

Intended Reader

This guide is intended for first-time users of Digital Equipment Corporation's Rainbow computer. The purpose of this guide is to provide you with detailed information about the MS-DOS operating system.

This guide assumes that you have:

- Installed the Rainbow computer according to the instructions in the *Rainbow Installation Guide.*
- Read the *Rainbow MS-DOS Version 2.11 Getting Started.*
- Made a copy of the MS-DOS master system diskette.

Guide Organization

Chapter 1	Introduces the MS-DOS operating system by having you try a few simple tasks and gives an example of how to create and print a short memo.
Chapter 2	Discusses the MS-DOS operating system commands in alphabetical order.
Chapter 3	Describes how to use the MS-DOS editing and control character keys.
Chapter 4	Discusses how to create and edit memos.
Chapter 5	Alphabetically lists the MS-DOS messages.
Appendix A	Lists DIGITAL's International Help Line numbers.
Appendix B	Describes how to store, handle, and use diskettes.
Appendix C	Discusses how to read IBM diskettes.
Appendix D	Discusses the international features of the MS-DOS Version 2.11 operating system.

Conventions Used

Follow the conventions listed below while using this guide.

- In examples of dialog between you and the computer, what the computer displays on the screen is shown in black. The characters you type from the keyboard are shown in color.
- You can type these characters in either lower or upper case characters. Use the Shift or Lock key (see Figure I) on the keyboard to enable uppercase characters.

> **IMPORTANT**
> The Lock key does not enable you to type the numeric and special symbol keys. For example, if you want to type $, %, *, (, :, ? you must use the Shift key. The Lock key only affects the alphabetic characters.

- Make sure to type all spaces and punctuation marks exactly as they are printed.
- When you see (Return), press the Return key on the keyboard (see Figure I).
- When you see (Ctrl/C), hold down the control key (Ctrl key on the keyboard as shown in Figure I). While you are still holding the Ctrl key, press the C key and then release both keys.
- The optional portions of a command syntax are enclosed in a pair of square brackets ([ ]).
- Braces ({ }) indicate that you have a choice between two or more entries. You must select at least one unless the entries are optional.

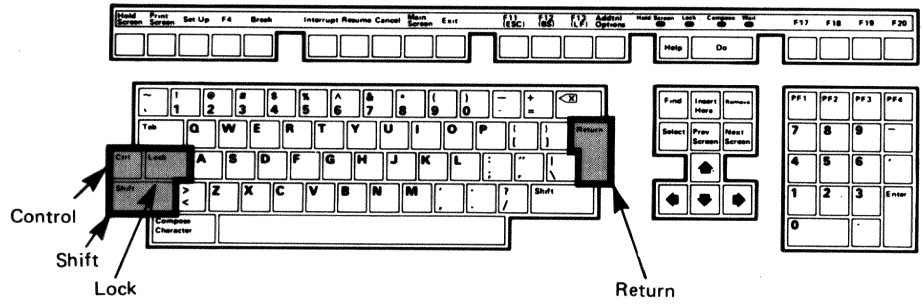


Figure I. Control, Shift, Lock, and Return Keys

Additional Information

You can find additional information on the Rainbow computer and the MS-DOS operating system in:

- *Rainbow Owner's Manual*
  - Using the keyboard
  - Using Set-Up features
  - Using the Rainbow computer as a terminal
  - Using escape sequences
- *Rainbow MS-DOS Version 2.11 Advanced User's Guide*
  - Batch processing
  - Directories and paths
  - Additional MS-DOS commands
  - The File Comparison utility
  - The Link utility
- *Rainbow MS-DOS Version 2.05 Technical Documentation Kit*

  You can order this technical documentation kit by calling DECdirect at 1-800-258-1710.

1

Introducing the MS-DOS Operating System

An operating system is a group of instructions that controls the overall operation of the computer. This guide discusses MS-DOS, an operating system for the Rainbow computer. With this operating system, you can run a variety of application programs.

To use this guide, you should have:

1. Installed the Rainbow computer according to the instructions in the *Rainbow Installation Guide.*
2. Read the *Rainbow MS-DOS Version 2.11 Getting Started,* which describes:

   - Starting and stopping the computer from a diskette drive
   - Making a copy of the MS-DOS operating system master diskette

Hands-On Experience

This chapter explains introductory operating system concepts and operations that enable you to:

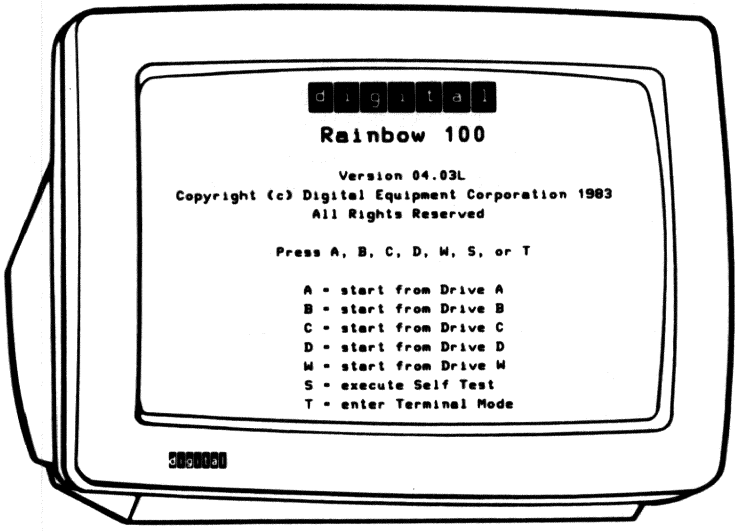
1. Start the operating system from a diskette.
2. Use a few common commands (instructions to the operating system).
3. Create a short memo.
4. Print the memo on a printer.
5. Copy the memo to another diskette.

The end of this chapter includes information on correcting problems.

Starting the Operating System from a Diskette Drive

Start the MS-DOS operating system by completing the following instructions:

1. Be sure there is no protective card or diskette in any of the drives.
2. Turn on the computer by pressing the power switch to the 1 (on) position on the front of the system unit. The drive doors can be open or closed.
3. Be sure the Main System Menu is displayed on the screen, as shown in Screen 1-1.



Screen 1-1. Rainbow Main System Menu

4. Remove the MS-DOS working diskette from its protective paper envelope. (You created this diskette following the instructions in Chapter 2 of the *Rainbow MS-DOS Version 2.11 Getting Started.*)
5. Open the door of drive A and insert the working diskette. Be sure to align the orange arrow on the diskette with the orange stripe on the diskette drive.
6. Close the drive door.
7. Start the MS-DOS operating system by pressing:

   A

   in response to the Main System Menu. Pressing A tells the computer which drive contains the MS-DOS operating system diskette. This is the drive from which you want to work.

   After you hear clicking and whirring sounds, the MS-DOS operating system displays the start-up message in Screen 1-2.

NOTE

The screens in this guide might not be identical to those displayed on your computer. The general form of the information should be the same, but specific information such as dates and times can differ. If, at anytime, a screen is not displayed, refer to the end of this chapter for help. For explanations of messages, refer to Chapter 5.

```
Copyright 1984 Digital Equipment Corporation

Microsoft MS-DOS version 2.11
Copyright 1981,82,83 Microsoft Corp.

Command v. 2.11
Current date is Sat 10-01-1983
Enter new date:
```

Screen 1-2. MS-DOS Operating System Start-Up Message

8. The MS-DOS operating system displays a date and then prompts (asks) you to enter the correct date. You enter the current date using the following format:

   mm-dd-yy

   For example, you would enter September 23, 1984 as:

   ```
   9-23-84
   ```

   Now, enter **today's date** and press the **Return** key.

9. The MS-DOS operating system displays a time and prompts you to enter the correct time. You enter the time using the following format of a twenty-four hour clock:

   hh:mm

   For example, you would enter 9:15 a.m. as:

   ```
   9:15
   ```

   and 9:15 p.m. as:

   ```
   21:15
   ```

   Now, enter the **current time** and press the **Return** key.

Screen 1-3 shows a sample date and time entry.

```
Copyright 1984 Digital Equipment Corporation

Microsoft MS-DOS version 2.11
Copyright 1981,82,83 Microsoft Corp.

Command v. 2.11
Current date is Sat  9-01-1984
Enter new date: 9-23-84
Current time is  0:00:15.27
Enter new time: 9:15

A>
```

Screen 1-3. Date and Time Input

Notice the last two symbols displayed on the left side of the screen, A>. This is called the operating system prompt, or prompt. It indicates that the operating system is waiting for instructions. The prompt consists of the name of the drive the operating system is currently working from (for example A or B) and a right angle bracket. The drive identified in the prompt is known as the active drive, or default drive.

Entering Instructions

Whenever the MS-DOS operating system displays its prompt, you can type an instruction. Instructions are commands that you type on the keyboard. These commands tell the operating system what to do.

Most of the operating system commands are designed to act on a file, which is a collection of information stored on the diskette. The MS-DOS operating system works with two types of files:

- Program files, which contain a collection of instructions telling the computer how to perform a specific task.
- Text files, which contain a collection information, which you have entered such as a list of numbers or a memo.

The operating system accepts commands from you to:

- List the names of files on a diskette.
- Copy the entire contents of a diskette.
- Copy individual files.
- Create text files.
- Display a text file on the screen.
- Print files on a printer.
- Delete files.
- Run programs.

You type a command directly after the A> prompt. As you type a command, the computer displays the command characters on the screen as you enter them.

The cursor is a blinking rectangle or blinking underline that indicates where you enter the next character. The cursor moves to the right each time you type a character.

NOTE
The computer displays the characters you type as lower-case characters unless you use the Shift or Lock keys to obtain upper-case characters. A light above the Help and Do keys indicates when the Lock key is on. To release the Lock key press the Lock key again.

You can type commands in either upper- or lower-case characters. After typing most commands, press the Return key.

Pressing the Return key tells the operating system that you have finished typing the command and want the command executed. Some programs display messages such as <CR> (for carriage return) or "RETURN" to indicate that you should press the Return key.

Displaying a Directory

A commonly-used command is the DIR command, which displays the diskette file directory. Each diskette that contains files also contains a file directory. A file directory—or directory—is like a book's table of contents. It tells the operating system what files are stored on the diskette.

To list the names of files stored on the working diskette in drive A, after the prompt, type:

A>DIR (Return)

Remember to type only what is printed in color. The symbol (Return) means "press the Return key. "

The operating system displays a list of file names. Screen 1-4 shows the list of files stored on the MS-DOS operating system diskette.

```
COMMAND  COM    15973   8-10-84   1:05p
CONFIG   SYS       17   8-29-84  12:27a
MDRIVE   SYS      953   9-27-83  11:46p
MDRIVE   COM      873   9-27-83  10:38p
CHKDSK   COM     6468  10-19-83   7:51p
FORMAT   COM    19414   8-09-84   1:44p
DISKCOPY COM     1409  10-19-83   7:51p
PRINT    COM     3808   8-03-84   9:35a
EDLIN    COM     8080  10-19-83   7:51p
FIND     EXE     6331  10-19-83   7:51p
FC       EXE     2585  10-19-83   7:51p
SYS      COM      922  10-19-83   7:51p
RECOVER  COM     2295  10-19-83   7:51p
MORE     COM     4364  10-19-83   7:51p
LINK     EXE    42368   1-06-83   4:36p
DEBUG    COM    12223  10-19-83   7:52p
MEDIACHK EXE     1396  10-10-83   9:25a
RDCPM    EXE     9194  10-14-83   9:45a
BACKUP   EXE    71146   8-13-84   4:56p
CREF     EXE    13824  10-19-83   7:52p
MASM     EXE    81266   9-01-84  12:05a
SETPORT  EXE    34804   2-17-84   4:03p
EXE2BIN  EXE     1649  10-19-83   7:51p
SORT     EXE     1632   8-08-84  12:21a
XMODE    COM     1309  10-10-84   4:54p
XATTACH  COM     3197  10-08-84  12:15a
XDETACH  COM     2886  10-08-84  12:23a
LDCOPY   COM     6144  10-05-84   4:01p
      28 File(s)      7680 bytes free

A>
```

Screen 1-4. Directory of Drive A

NOTE

Files are identified by two parts: file name and file type. In the directory, the file name and file type are separated by a space(s). The file type indicates the type of file. For example, the file type TXT indicates a document or text file. Refer to Chapter 2 for more information on file names.

Correcting Spelling and Typing Mistakes

The operating system executes a command after you press the Return key. If you misspell a command or make a typographical error and then press the Return key, the operating system indicates that it does not understand the command by displaying a message. Try the following example. Type:

```
A>DIRR (Return)
```

The operating system displays:

```
Bad command or file name

A>
```

The message "Bad command or file name" indicates the MS-DOS operating system did not recognize DIRR as a valid command. The A> prompt indicates that the operating system is waiting for you to retype the command correctly. See Screen 1-5.

```
A>DIRR
Bad command or file name

A>
```

Screen 1-5. Example of Typing Error

As long as you see the A> prompt, you can retype the command.

If you mistype a command and realize your mistake before you press the Return key, you can correct it using the delete character key, (see Figure 1-1).

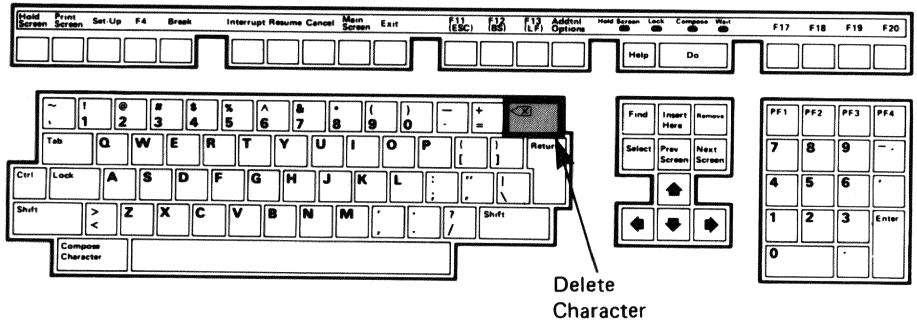


Figure 1-1. Delete Character Key

Delete Character Key

Each time you press the delete character key, the last character you typed is erased from the screen and the cursor moves back one space. You cannot erase the prompt.

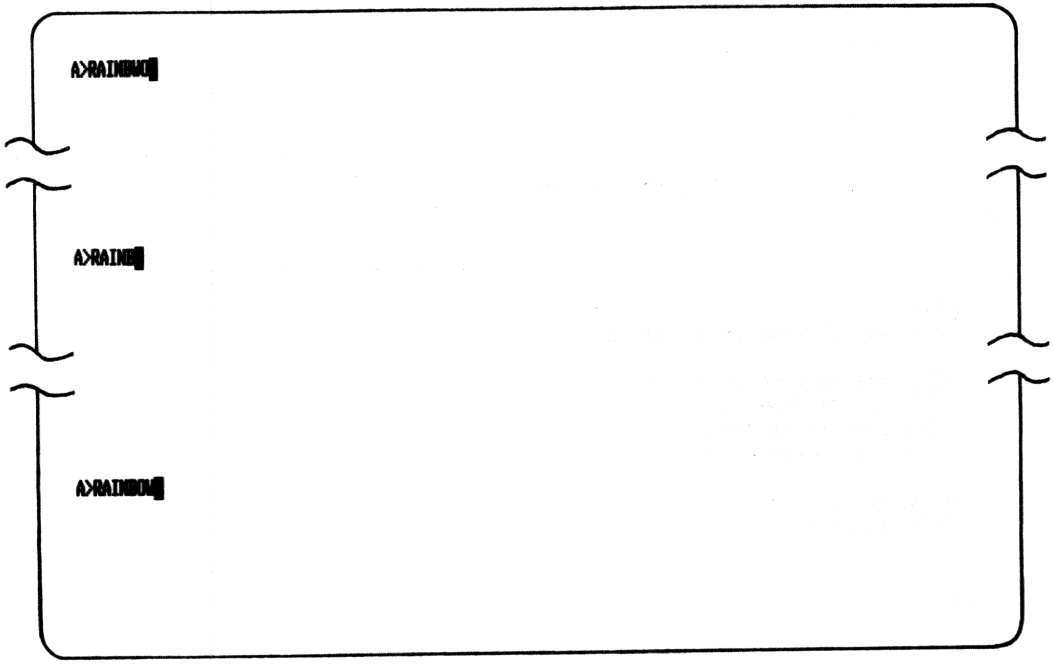
To see how the delete character key works, when you see the A> prompt, complete the following instructions.

1. Type:

   ```
   A>RAINBWO
   ```

2. Press the **delete character** key twice. The characters "O" and "W " are erased, leaving the characters "RAINB" displayed on the screen.

3. Now type **OW** to complete the word Rainbow.
   Screen 1-6 shows this sequence.
4. Press the delete character key seven times to erase the entire word.



Screen 1-6. Using the Delete Character Key

Checking the Diskette in Drive A

You should periodically use the CHKDSK command to check for errors on your diskette or hard disk. If CHKDSK displays any messages, refer to the complete discussion of CHKDSK in Chapter 2.

Use CHKDSK by typing:

```
A> CHKDSK (Return)
```

Screen 1-7 shows the CHKDSK display.

```
A>CHKDSK
Volume MS-DOS V2.11 created Aug 19, 1984 5:26p

  393216 bytes total disk space
   29696 bytes in 3 hidden files
  349184 bytes in 28 user files
   14336 bytes available on disk

  655360 bytes total memory
  622928 bytes free


A>
```

Screen 1-7. Using CHKDSK

Creating and Printing a Memo

The following example shows you how to use EDLIN, an editor, to enter a memo and store it on the diskette. The example also shows you how to print the memo on a printer.

Starting the Editor and Inserting Text

The first step in creating a file is to assign a file name and file type. Because the example is a memo containing text, call the file MEMO.TXT.

1. To start EDLIN, type:

   ```
   A>EDLIN MEMO.TXT (Return)
   ```

   EDLIN responds with:

   ```
   New file
   *
   ```

   The * is the EDLIN prompt. It indicates EDLIN is waiting for you to type an instruction.

2. To type text in the memo, enter insert mode by typing:

   ```
   *I (Return)
   ```

   EDLIN displays:

   ```
   1:*
   ```

   to indicate you can type the first line of the memo.

3. Type the following text and press the Return key:

```
1:*To: Fred (Return)
```

   EDLIN displays:

```
2:*
```

4. Type the second line of text and press the Return key:

```
2:*From: Alyce (Return)
```

   EDLIN displays:

```
3:*
```

5. Type the third line of text and press the Return key:

```
3:*I'm writing this memo using the Rainbow computer. (Return)
```

   EDLIN displays:

```
4:*
```

6. Type the last line and press the Return key:

```
4:*It's very easy to do. (Return)
```

   EDLIN displays:

```
5:*
```

7. To leave insert mode hold down the Ctrl key and press the C key. This action is indicated by (Ctrl/C). Try it now.

```
5:* (Ctrl/C)
```

EDLIN displays:

^C

and then

*

The * indicates you are no longer in insert mode.

Screen 1-8 shows the Insert procedure.

```
A>EDLIN MEMO.TXT
New file
*I
     1:*To: Fred
     2:*From: Alyce
     3:*I'm writing this memo using the Rainbow computer.
     4:*It's very easy to do.
     5:*^C

*
```

Screen 1-8. Inserting the Memo

Displaying the Memo

Display the memo again by typing:

*L (Return)

next to the *. See Screen 1-9.

```
*L
    1:*To: Fred
    2: From: Alyce
    3: I'm writing this memo using the Rainbow computer.
    4: It's very easy to do.
*
```

Screen 1-9. Displaying the Memo

Leaving the Editor

After displaying the memo, EDLIN displays:

```
*
```

To leave the editor and save MEMO.TXT on the diskette, type:

```
*E Return
```

next to the *.

The MS-DOS operating system displays its A> prompt.

Printing the Memo

Before you print the memo, check to see that the printer is connected to the Rainbow computer and that the printer is turned on. The *Rainbow Owner's Manual* shows you how to connect a printer to the Rainbow computer.

To print the memo, type:

```
A>PRINT MEMO.TXT Return
```

If this is the first time you have used the PRINT command since you started the computer, the operating system displays the following message:

```
Name of list device [PRN]:
```

In response, press: Return

The operating system displays:

```
Resident part of PRINT installed
```

As the memo starts to print, the MS-DOS operating system displays:

```
A:MEMO     .TXT is currently being printed
```

Screen 1-10 shows the PRINT dialog. The "A:" confirms that you are printing a file from the diskette in drive A.

```
A>PRINT MEMO.TXT
Name of list device [PRN]:
Resident part of PRINT installed

      A:MEMO    .TXT is currently being printed

A>
```

Screen 1-10. PRINT Dialog

Copying a Memo to Another Diskette

You can use the COPY command to copy files from one diskette to another diskette. This is useful if you want to make a reserve copy of a file. This example shows you how to copy the memo you just created, MEMO.TXT, from the diskette in drive A to a diskette in drive B.

Preparing a Diskette

Before you can copy the memo, you must prepare a new diskette to receive information. The process of preparing the diskette is called formatting. Find a new diskette and do the following:

1. After the prompt, type:

   ```
   A>FORMAT B:/I
   ```
   (Return)

   The FORMAT program displays the introductory message shown in Screen 1-11.

```
A>FORMAT B:/I

Rainbow Disk Formatter Version 2.7.

WARNING!!! This program will destroy any data
currently on your disk.  Type <Ctrl/C> to stop.

Insert new diskette in drive B:
and strike any key when ready
```

Screen 1-11. FORMAT Introductory Message

2. Open the drive B door and insert the blank diskette in drive B.
3. Close the drive B door.
4. Press:

   Return

   The drive B light comes on and you will hear whirring and clicking sounds. The formatting process takes about 60 seconds. The FORMAT program then displays:

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

5. Type:

   ```
   MYDISKETTE Return
   ```

The FORMAT program displays:

```
393216 bytes total disk space
393216 bytes available on disk
```

followed by the prompt:

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

6. Press:

   ```
   N
   ```

   The MS-DOS operating system displays the A> prompt.

Screen 1-12 shows the complete FORMAT dialog.

```
A>FORMAT B:/I

Rainbow Disk Formatter Version 2.7.

WARNING!!!  This program will destroy any data
currently on your disk.  Type <Ctrl/C> to stop.

Insert new diskette in drive B:
and strike any key when ready


Volume label (11 characters, <Return> for none)? MYDISKETTE


  393216 bytes total disk space
  393216 bytes available on disk

Format another (Y/N)?N
A>
```

Screen 1-12. FORMAT Dialog

Copying the Memo

To copy the memo from the diskette in drive A to the diskette in drive B, use the COPY command. Next to the prompt, type:

```
A>COPY MEMO.TXT B:MEMO.TXT (Return)
```

The operating system displays:

```
        1 File(s) copied

A>
```

This message indicates the copy procedure was successful.

Working with the Diskette in Drive B

This section shows you how to:

1. Change the active drive from A to B.
2. Display the drive B directory.
3. Display MEMO.TXT on the screen.
4. Delete MEMO.TXT from the diskette.
5. Change the active drive from B to A.

Changing the Active Diskette Drive to B

To check that the file, "MEMO.TXT," copied to drive B, display a directory of drive B. To tell the operating system to go to the diskette in drive B, type:

```
A>B: (Return)
```

The MS-DOS operating system displays:

```
B>
```

indicating that drive B is now active.

Displaying the Directory of Drive B

To display the directory of the diskette in drive B, type:

```
B>DIR (Return)
```

Screen 1-13 shows that MEMO.TXT is on the diskette in drive B.

```
A>B:

B>DIR

 Volume in drive B is MYDISKETTE
 Directory of  B:\

MEMO     TXT       97   9-23-84   9:23a
       1 File(s)    392704 bytes free

B>
```

Screen 1-13. Directory of Drive B

Displaying a File on the Screen

Use the TYPE command to look at the contents of a file on the screen. To display MEMO.TXT from the diskette in drive B, type:

```
B>TYPE MEMO.TXT (Return)
```

The operating system displays the memo as shown in Screen 1-14.

```
B>TYPE MEMO.TXT
To: Fred
From: Alyce
I'm writing this memo using the Rainbow computer.
It's very easy to do.

B>
```

Screen 1-14. The TYPE Command

Deleting a File

If you no longer need to keep a file, delete it from the diskette directory with the DEL command. Once you delete the file you can never access its contents, so think carefully before you delete it.

To delete MEMO.TXT from the diskette in drive B, type:

```
B>DEL MEMO.TXT (Return)
```

To check that MEMO.TXT is no longer in the drive B directory, type:

```
B>DIR (Return)
```

Screen 1-15 shows the directory. Notice MEMO.TXT is not included.

```
B>DIR

 Volume in drive B is MYDISKETTE
 Directory of  B:\

File not found

B>
```

Screen 1-15. Directory of Drive B After Deleting MEMO.TXT

Changing the Active Diskette Drive to A

Because you do not have any files on the diskette in drive B, make drive A the active drive again by typing:

```
B>A: (Return)
```

The MS-DOS operating system displays the prompt:

```
A>
```

What To Do in Case of Trouble

If you have any trouble while using the computer, there are several things to try.

1. Refer to the list of operating system messages in Chapter 5.
2. Reset the Rainbow computer.

Operating System Messages

Messages can be displayed for a variety of reasons. For example, messages can be displayed if you:

- Type a command incorrectly.
- Type an invalid command.
- Omit some information the operating system needs to complete the command.
- Choose a nonexistent drive.

You cannot anticipate all the conditions that can cause a message. However, if you get a message:

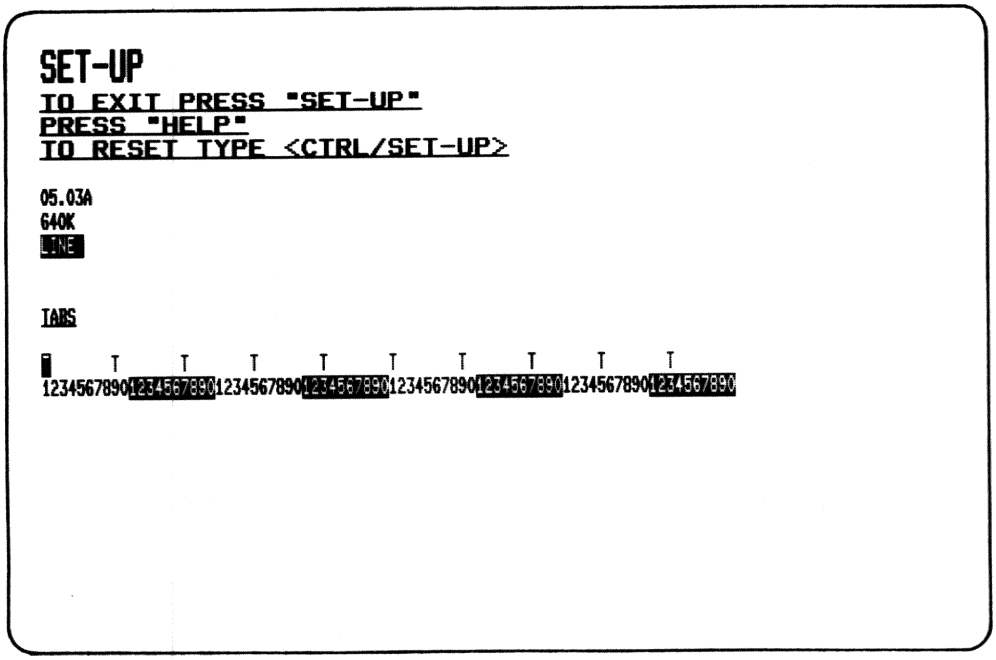
- Check for spelling errors. If you find any, retype the command.
- Check the list of commands in Chapter 2 to determine if the command you typed is a valid MS-DOS operating system command.

- Refer to Chapter 2 for further discussion of the commands or to Chapter 5 for a list of operating system messages, what they mean, and what to do about them.

Resetting the Rainbow Computer

If the operating system encounters a condition it cannot deal with, it can fail to display a message or fail to respond to any key you type. If this happens, or if you want to start over for some reason, reset the computer. You reset while the computer is turned on. Diskettes can be in or out of the drives. To reset the computer:

1. Press the Set-Up key. The text on your screen should look like that in Screen 1-16.



Screen 1-16. Set-Up Display

2. Then hold down the Ctrl key while pressing the Set-Up key.

After you press these keys, the computer displays:

```
TESTING...
```

About four seconds later, the test is completed. If the computer detects no problems, the computer displays the Main System Menu.

Then, you can restart the MS-DOS operating system by pressing:

```
A
```

2

Using MS-DOS Files and Commands

This chapter is divided into two sections:

- Section 1 explains concepts about files, directories, and commands.
- Section 2 discusses the most frequently used commands. The commands are listed alphabetically.

Section 1
Using Commands, Files, and Directories

Commands

A command has three parts:

- The command or keyword
- The optional command tail
- Carriage return, shown as Return

Any combination of these parts is a command line. For example, the following is a command line:

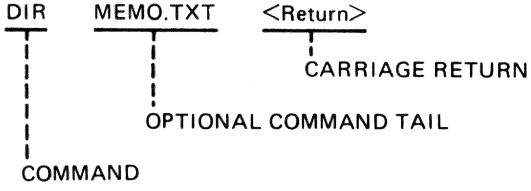


Figure 2-1. Command Line Example

Commands are instructions that tell the MS-DOS operating system to perform a single operation.

An optional command tail supplies the command with additional information, often a file name.

To have the MS-DOS operating system execute the command, press the Return key.

When you type commands, exact spacing and punctuation are important. In most cases, you must type at least one space after a command to separate the command from the optional command tail. Additional spacing and punctuation requirements are noted in Section 2, where each command is described.

Files

Most commands are designed to act on files. A file is a collection of related information. A file on your diskette can be compared to a file folder in a file cabinet. For example, one file folder could contain the names and addresses of the employees who work in your office. You could name this file the Employee Master File in your file cabinet (see Figure 2-2). A file on your diskette could also contain the names and addresses of the employees in your office and could be named EMPLOYEE.TXT (see Figure 2-3).

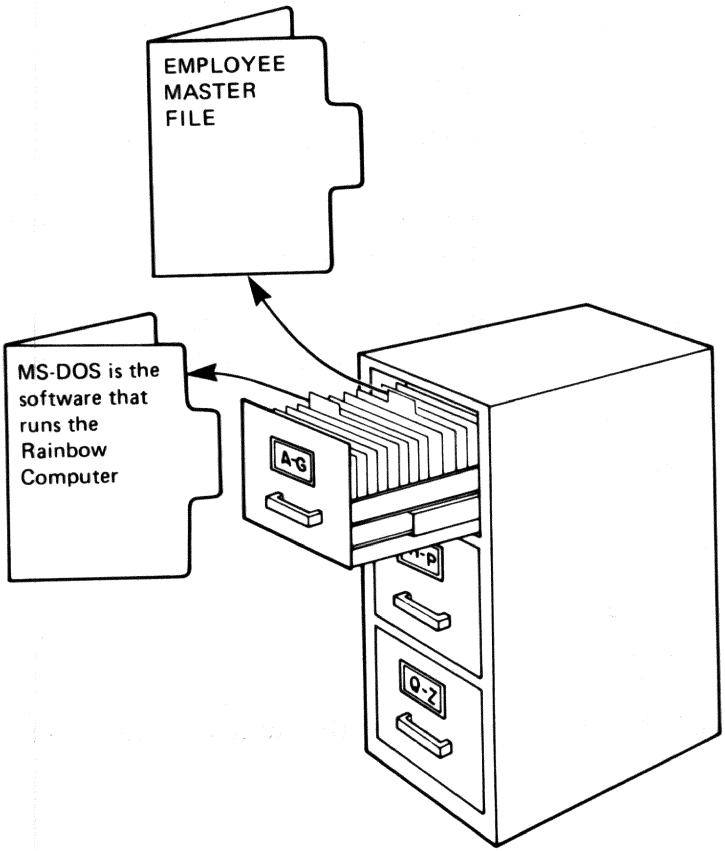


Figure 2-2. Storing Information in a File Cabinet

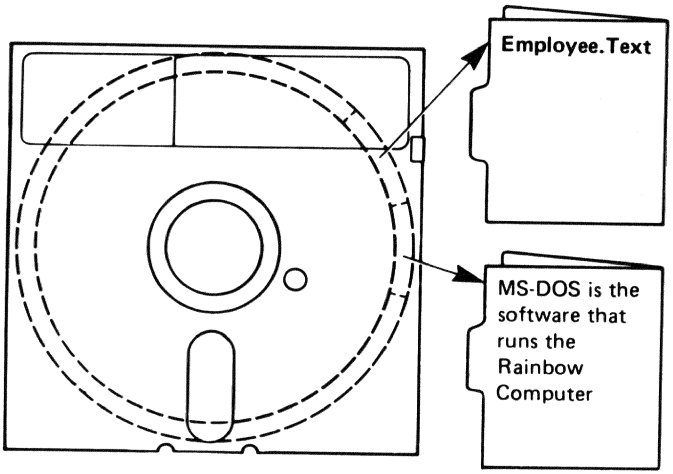


Figure 2-3. Storing Information on a Diskette

All programs, text, and data on your diskette reside in files, and each file has a unique name. You refer to a file by its name.

Each time you input and save data or text, you create a file. You also create a file when you write and name programs and save them on your diskette.

Naming Files

The name of a file has two parts:

- The file name
- The file type

In the example below, MYFILE is the **file name** and .EXE is the **file type.**

```
MYFILE.EXE
```

A file name consist of from one to eight characters. The file type can be three or fewer characters. You can type the characters in lowercase or uppercase letters.

File names and file types usually consist of letters and numbers, but other characters are allowed. You can use the characters A through Z and the numbers 0 through 9 in file names and file types. You can also use the following characters:

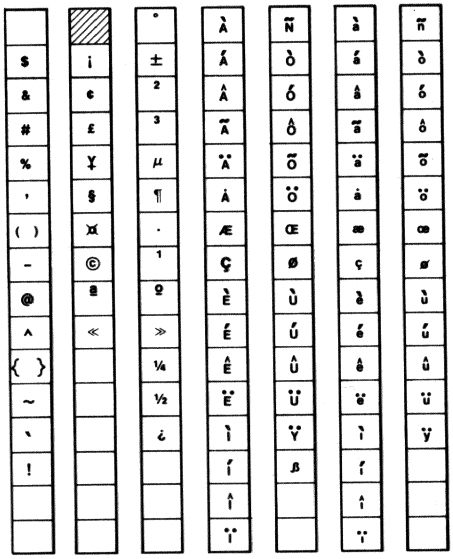


Figure 2-4. File Name Characters

Illegal File Names

The MS-DOS operating system reserves certain words for special purposes. The following words **cannot** be used as file names:

- AUX
- CON
- PRN
- NUL
- CLOCK

Wildcards

You can use two special characters, called wildcards, in file names or file types to take the place of any character. They are:

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

The Question Mark

A question mark in a file name or file type indicates that any character can occupy that position. For example, the command:

```
A>DIR TEST?RUN.EXE (Return)
```

lists all directory filenames on the default (active) drive that:

- Have eight characters
- Begin with TEST
- Have a character after TEST
- End with the letters RUN
- Have a file type of EXE

The following are some examples of files that might be listed by the above DIR command:

```
TEST1RUN.EXE
TEST2RUN.EXE
TEST6RUN.EXE
TESTSRUN.EXE
```

The Asterisk

An asterisk in a file name or file type indicates that any character can occupy that position or any of the remaining positions in the file name or file type. For example:

```
A>DIR TEST*.EXE (Return)
```

lists all directory entries on the default (active) drive with file names that begin with the character TEST and have a file type of EXE. Some examples of files that might be listed by the above DIR command are:

```
TEST1.EXE
TEST2RUN.EXE
TEST6RUN.EXE
TESTALL.EXE
```

The wildcard designation *.* refers to **all** files on the diskette. Note that the asterisk wildcard can be very powerful when used in MS-DOS commands.

Directories

The names of your files are kept in a directory on each diskette. The directory also contains information on the size of your files, the locations of the files on the diskette, and the dates the files were created and updated. The directory you are working on is called your current or **working directory**.

You can create and maintain private areas or "sub-directories" on the same diskette. These areas are known as "directory paths". For complete information on sub-directories and paths, refer to the *Rainbow MS-DOS Version 2.11 Advanced User's Guide,* in this kit.

Section 2
MS-DOS Operating System Commands

The MS-DOS operating system has two types of commands:

- Internal
- External

Table 2-1 lists the characteristics of internal and external commands.

Table 2-1. Internal and External Command Characteristics

Internal Commands	External Commands
Not shown in directory	Shown in directory
Always stored in the computer; automatically read into the computer memory at start up	Stored as files on a diskette; read into the computer only when requested
Can be used at any time regardless of which diskette or drive is being used	Can only be used if the requested file exists on diskette; specify the diskette that the file is on
Are executed immediately when you type the command name and press the Return key.	End with a file type of .COM, .EXE, or .BAT. For example, DISKCOPY.COM and FORMAT.COM are external files. Note that you do not have to include the file type when you type a file name.

Table 2-2 lists and briefly describes the MS-DOS internal and external commands that are listed in this manual.

Table 2-2. MS-DOS Operating System Commands

Command	Type	Use
BACKUP	External	Copies the indicated files from the hard disk to a set of diskettes or from a set of diskettes to the hard disk
CHKDSK	External	Scans the diskette of the default or designated drive and checks for errors
CLS	Internal	Clears the screen
COPY	Internal	Copies file(s) you specify
DATE	Internal	Displays and sets the date
DEL	Internal	Deletes file(s) you specify
DIR	Internal	Lists requested directory entries
DISKCOPY	External	Copies diskettes
ERASE	Internal	Deletes file(s) you specify
FORMAT	External	Prepares a diskette to receive MS-DOS files
MDRIVE	External	Specifies the size of the memory drive (MDRIVE.SYS)
PRINT	External	Prints files you specify
RDCPM	External	Reads CP/M-86/80 files from a diskette
REN	Internal	Renames a file
SET	Internal	Sets one string value to another string value
SETPORT	External	Changes the serial port parameters for the computer and sets up your LA50, LA100, or LQP02 printer.
SYS	External	Transfers the MS-DOS operating system files from one diskette to another diskette
TIME	Internal	Displays and sets the time
TYPE	Internal	Displays the contents of the file you specify
VER	Internal	Displays the MS-DOS operating system version number
VERIFY	Internal	Checks a diskette to make sure that information has been correctly written on it
VOL	Internal	Displays the volume identification number

Advanced Commands

The commands listed in Table 2-3 are mainly for programmers. They are stored on the MS-DOS master system diskette. For more information on these commands refer to the *Rainbow MS-DOS Version 2.11 Advanced User's Guide* in this kit.

Table 2-3. Advanced Commands

Command	Type	Usage
BREAK	Internal	Sets Ctrl/C check
CHDIR	Internal	Changes directories
CTTY	Internal	Changes console TTY
ECHO	Internal	Turns on or off the echoing of batch file command lines to the terminal and turns on or off the MS-DOS operating system prompt
EXE2BIN	External	Converts executable files to binary format
EXIT	Internal	Exit command, returns to lower level
FIND	Internal	Searches for a specific string of text
FOR	Internal	Provides a logical looping capability for command lines
GOTO	Internal	Provides logic flow control for batch file command lines
IF	Internal	Provides logic control for command lines
LDCOPY	External	Copies reserved system tracks from one diskette to another
MEDIACHK	External	Improves diskette performance
MKDIR	Internal	Makes a directory
MORE	Internal	Displays output one screen at a time
PATH	Internal	Sets a command search path
PAUSE	Internal	Temporarily suspends execution of a batch file command lines

Table 2-3. Advanced Commands (Cont.)

Command	Type	Usage
PROMPT	Internal	Designates the command prompt
RECOVER	External	Recovers a file(s) containing bad sectors.
REM	Internal	Displays a comment in a batch file
RMDIR	Internal	Removes a directory
SHIFT	Internal	Increases the number of replaceable parameters in the batch process
SORT	Internal	Sorts data alphabetically, forward or backward

Mini-Exchange Commands

Table 2-4 lists the commands you can use with the Mini-Exchange. See the *Rainbow Using the Mini-Exchange MS-DOS Version 2.11 Operating System* contained in this kit.

Table 2-4. Mini-Exchange Commands

Command	Type	Usage
XMODE	External	Reassigns logical devices to physical devices
XATTACH	External	Attaches a Rainbow computer port to a Mini-Exchange port
XDETACH	External	Detaches a Rainbow computer port from a Mini-Exchange port

Information Common to All Commands

The following information applies to all MS-DOS commands:

- Commands are usually followed by one or more options (command tails). Options are information you can add to the command line if you choose; they are not necessary to use the command.
- You can type commands and options in uppercase or lowercase letters, or a combination of both.
- You must separate commands and options by delimiters. The space or comma is normally used for delimiters.

  For example:

  ```
  A>DEL NEWFILE.TXT (Return)
  A>RENAME,THISFILE THATFILE (Return)
  ```

  You can also use the semicolon (;), the equal sign (=), or the Tab key as delimiters in MS-DOS commands.
- You must include the file type when referring to a file that already has a file type (except to run external commands and batch files).
- Commands take effect only after you press the Return key.
- Wildcards and reserved words (for example, PRN) are not allowed in the names of any commands.
- The prompt is the default drive designation followed by a greater-than sign (for example, A>).
- 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.* The following example of the COPY command illustrates the order:

  ```
  A>COPY source.txt destinat.ion (Return)
  ```

Conventions Used

Table 2-5 lists the conventions used in the discussion of commands.

Table 2-5. Conventions

Convention	Meaning
drv:	Diskette drive name (A:, B:, C:, D:) Hard disk drive name (E:, F:, G:, H:)
filename	Any valid file name. The filename option does not refer to a device or to a diskette drive designation.
.typ	Optional file type consisting of a period and one to three characters. When used, file types immediately follow file names (filename.typ).
switches	Options that control the MS-DOS operating system commands. They are preceded by a forward slash (/).
arguments	Provide more information to MS-DOS commands. You usually choose between arguments; for example ON or OFF.
. . .	Vertical ellipsis indicates a sequential progression to the entry shown.

Command Formats

The following information tells you how to format MS-DOS commands:

- All words shown in capital letters must be entered. These words must be spelled and spaced exactly as shown. You can type these words in any combination of uppercase or lowercase characters.
- You must supply the text for any items shown in lowercase. For example, you enter the name you chose for your file when you see:

```
[filename.typ]
```

- Items shown in brackets [ ] are optional. When you include optional information, *do not type* the brackets. Include only the information within the brackets.
- Items shown in braces { } indicate that you can choose between two or more items. *Do not type the braces.* One item must be selected unless the entries are optional.
- You must include all punctuation as shown, except for brackets and braces.

BACKUP

Purpose

BACKUP is a program that allows you to:

- Copy files **from a hard disk to diskettes** (called "backup " in this guide). Backup is generally used to make copies of the files you have created. If they are accidentally erased from the hard disk, you can copy these files back to the hard disk. Hence, they are called "backup" copies of the files.
- Copy files **from diskettes to a hard disk** (called "restore" in this guide). Restore is generally used to copy back or "restore" files that were accidentally erased from the hard disk.

Figure 2-5 shows the "backup" and "restore" concepts.

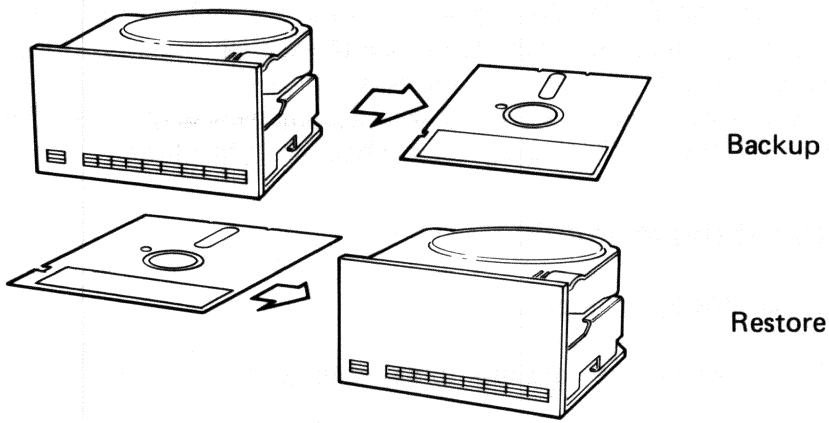


Figure 2-5. Backup and Restore Concepts

It is important to make extra copies of all your files at regular intervals because a hard disk can become too full, damaged, or accidentally erased. By making these copies of the files, you can delete them from the daily working space on the hard disk, and copy them back to the hard disk at a later time.

Forms

```
BACKUP (Return)
```

```
BACKUP operation (Return)
```

Menu Form. For the first form, you use a "menu" to copy files back and forth from the hard disk . For instructions, see the section titled "BACKUP Menu Instructions." Use this form if you are not familiar with the BACKUP program and its options. The BACKUP menus ask you for information to supply to the program.

Command Line Form. For the second form, you simply type commands after the A> prompt. For instructions, see the section titled "BACKUP Command Line Instructions." Use this form when you are familiar with the BACKUP program and know exactly what options you want to use. You cannot use all the BACKUP program's options with this form.

BACKUP Menu Instructions

You use the BACKUP program to:

- Copy files from the hard disk to diskettes (called "backup" in this guide).
- Copy files from diskettes to the hard disk (called "restore" in this guide). Restore is generally used to "restore" files that were accidentally erased from the hard disk.

NOTE
The instructions below assume that you are starting the operating system from a diskette in drive A.

Starting BACKUP. To start the BACKUP program, type:

A>BACKUP (Return)

BACKUP displays the menu shown in Screen 2-1.

```
MS-DOS Backup and Restore Utility V1.2

                    Main Screen
-->

    1. Copy hard disk files onto backup diskettes

    2. Restore hard disk files from backup diskettes

    3. Compare hard disk files to backup diskette files

    4. List the names of files on backup diskettes

    5. Set the date and time

    6. Exit from this program


Press the up arrow key, down arrow key or a number key to point to
a selection, then <Do>.
On any selection, press <Help> for information and instructions.
```

Screen 2-1. The Backup/Restore Main Screen

To select an option:

1. Move the arrow in the left-hand corner of the screen to the task you want to do by either:

   - Pressing the up or down arrow keys
   - Typing a number (1-6)

2. Press the Do key.

For example, if you type the number 4, the arrow moves to the fourth option—"List the names of files on backup diskettes". Then press the Do key.

After you press the Do key and the BACKUP program begins, you are asked questions by the BACKUP program.

The options for the BACKUP program are discussed in the following sections of this chapter.

Getting Help. If you want to find out what an option does:

1. Choose the option you want information about by pressing one of the following:

   - The up or down arrow keys to the appropriate line
   - The number of the option (1-6)

2. Press the Help key.

After you have received the information you need, press the Prev Screen key to return to the Backup/Restore Main Screen.

Option 1. Copy Hard Disk Files onto Backup Diskettes

Option 1 of the BACKUP program allows you to copy selected files from the hard disk to a set of diskettes. The diskettes you copy to are called the "backup" diskettes.

> **IMPORTANT**
> Before you copy files, be sure that you set the correct time and date. The time and the date can be essential when you copy files back to the hard disk. Set the time and the date with the TIME and DATE commands at the operating system level or with Option 5 on this BACKUP program.

To copy files from a hard disk to a set of diskettes:

1. Start the BACKUP program by typing:

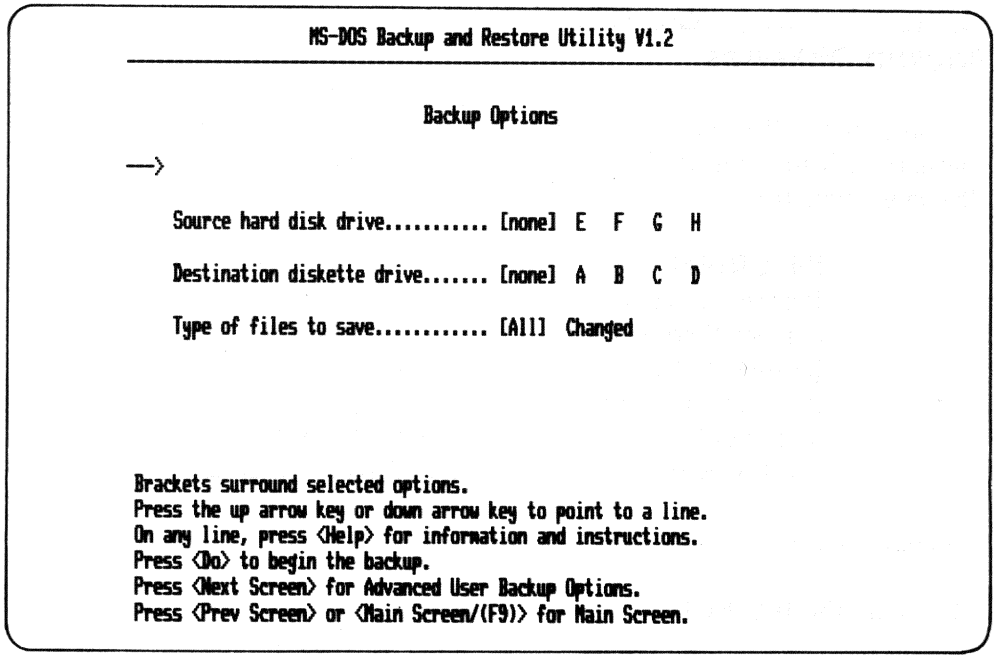
   A>BACKUP (Return)

2. Insert a blank, MS-DOS formatted diskette in the diskette drive that you want to copy the files to.
3. Press one of the following:

   - The up or down arrow key until the arrow points to option 1
   - The 1 key

4. Press the Do key.

   The computer displays the backup options shown in Screen 2-2.



Screen 2-2. Backup Options

5. To choose the hard disk drive to copy files from, press:

   a. The down arrow key

   b. The right arrow key to select the source drive (E, F, G, H)

   NOTE
   If you are not sure what an option means, move the arrow to the option you need help on, and press the Help key.

6. To choose the diskette drive to copy the files to, press:

   a. The down arrow key

   b. The right arrow key to select the destination drive (A, B, C, D)

7. Choose to copy:

   - **All** files in the hard disk's current directory by making no more selections and pressing the Do key.
   - The files in the hard disk's current directory that have **changed** since the last time you copied files:
     - Press the down arrow key.
     - Press the right arrow key to highlight "changed".
     - Press the Do key.

     NOTE
     The BACKUP program displays the Date and Time screen after you press the Do key if you did not change the default date and time when you started the MS-DOS operating system. If you see this screen, type the current date and time and press the Do key. Then press the Do key to start copying the files.

As the BACKUP program copies the files to the diskette, each file name is displayed on the screen. When the diskette is full, you are asked to insert another blank, MS-DOS formatted diskette.

When the program is done you see a brief message indicating that the BACKUP program is complete, and the program returns to the Backup/Restore Main Screen.

NOTE
After you have copied these files to diskettes, you cannot use the files on these diskettes for any other purpose than copying them back to the hard disk.

Advanced Backup Procedures. Advanced User Backup options are available for the copying process. For example, you can delete the files from the hard disk after you copy them to the diskettes. See Screen 2-3 for all of the advanced backup options.

To use the advanced backup options:

1. Start the BACKUP program. Type:

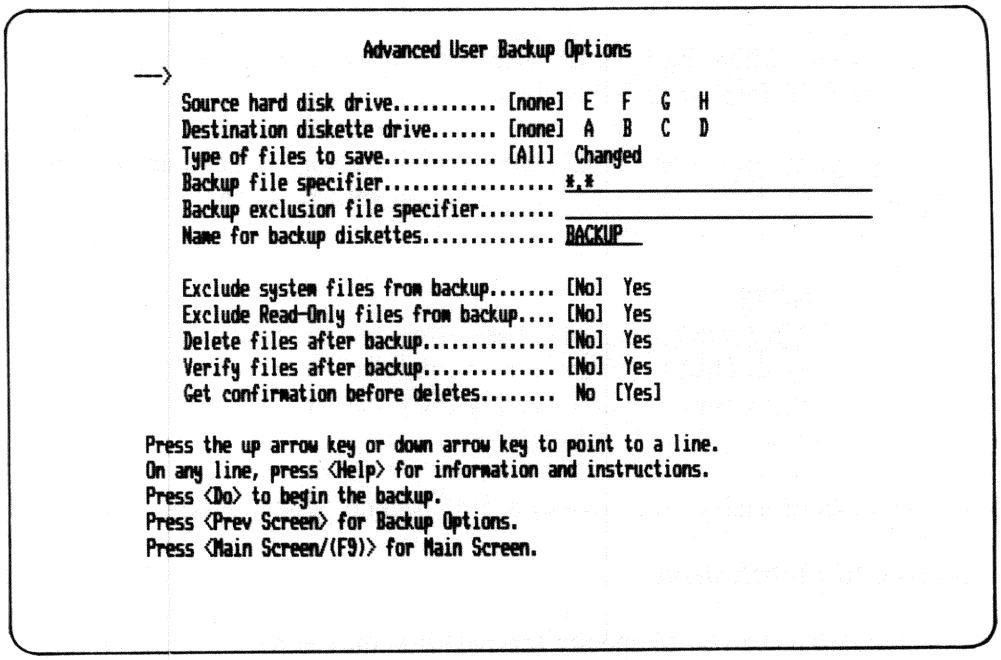
   A>BACKUP (Return)

2. Insert a blank, MS-DOS formatted diskette into the diskette drive that you want to copy the files to.
3. Press one of the following:

   - The up or down arrow key until the arrow points to option 1
   - The 1 key

4. Press the Do key.
5. Press the Next Screen key.

   Screen 2-3 displays the advanced backup options.



Screen 2-3. Advanced User Backup Options

6. Press the up or down arrow key to select a line.
7. Press the right arrow key to select an option within a line, or type a value on the drawn line
8. When you have specified all the information, press the Do key.

> **NOTE**
> The BACKUP program displays the Date and Time screen after you press the Do key if you did not change the default date and time when you started the MS-DOS operating system. If you see this screen, type the current date and time and press the Do key. Then press the Do key to start copying the files.

As the BACKUP program is copying the files, each file name is displayed on the screen. When the diskette is full, you are asked to insert another blank, MS-DOS formatted diskette.

When the program is done, it displays a brief message indicating that the copying process is complete, and the program returns to the Backup/Restore Main Screen.

> **NOTE**
> After you have copied these files to diskettes, you cannot use the files on these diskettes for any other purpose than copying them back to the hard disk.

Descriptions of each of the advanced user backup options follow.

Source hard-disk drive

This option allows you to specify the partition on the hard disk from which files will be saved. The partitions recognized by this program range from E to H. If a hard disk has fewer partitions, and you select a nonexistent partition, a message is displayed on the bottom of the screen in reverse video. There is no default value; you must select a partition.

Destination diskette drive

This option allows you to specify which diskette drive contains the diskettes to which to copy the files. The option requests that you insert diskettes as needed to save all the specified files.

The drives recognized by this program range from A to D. There is no default value; you must select a drive.

Type of files to save

This option allows you to specify whether or not to save ALL files in a specified directory or just those that have been changed or created since the last backup procedure. The default is to copy all files. However, saving selected files is faster and requires less space.

Backup file specifier

This option allows you to specify categories of file names to be saved on the diskette. The names of the files to be saved can be written in this entry by using:

- An optional directory and/or path name
- A one to eight-character file name
- An optional period (.)
- An optional file type of up to three characters
- An optional /A specification that causes specified files in the hard disk's current directory and all directories below it to be included in the operation.
- An optional /D specification that causes specified files in directories below but not including the hard disk's current directory to be included in the operation.

> **NOTE**
> You cannot specify both /A and /D in the file specification. If you do not specify either /A or /D, then the BACKUP program only performs the operation on the files in the hard disk's current directory.

For example, if you specify drive E as the source hard disk drive, the following file specification backs up the entire hard disk drive E including the main directory and all subdirectories.

```
\*.*/A
```

If desired, you can also use the following wildcard characters:

?	Matches any single character
*	Matches any number of any characters

You can also specify an indirect file. An indirect file contains a list of files (one per line) to be saved on the diskettes. This is useful if you have a long and frequently used list of files.

To specify an indirect file:

1. Use the symbol @
2. Followed by an optional drive name (A through I) and a colon (:)
3. Followed by a file name and optional file type. The name of the indirect file cannot include wildcard characters. However, the file names listed in the indirect file can contain wildcards.

Example:

@A:LIST.FIL

If you type an illegal character, a message is displayed at the bottom of the screen. If you type a character unintentionally, you can use the delete character key to erase the character.

The default file specifier is all files in the hard disk's current directory (*.*).

Backup exclusion file specifier

This option allows you to specify a category of file names *not* to be saved on the diskettes. The names of the files *not* to be saved can be written in this entry by using the wildcard characters described earlier. The default is no files. If you type an illegal character, a message is displayed at the bottom of the screen. If you type a character unintentionally, you can use the delete character key to erase the character. You cannot use the /A or /D switches on this file specifier.

Name for backup diskettes

The name of the backup diskettes is an eight-character name that you choose. This name is stored on each backup diskette in the set. The name is also used by the restore and verify programs as a check that the correct set of diskettes has been inserted when files are being copied back to the hard disk. The default name is BACKUP. To change the name, erase the existing name using the delete character key. Then re-type the name. If you type an illegal character, a message is displayed at the bottom of the screen. If you type a character unintentionally, you can use the delete character key to erase the character.

Exclude system files from backup

This option allows you to specify whether or not to save files with the system attribute that are in the source partition. The system files are not often changed so that once you have saved them, you can choose not to save them again. The default is NO.

Exclude Read Only files from backup

This option allows you to specify whether or not to save files with the Read Only attribute that are in the source partition. The default is NO.

Delete files after backup

This option allows you to specify whether or not to delete each file from the hard disk source partition after the file has been saved onto the diskettes. This selection can save you time if a large number of files are to be permanently saved. In addition, this option eliminates the possibility of deleting the wrong files after a permanent backup procedure. The default is NO.

Verify files after backup

This option allows you to specify whether or not to check that the data has been correctly copied to the diskettes. This feature verifies that the data has been properly copied. On the other hand, it takes more time. Therefore, if you feel confident about the backup procedures, select NO for this option. The default is NO.

> **CAUTION**
> If you plan to delete or erase the data from the hard disk before you attempt to restore the data, you should select YES for this option. Then, when you copy the data to the diskettes, you are assured that the data was copied successfully and can be easily restored.

Get confirmation before deletes

This option allows you to specify whether or not the BACKUP program should require you to "give permission " before any data is deleted from the hard disk or diskettes. You are prompted before each file deletion whether or not to delete that particular file. If you feel confident about the operation of the backup procedure and do not wish to be prompted by these messages, select NO for this option. The default is YES.

Option 2. Restore Hard Disk Files from Backup Diskette

Option 2 from the BACKUP program allows you to copy selected files from the diskettes to a specified partition on the hard disk. You do this generally to copy files back to the hard disk, (restore).

To copy files from the diskettes to the hard disk:

1. Start the BACKUP program by typing:

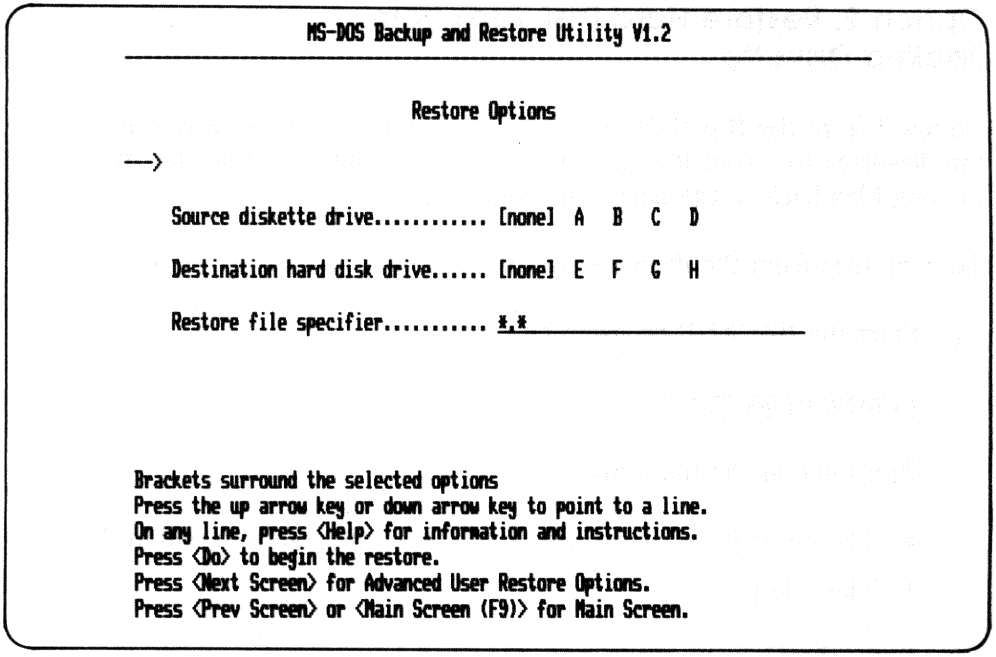
   A>BACKUP (Return)

2. Press one of the following:

   - The up or down arrow key until the arrow points to option 2
   - The 2 key

3. Press the Do key.

   The computer displays the restore options shown in screen 2-4.



Screen 2-4. Restore Options

NOTE
The *.* indicates all files in the current hard disk directory that are on the back-up diskettes.

4. To choose the diskette drive to copy the files from, press:

   a. The down arrow key to move the arrow to the first line
   b. The right arrow key to select the source drive (A, B, C, D)

NOTE
If you are not sure what an option means, select the option by moving the arrow to the option you need help on, and press the Help key.

5. To choose the hard disk drive to copy the files to, press:

   a. The down arrow key to move the arrow to the second line

   b. The right arrow key to select the destination drive (E, F, G, H)

6. Choose to restore:

   - All files in the hard disk's current directory by not making any more selections and pressing the Do key
   - Certain files that you specify:

     - Press the down arrow key to move the arrow to the third line.
     - Press the delete character key until the *.* is removed.
     - Type the names of the files you want restored.
     - Press the Do key.

You can specify the /A or the /D switches here. See the section called "Backup file specifier" earlier in this chapter for more information about these switches.

> **NOTE**
> If you are not sure of how to specify a group of files, refer to the section called "Backup File Specifier" earlier in this chapter.

After the program starts, you are asked to insert a diskette. When all the files have been copied from that diskette to the hard disk, you are asked to insert another diskette.

As the BACKUP command copies the files to the hard disk, each file name is displayed on the screen. When the program is done you see a brief message indicating that the procedure is complete, and the program returns to the Backup/Restore Main Screen.

Advanced Restore Procedures. Advanced User Restore options are available for the restoring process. For example, you can verify the files after they are restored. See screen 2-5 for all of the advanced restore options.

To use the advanced restore options:

1. Start the BACKUP program by typing:

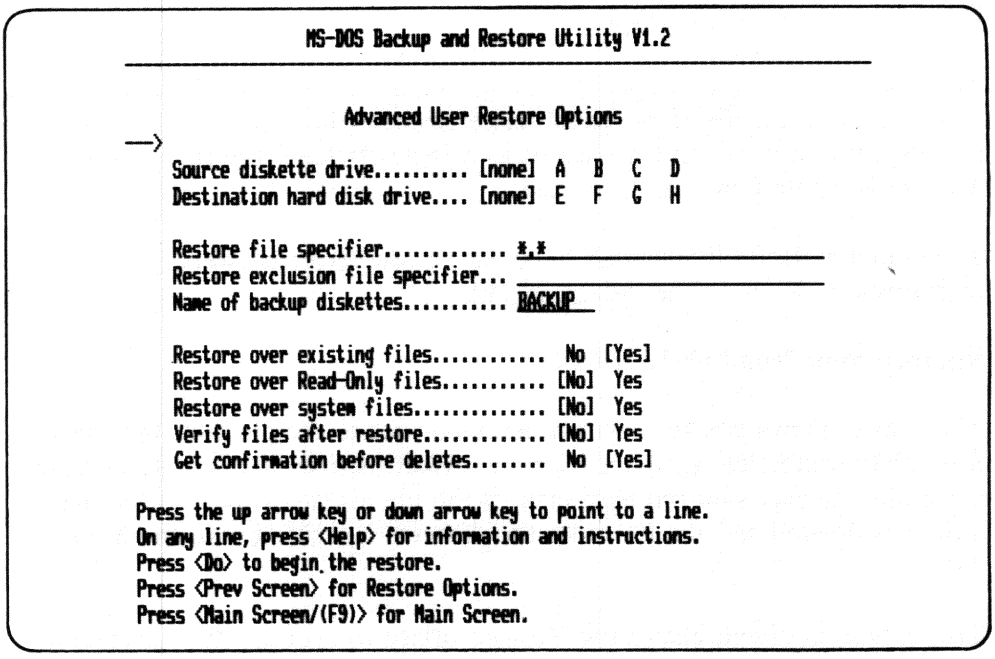
   A>BACKUP (Return)

2. Press one of the following:

   - The up or down arrow key until the arrow points to option 2
   - The 2 key

3. Press the Do key.
4. Press the Next Screen key.

   Screen 2-5 displays the advanced restore options.



Screen 2-5. Advanced User Restore Options

5. Press the up or down arrow key to select a line.
6. Press the right arrow key to select an option within a line, or type a value on the drawn line.
7. When you have specified all the information, press the Do key.

After the program starts, you are asked to insert a diskette. When all the files have been copied from that diskette to the hard disk, you are asked to insert another diskette.

As the BACKUP program is copying the files from the diskettes to the hard disk, each file name is displayed on the screen. When the program is done, it displays a brief message indicating that the copying process is complete, and the program returns to the Backup/Restore Main Screen.

These advanced user options are similar to those for the backup options, except for three, which are described as follows.

Restore over existing files

This option allows you to specify whether or not to restore files from the diskettes even if a file of the same name already exists on the hard disk. If the file already exists on the hard disk, it is deleted and the file from the diskette is written onto the hard disk.

The option is useful if you wish to restore a few files that were inadvertently deleted. The default is YES.

Restore over Read Only files

This option allows you to specify whether or not to restore files that have a Read Only protection attribute from the diskettes even if a file of the same name already exists on the hard disk. If the file already exists on the hard disk, it is deleted and the file from the diskette is written onto the hard disk.

This option, in effect, allows the Restore utility to override the Read Only attribute. The default is YES.

Restore over system files

This option allows you to specify whether or not to restore system files from the diskettes even if a file of the same name already exists on the hard disk. If the file already exists on the hard disk, it is deleted and the file from the diskette is written onto the hard disk.

This option is useful if you wish to restore all application files to a previous state. The default is YES.

Option 3. Compare Hard Disk Files to Backup Diskette Files

Option 3 of the BACKUP program allows you to compare specified files on the diskettes with the corresponding files on the hard disk—called a "verify operation". Use this option to see any changes that have been made since you last saved a file. The verify option is useful as a check that you have the latest copy of any given file, as well as a check to be sure you have saved the file on diskettes.

> **IMPORTANT**
> You should select this option if you plan to delete the files from the hard disk before you restore them. This insures that the files were successfully copied to the diskettes and can be easily restored.

To compare the files on the hard disk to those on the backup diskette:

1. Start the BACKUP program by typing:

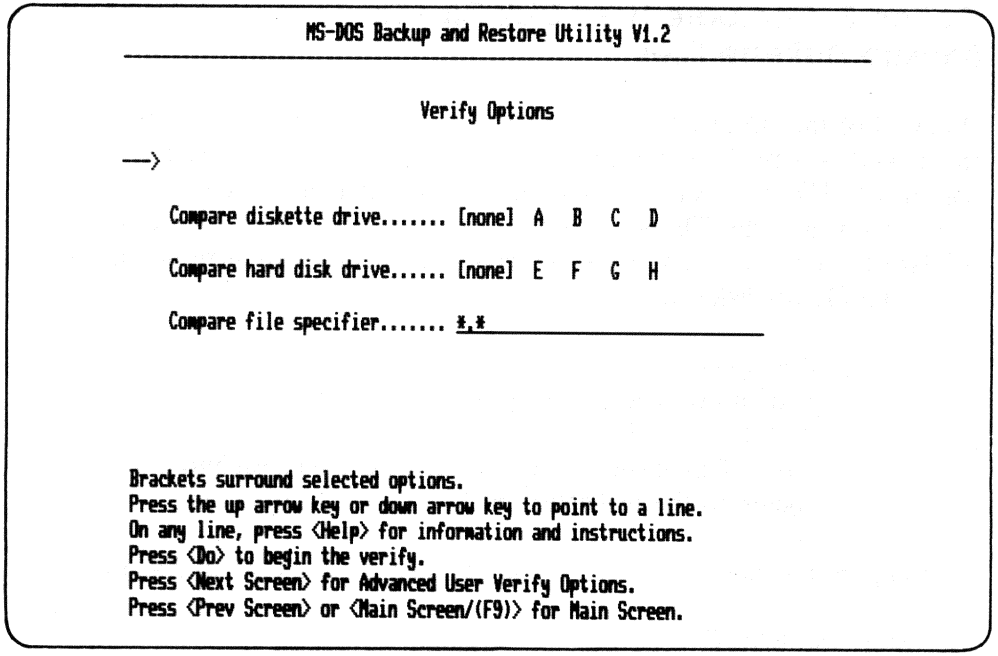
   A>BACKUP (Return)

2. Press one of the following:

   - The down arrow key until the arrow points to option 3
   - The 3 key

3. Press the Do key.

   The computer displays the verify options as shown in Screen 2-6.



Screen 2-6. Verify Options

4. To choose the diskette drive to compare file from, press:

   a. The up or down arrow key
   b. The right arrow key to select the diskette drive, (A, B, C, D)

5. To choose the hard disk drive to compare the files to, press:

   a. The down arrow key
   b. The right arrow key to select the hard disk drive, (E, F, G, H)

6. Choose to compare:

   - All files in the hard disk's current directory that are on the back-up diskettes by making no more selections and pressing the Do key
   - Certain files that you specify:

     - Press the down arrow key to move the arrow to the third line.
     - Press the delete character key until the *.* is removed.
     - Type the file specification for the files you want to compare.
     - Press the Do key.

     You can specify the /A or the /D switches here. See the section called "Backup file specifier" earlier in this chapter for more information about these switches.

When the program starts you are asked to insert the first diskette. After the files are compared between the diskette and the hard disk partition, you are asked to insert another diskette.

As the BACKUP program verifies each file, the file name is displayed on the screen. When the program is done, you see a brief message indicating that the verify procedure is complete, and the program returns to the Backup/Restore Main Screen.

Advanced Verify Procedures. Advanced User Verify Options are available for the verify process. For example, you can choose to exclude system files from the verify procedure. See screen 2-7 for all of the advanced user verify options.

To use the advanced verify options:

1. Start the BACKUP program by typing:

   A>BACKUP (Return)

2. Press one of the following:

   - The up or down arrow key until the arrow points to option 3
   - The 3 key

3. Press the Do key.
4. Press the Next Screen key.

   Screen 2-7 displays the advanced verify options.

```
MS-DOS Backup and Restore Utility V1.2

                Advanced User Verify Options

—>

    Compare diskette drive..... [none] A  B  C  D
    Compare hard disk drive..... [none] E  F  G  H

    Compare file specifier..... *.*
    Compare exclusion file specifier...
    Name of backup diskettes..... BACKUP

    Exclude system files from verify..... [No] Yes


Press the up arrow key or down arrow key to point to a line.
On any line, press <Help> for information and instructions.
Press <Do> to begin the verify
Press <Prev Screen> for User Verify Options.
Press <Main Screen/(F9)> for Main Screen.
```

Screen 2-7. Advanced User Verify Options

5. Press the up or down arrow key to select a line.
6. Press the right arrow key to select an option within a line, or type a value on the drawn line.
7. When you have specified all the information, press the Do key.

When the program starts you are asked to insert the first diskette. After the files are compared between the diskette and the hard disk partition, you are asked to insert another diskette.

As the BACKUP program verifies each file, the file name is displayed on the screen. When the program is done, you see a brief message indicating that the verify procedure is complete, and the program returns to the Backup/Restore Main Screen.

The advanced verify options are similar to the advanced backup and restore options as described on preceding pages.

Option 4. List the Names of Files on Backup Diskettes

Option 4 of the BACKUP program allows you to list the names of all files that you copied on a set of diskettes.

To list the files that are stored on the backup diskette:

1. Start the BACKUP program by typing:

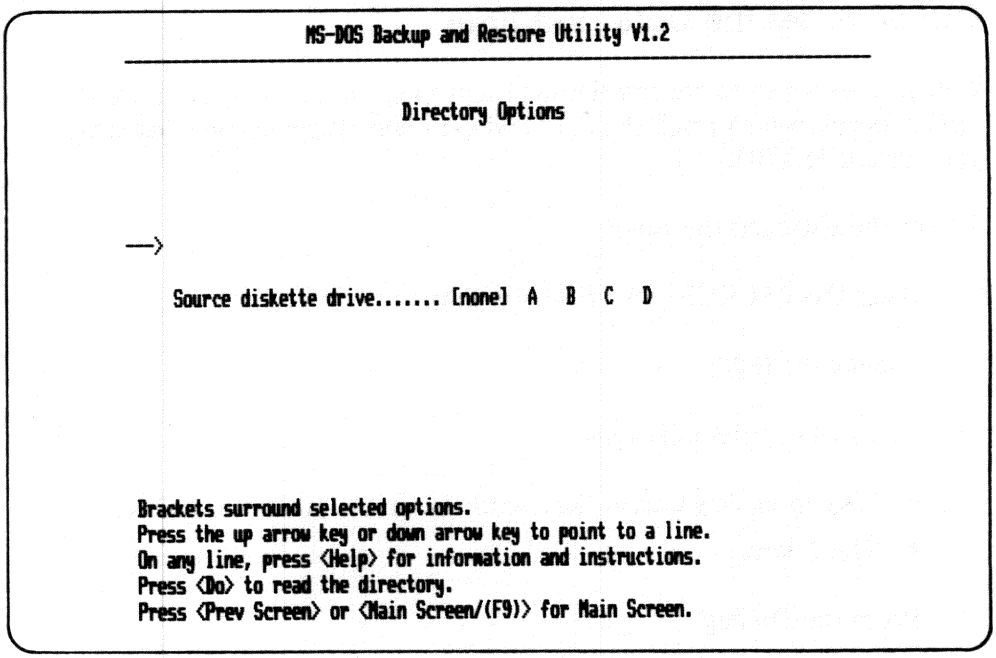
   A>BACKUP (Return)

2. Press one of the following:

   - The up or down arrow key so the arrow points to option 4
   - The 4 key

3. Press the Do key.

   The computer displays the directory options shown in Screen 2-8.



Screen 2-8. Directory Options

4. To choose which diskette drive to list the file from, press:

   a. The down arrow key
   b. The right arrow key to select the the diskette drive (A, B, C, D)

5. Press the Do key.

The program asks you to insert a backup volume in the selected drive. Then the program displays information about diskettes and the files on these diskettes.

If you have a series of backup diskettes, you only need to insert the first diskette to display a directory of all the files in the series.

Option 5. Set the Date and Time

Option 5 allows to to specify the date and time on the computer. This option allows you to reset the date and the time that you specified when you started MS-DOS.

To set the date and the time:

1. Start the BACKUP program by typing:

   A>BACKUP (Return)

2. Press one of the following:

   - The up or down arrow key until the arrow points to option 5
   - The 5 key

3. Press the Do key.

   The computer displays the date and time options as shown in Screen 2-9.

```
MS-DOS Backup and Restore Utility V1.2

                    Date and Time

Please enter the current date and time.
The format for date is:
     mm-dd-yy        (Example:  2-8-83)


The format for time is:
     hh:mm:ss        (example:  16:30:00)
-->

     Today's date..... 09-09-84

     Current time..... 10:16:13


Press the up arrow key or down arrow key to point to a line.
On any line, press <Help> for information and instructions.
Press <Do> to set the date
Press <Main Screen/(F9)> for Main Screen.
```

Screen 2-9. Date and Time

4. To enter the date:

   a. Press the down arrow key to move to the "Today's date " line.

   b. Use the delete character key to delete the current date.

   c. Enter the month and day in two digits; enter the year in two or four digits.

5. To enter the time:

   a. Press the down arrow key to the "Current Time" line.

   b. Use the delete character key to delete the current time.

   c. Enter the hour, minutes, and seconds in one or two digits. (Entering seconds is optional.)

6. To set the date and time, press the Do key.

Option 6. Exit from this Program

Option 6 of the BACKUP program allows you to leave the BACKUP program and return to the operating system.

To leave the BACKUP program from the Backup/Restore Main Screen:

1. Press one of the following:
   - The down arrow key until the arrow points to option 6
   - The 6 key
2. Press the Do key.

   When you leave the BACKUP program you are returned to the operating system prompt.

BACKUP Command Line Instructions

You can use the BACKUP command line instructions to:

- Copy files **from a hard disk to diskettes** (called "backup" in this guide). Backup is generally used to make copies of the files you created. If they are accidentally erased from the hard disk, you can copy these files back to the hard disk. Hence, they are called "backup" copies of the files.
- Copy files **from diskettes to a hard disk** (called "restore " in this guide). Restore is generally used to copy back or "restore" files that were accidentally erased from the hard disk.

This is the form of the BACKUP program to use if you do not want to use the menu form. You simply type in a command after the A> prompt. You should know exactly what operations you want to perform to use this form.

You **cannot** use all of the operations of the BACKUP program using this form.

The basic operations you can use on the command line are:

- BACKUP
- RESTORE
- VERIFY
- DIRECTORY

To use all of the options of the BACKUP program, you must use the menu form. (See the section titled "BACKUP Menu Instructions".)

Forms. You can use the following forms at the command level for the BACKUP program:

```
A>BACKUP [BACKUP] p:[filename.typ][/A ! /D] TO drv: [/ALL]
[/CHANGED] Return
```

```
A>BACKUP RESTORE p: FROM drv:[filename.typ] Return
```

```
A>BACKUP VERIFY p: WITH drv:[filename.typ] Return
```

```
A>BACKUP DIRECTORY drv: Return
```

Where:

p:	Is a hard disk partition (E through H).
drv:	Is a diskette drive (A through D).
[filename.typ]	Is an optional file specifier or indirect file. Path names can be included before the file name.
[/A]	Is an optional specification that causes specified files in the current directory and all directories below it to be included in the operation.
[/D]	Is an optional specification that causes specified files in directories below but not including the current directory to be included in the operation.
[/ALL]	Is an optional specification to copy all files in a specified directory.
[/CHANGED]	Is an optional specification to copy only the files that have changed since the last backup operation.

BACKUP Restrictions

The following list describes some restrictions of the BACKUP program.

- The BACKUP program allows you to type only up to 32 characters in file name and path name specifications. If you must specify a file name and path name specification that exceeds 32 characters, you should change your directory (with the CHDIR command) so the directory that contains the file(s) you want to save, restore, or verify is now the current directory. Do this BEFORE you run the BACKUP program.

  For example, if the full path name and file name were:

  ```
  \DIGITAL\SYSTEM\MSDOS\UTILITY\*.EXE
  ```

  you would use the MS-DOS CHDIR command to make your current directory "\DIGITAL\SYSTEM\MSDOS\UTILITY" before running the BACKUP program Then, specify "*.EXE" as the file name to be included in the operation.

- The BACKUP program can only display up to 50 characters in a file name and path name specification. This means that when the BACKUP program displays a file name and path name specification that contains greater than 50 characters, it omits the characters following the fiftieth character. However, the program uses the full file name and path name specification in performing the backup, restore, or verify operation despite the truncated display.

- If you include a very large number of files in a backup operation (250-300 files), then the BACKUP program may not have enough memory available to process all of them at once. The program displays a message to that effect if this situation occurs. You should then process each sub-directory individually in multiple backup operations.

- If an unrecoverable error occurs during a backup, restore or verify operation, the cursor may not be displayed on the screen when you are returned to the operating system's prompt. To restore the cursor, you must reset the computer.

- AVOID USING DISKETTES WITH WRITE-PROTECT TABS ON THEM.

  If you use a write-protected diskette on which to copy files during a backup operation, the BACKUP program stops the operation. If the BACKUP program copied files to any previous diskettes before it encountered the write-protected diskette, the previous diskettes are valid backup volumes. You can use them to restore the files they contain. The only misleading information is in the directory of the backup diskettes, which includes the files that the BACKUP program could not copy onto the write-protected volume.

- It is possible, during a restore operation, to NOT have enough space on your hard disk for the BACKUP program to transfer all the files. This can happen if you have:

  - Added or created new files on the hard disk
  - Reduced the size of the partition

  since you backed up the files you are attempting to restore. To restore the file(s) if this situation occurs:

  - Delete some files on the hard disk so all the files can be restored
  - Repeat the Restore operation

CHKDSK

Purpose

CHKDSK is an external command that scans the diskette in the specified drive and checks it for errors.

Form

```
CHKDSK [drv:][filename.typ][/F][/V] Return
```

Instructions

CHKDSK should be used periodically on each diskette and hard disk to check for errors in the directory. If errors are found, CHKDSK displays a message, and then a status report. (See Chapter 5 for a list of CHKDSK messages.)

Switches

The /F switch corrects errors you find with CHKDSK.

The /V switch displays messages while you are using CHKDSK.

Example

The following is an example of a status report:

```
393216 bytes total disk space
 25600 bytes in 3 hidden files
204288 bytes in 18 user files
163328 bytes available on disk

 65536 bytes total memory
 53152 bytes free
```

CLS

Purpose

CLS is an internal command that clears the screen.

Form

CLS (Return)

Instructions

CLS causes the MS-DOS operating system to send the ANSI escape sequence (ESC) [2J to your screen, which then clears the screen.

COPY

Purpose

COPY is an internal command that copies one or more files from one diskette to another. If you prefer, you can give each copy a different name. This command can also copy files to other locations on the same diskette.

Form

To **copy** files:

```
COPY
[drv:]filename.typ[/A][/B][drv:][filename.typ][/A][/B][/V] Return
```

To **concatenate** files:

```
COPY [drv:]filename.typ[/A][/B] + [drv:]filename.typ[/A][/B] ...
     [drv:]filename.typ [/A] [/B][/V]
```

Instructions

Copy files. If you do not specify the second `[drv:]filename.typ`, the file is placed on the default drive with the original file name.

If you specify the second `[drv:]filename.typ`, you can type it in one of three ways:

- If you do not specify the second filename.typ, the copy is made to the specified drive and has the same name as the original file name.
- If you specify **only** filename.typ in the second option, the original file is copied to a file on the default drive with the original file name.
- If you specify both the drive and the filename.typ, the original file is copied to that specified drive and filename.

If the first filename.typ option is on the default drive and you do not specify the second filename.typ, the COPY command is stopped. The MS-DOS operating system displays the following message:

```
File cannot be copied onto itself
0 File(s) copied
```

The /V switch causes the operating system to verify that the sectors written on the destination diskette are recorded properly. Although there are rarely recording errors when you run COPY, you can verify that critical data has been correctly recorded. This option causes the COPY command to run slower because the MS-DOS operating system checks each entry recorded on the diskette.

The /A and the /B switches indicate that the files being processed are ASCII or binary files. Each switch applies to the file name preceding it and to all remaining files on the command line, until another /A or /B switch is found.

When you use /A with a source file, the switch causes the file to be treated as a text file. Data in the file is copied up to, but not including, the first end-of-file mark, (Ctrl/Z). The rest of the file is not copied.

When you use /B with a source file, the switch causes the entire file to be copied, including any end-of-file mark.

When you use /A with a target file, /A causes an end-of-file character to be added as the last character of the file.

When you use /B with a target file, the /B causes no end-of-file character to be added.

Concatenate Files. The COPY command also allows file concatenation (joining) while copying. Concatenation is accomplished by simply listing any number of files as options to COPY, separated by +. For example:

```
A>COPY  A.XYZ+B.MEM+B:C.TXT BIGFILE.TXT (Return)
```

This command concatenates files named A.XYZ, B.MEM, and B:C.TXT and places them in the file called BIGFILE.TXT on the default drive.

To combine several files into one file, you can also use wildcards. For example:

```
A>COPY *.LST COMBIN.PRN (Return)
```

This command takes all files with a file type of .LST and combines them into a file named COMBIN.PRN.

Avoid concatenating when one of the source file names has the same file name as the destination file name. For example, the following command is incorrect if ALL.LST already exists, unless ALL.LST is the first *.LST file in the diskette directory.

```
A>COPY *.LST ALL.LST (Return)
```

The problem is not detected until after the original ALL.LST has been copied over by the new ALL.LST. At this point the original ALL.LST is destroyed.

The following command appends all *.LST files, except ALL.LST, to ALL.LST:

```
A>COPY ALL.LST + *.LST
```

This command is the correct way to concatenate when one of the source file names has the same file name as the destination file name.

The following command copies the file B:ABC.TXT to the default drive and assigns a new date and time.

```
A>COPY B:ABC.TXT +
```

The following command only changes the date and time, leaving the file in place:

```
A>COPY B:ABC.TXT + ,, B:
```

The commas define the end of the source file name. They are necessary because the COPY command expects another file name after the + sign.

When you concatenate files, the default switch is /A.

Examples

1. The following example copies a file named REPORT.TXT on the diskette in drive A to the diskette in drive B. The file name does not change.

```
A>COPY REPORT.TXT B: Return
```

2. In the following example, for each file found matching *.LST, that file is combined with the corresponding .REF file. The result is a file with the same file name but with the file type .PRN. Thus, FILE1.LST will be combined with FILE1.REF to form FILE1.PRN; then XYZ.LST is combined with XYZ.REF to form XYZ.PRN; and so on.

```
A>COPY *.LST+*.REF *.PRN Return
```

3. The following COPY command combines all files matching *.LST, then all files matching *.REF, into one file named COMBIN.PRN:

```
A>COPY *.LST+*.REF COMBIN.PRN Return
```

4. The following command concatenates the file names "A.COM", "B.XYZ", and "B:C.TXT". The MS-DOS operating system copies:

   - The entire file "A.COM" including any end-of-file mark
   - The file "B.XYZ" up to but not including any end-of-file mark
   - The file "B:C.TXT" up to but not including any end-of-file mark

   The three files are then placed in the file named "BIGFILE.TXT".

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

DATE

Purpose

DATE is an internal command that lets you enter or change the date known to the operating system. This date is recorded in the directory for any files you create or alter.

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

Form

```
DATE [mm-dd-yy] (Return)
```

> **NOTE**
> The date format above is for the United States. The form for the DATE command depends on the country you specify in the CONFIG.SYS file on the MS-DOS Version 2.11 diskette. See Appendix D of this guide for information on how to change the format.

Instructions

If you type DATE, the DATE command displays the following message:

```
Current date is mm-dd-yy
Enter new date:
```

Press the Return key if you do not want to change the date shown. You can also type a particular date after the DATE command, as in:

```
A>DATE 3-9-81
```

In this case, you do not have to answer the "Enter new date: " question. Enter the new date using numerals only; you cannot use letters.

The options allowed are:

mm = 1 - 12
dd = 1 - 31
yy = 80 - 99 or 1980 - 2099

You can separate the date, month, and year entries by hyphens (-), periods (.) or slashes (/). The MS-DOS operating system changes months and years correctly, whether the month has 31, 30, 29, or 28 days. The operating system handles leap years.

DEL (DELETE)

Purpose

DEL is an internal command that deletes all files with the designated filename.typ. You can also use ERASE instead of DEL to delete files. ERASE is discussed in this chapter.

Form

```
DEL [drv:]filename.typ (Return)
```

Instructions

If you use wildcards for the file name and file type, such as *.*, the prompt "Are you sure?" is displayed.

If you type Y, then all files are deleted as requested. DEL performs the same function as ERASE.

Example

In the following example, the DEL command erases all the files from the diskette in drive B.

```
A>DEL B:*.* (Return)
```

Press the Y key after the computer displays "Are you sure?". Then all the files on the diskette in drive B are erased.

DIR (DIRECTORY)

Purpose

DIR is an internal command that lists the files in a directory.

Form

```
DIR [drv:][filename.typ][/P][/W] (Return)
```

Instructions

If you just type DIR, all directory entries on the default drive are displayed. If only the drive specification is given (DIR drv:), all entries on the diskette in the specified drive are displayed. If you type only a file name with no file type (DIR filename), then *all files* with the designated file name on the diskette in the default drive are displayed.

If you designate a file specification (DIR drv:filename.typ), all files with the file name specified on the diskette in the drive you specified are displayed. In all cases, files are listed with their size and with the time and date of their last modification.

You can use the wildcard characters ? and * (question mark and asterisk) in the file name option. Table 2-6 lists the DIR command equivalents.

Table 2-6. DIR Command Equivalents

Command	Equivalent
DIR	DIR *.*
DIR FILENAME	DIR FILENAME.*
DIR .EXT	DIR *.EXT
DIR .	DIR *.

Switches

You can use two switches with the DIR command. They are:

- The /P switch. The /P switch selects page mode. When you use /P, the directory display pauses after the screen is filled. To resume display of output, press any key.
- The /W switch. The /W switch selects wide display. When you use /W, only file names are displayed. The file size and time and date of last modification are not displayed. Files names are displayed five to a line.

DISKCOPY

Purpose

DISKCOPY is an external command that copies the contents of the diskette in the source drive to the diskette in the destination drive.

Form

```
DISKCOPY [drv1:][drv2:] Return
```

Instructions

The first drive option (drv1:) is the source drive that contains the diskette you want to copy. The second drive option (drv2:) is the destination drive that contains the empty diskette.

If you omit both options, a single-drive copy operation is performed on the default drive.

If you omit the second option, the default drive is used as the destination drive.

You can specify the same drives or you can specify different drives. Typing the same drive name for drv1 and drv2, tells the MS-DOS operating system to copy the contents of one diskette to another diskette using only one drive. The MS-DOS operating system prompts you to insert each diskette at the appropriate times. DISKCOPY waits for you to press the Return key before continuing.

The diskette in the destination drive should have been previously formatted.

After copying, DISKCOPY displays:

```
Copy complete
Copy another (Y/N)?
```

If you do not wish to make another copy, press N.

If you press Y, the MS-DOS operating system prompts you to insert the proper diskettes. The next copy is performed on the same drives that you originally specified.

Because diskette space is not allocated sequentially, diskettes that have had a lot of file creation and deletion activity can have fragmented storage areas. A file can be separated into several parts and located in several places on the diskette. The first free space (sector) found is the next space (sector) allocated, regardless of its location on the diskette.

A fragmented diskette can cause poor performance due to delays involved in finding, reading, or writing a file. If this is the case, first prepare a diskette, using the FORMAT command and then use the COPY command, instead of DISKCOPY, to copy your diskette. This eliminates the fragmentation.

The following example copies all files from the diskette in drive A: to the diskette in drive B:.

```
A>COPY A:*.* B:/V (Return)
A>
```

ERASE

Purpose

ERASE is an internal command that deletes all files with the filename.typ you specify.

Form

```
ERASE [drv:]filename.typ (Return)
```

Instructions

If you use the wildcards *.*, the prompt, "Are you sure? " is displayed. If you type Y, all files are deleted as requested. You can also use the DEL command to erase files.

Example

In the following example, the ERASE command removes all the files from the diskette in drive B.

```
A>ERASE B:*.* (Return)
```

Press the Y key after the computer displays "Are you sure?". Then all the files on the diskette in drive B are erased.

FORMAT

Purpose

FORMAT is an external command that prepares (formats) the diskette so you can copy files to it. You need to prepare all new diskettes before you can copy individual files to the diskette.

Form

```
FORMAT drv:[ /S][ /I] Return
```

Instructions

This command prepares (formats) the directory on a new, empty diskette. The drive designation is required. You cannot format a diskette in the default drive.

The FORMAT command allows you to assign a volume label to a diskette. A volume label is used to identify diskettes; it is like a name tag for the diskette. A volume label consists of from one to eleven characters. You can use all acceptable files name characters in a volume label.

Switches

The /S switch copies the operating system files from the diskette in the default drive to the newly formatted diskette.

The files are copied in the following order:

1. IO.SYS
2. MSDOS.SYS
3. COMMAND.COM

The /I switch physically formats a non-RX50 diskette.

MDRIVE

Purpose

A memory drive is like adding an extra disk drive to your computer. The MS-DOS operating system uses the memory (that you allocate) as though it were a diskette drive. Any MS-DOS operating system commands that reference or use a diskette drive are valid for the memory drive.

You use the external command, MDRIVE, to set the amount of memory allocated to the memory drive.

Because a memory drive does not depend on the mechanical rotation of a diskette, the reading and writing operations on a memory drive are faster than on a diskette drive.

Form

MDRIVE [*n*] Return

Instructions

MDRIVE allows you to allocate memory in 64K byte pages.

The first 128K bytes of memory are reserved for the MS-DOS operating system and application programs. To use the MDRIVE command successfully, you must have at least 192K bytes of memory.

You **MUST** always configure MDRIVE from the drive that you will subsequently start the operating system from.

Example

The following example shows how to allocate memory for (or configure) the memory drive when you do not know how much memory you can allocate:

> **NOTE**
> The MDRIVE examples assume that a total of 320K bytes of memory are available. The 320K byte total includes the 128K bytes from the system unit and a 192K byte memory option.

```
A>MDRIVE (Return)

Rainbow Mdrive Configurator Vers. 2.0

Your Mdrive is currently disabled.

Enter the number of 64 Kbyte pages (0-3): 2

Memory drive configured. Reboot system to activate.

A>
```

You can optionally specify the number of 64K byte pages as *n* on the same line that invokes MDRIVE. The following example allocates the same amount of memory as the previous example:

```
A>MDRIVE 2 (Return)

Rainbow Mdrive Configurator Vers. 2.0

Memory drive configured. Reboot system to activate.

A>
```

The name of the memory drive depends on whether you have the hard disk option. If you do not have the hard disk option, the memory drive name is E. If you do have the hard disk option, the name of the memory drive depends on the number of hard disk partitions that you allocated to the MS-DOS operating system. For each partition allocated to the MS-DOS operating system, the memory drive name is advanced along the alphabet by one character. Thus, a hard disk with two partitions advances the memory drive name to G.

The following example assumes that you do not have a hard disk option. To make the memory drive the default drive type:

```
A>E: (Return)
E>
```

After the memory drive is configured, you must restart the MS-DOS operating system. This allows the MS-DOS operating system to recognize the new memory allocation size for the memory drive.

Each time you restart the MS-DOS operating system, the memory drive is blank. It does not contain any files. If you want to run an application program from the memory drive, you must use the COPY command to copy the file(s) to the memory drive.

You can retrieve memory allocated to the memory drive by specifying zero 64K byte pages as in the following example:

```
E>A: (Return)
A>MDRIVE 0 (Return)

The Mdrive will be disabled at next system boot.

A>
```

NOTE
If you have saved any new or modified data on the memory drive, you must use the COPY command to save the data on a another drive. If you turn the Rainbow computer off, the data in the memory drive is lost.

CAUTION
Some application programs require more than 128K bytes of memory. If you intend to run an application that requires more than 128K bytes of memory, then you must allow more memory for the application by allocating less memory for the memory drive.

PRINT

Purpose

PRINT is an external command that prints a text file on a printer. You can use other MS-DOS commands while the file is printing.

Form

```
PRINT [[drv:]filename.typ[ /T[ filename.typ /C][ filename.typ
/P]]] (Return)
```

Instructions

Use the PRINT command only if you have a printer attached to your computer.

The first time you use the PRINT command after starting the MS-DOS operating system, it asks you for the name of the list device, the default being "PRN", which is the normal printer port. Press the Return key to continue.

Switches

Table 2-7 describes the switches you can use with the PRINT command.

Table 2-7. PRINT Command Switches

Switch	Usage
/T	Removes all files waiting to be printed. A message to this effect is displayed on the screen.
/C	Turns on cancel mode. The filename.typ preceding the /C switch and all filename.typ entries following it in the print queue are removed from the print queue until you issue a /P switch.
/P	Turns on print mode. The preceding filename.typ and all following filename.typ entries are added to the print queue until you issue a /C switch.

The PRINT command with no switches displays the contents of the print queue on your screen without affecting the queue.

Examples

The following example removes the files waiting to be printed.

```
A>PRINT /T Return
```

The following example removes the files waiting to be printed and prepares for printing all files on the default drive with the file type ASM.

```
A>PRINT /T *.ASM Return
```

The following example removes all files with the extension .ASM from the print queue and adds the files REPORT.TXT and MONTH.LST to the print queue.

```
A>PRINT *.ASM/C REPORT.TXT/P MONTH.LST
```

RDCPM

Purpose

RDCPM is an external command that allows you to read CP/M-86/80 files on RX50 diskettes while using the MS-DOS operating system. RDCPM cannot read CP/M-86/80 files from the hard disk.

> **NOTE**
> The RDCPM command can also read DECMATE II CP/M-80 diskettes and PROFESSIONAL 325/350 CP/M-80 diskettes.

Form

```
RDCPM operation b:[filename.typ] [a:][path] Return
```

Where:

operation	Is the name of the RDCPM function that you want to do. RDCPM has three operations: DIR READ TYPE
b:	Is the drive where you insert the CP/M-86/80 diskette.
filename.typ	Is the optional CP/M-86/80 file specification. The default file specification is *.*.
a:	Is the drive where you insert the MS-DOS diskette. If you omit the MS-DOS drive specifier, the MS-DOS file is created on the current default drive. You can only this option when you use the READ function.

path — Is the optional MS-DOS directory specification, not including a file specification. The MS-DOS file you create will always have the same file name and file type as the CP/M-86/80 file. You can only this option when you use the READ function.

Instructions

DIR Option. If you specify the DIR function with the RDCPM command, the MS-DOS operating system displays a directory of the files on the CP/M-86/80 diskette in the specified drive.

READ Option. If you specify the READ function with the RDCPM command, the MS-DOS operating system copies all files from the CP/M-86/80 diskette (that match the file specification) to the directory described by "path" on the MS-DOS diskette.

TYPE Option. If you specify the TYPE function with the RDCPM command, the MS-DOS operating system displays the contents of files on the CP/M-86/80 diskette that match the file specification on the screen.

Examples

1. The following command displays the directory of files on the CP/M-86/80 diskette in drive B that match the file specification, TESTFILE.*.

```
A> RDCPM DIR B:TESTFILE.* Return
```

2. The following command copies the file(s) named TESTFILE.* from drive B to the directory REPORT\JAN in drive A.

```
A> RDCPM READ B:TESTFILE.* A:REPORT\JAN Return
```

3. The following command types the file(s) named TESTFILE.* (from drive B) on your screen.

```
A> RDCPM TYPE B:TESTFILE.* Return
```

REN (RENAME)

Purpose

REN is an internal command that changes the name of a file to the new file name.

Form

```
REN [drv:]oldfilename.typ  newfilename.typ (Return)
```

Instructions

The first option (oldfilename.typ) must be given a drive designation if the diskette resides in a drive other than the default drive. Any drive designation for the second option (newfilename.typ) is ignored. The file remains on the diskette where it currently resides.

You can use the wildcard characters in either option. All files matching the old name are renamed. If wildcard characters appear in the new name, corresponding character positions will not be changed.

Examples

1. The following command changes the names of all files with the .LST file type to similar names with the .PRN file type:

   ```
   REN *.LST *.PRN (Return)
   ```

2. In the next example, REN renames the file ABODE on drive B: to ADOBE:

   ```
   REN B:ABODE ?D?B? (Return)
   ```

   The file remains on drive B:.

SET

Purpose

SET is an internal command that sets one string value equivalent to another string value for use in later programs.

Form

```
SET [string1=[string2]] (Return)
```

Instructions

Use this command only if you want to set values that are used by programs you have written. An application program can check all values that are set with the SET command by issuing SET with no options.

If you type the SET command with no string specified, then the current environment strings are displayed.

If you specify `string1=` and do not specify `string2`, then the entire entry `string1=string2` is removed from the environment.

Examples

1. The following example sets the variable TTY to the value VT52 until you change it with another SET command.

```
A>SET TTY=VT52 (Return)
```

2. You can also use the SET command in batch processing. In this way, you can define your replaceable parameters with names instead of numbers. If your batch file contains the statement "LINK %FILE%," you can set the name that the operating system uses for that variable with the SET command. The command:

```
A>SET FILE=DOMORE (Return)
```

replaces the batch file parameter %FILE% with the file name DOMORE. Therefore, you do not need to edit each batch file to change the replaceable parameter names. Note that when you use text (instead of numbers) as replaceable parameters in batch files, the name must end with a percent sign.

SETPORT

SETPORT is an external command that allows you to view or change the current settings for:

- The printer connector (printer parameters)
- The communication connector (modem parameters)
- The extended communication connector A (auxiliary parameters)
- The LA50 printer
- The LA100 printer
- The LQP02 printer

For the connectors, the SETPORT command allows you to access features that are not available in the Rainbow's Set-Up. For the DIGITAL printers, the SETPORT command enables you to set features that are not directly accessible through the controls on the printer.

Form

SETPORT (Return)

Instructions

After you type the SETPORT command, the computer displays the SETPORT Main Menu. From this menu you can select a group of parameters for a connector or a printer to view or change. See the following sections for information on how to view and change the SETPORT parameters.

Viewing the SETPORT Parameters. To select a group of parameters, press the up arrow key or the down arrow key so the arrow points to your choice. Then press the Do key.

The computer displays a set of parameters specific to the group you selected.

> **NOTE**
> The parameters displayed on the printer menu, the modem menu and auxiliary port menu reflect the current default settings of Rainbow's Set-Up. If you changed a Set-Up parameter and did not save it by pressing (Shift/S), the change is not reflected in the SETPORT program.

Changing the SETPORT Parameters. To change a parameter:

1. Press the up arrow key or the down arrow key so the reverse video bar highlights your choice.
2. Press the left arrow key or the right arrow key until the computer displays the setting you choose.

   When you press the left arrow key or the right arrow key for the printer, modem and auxiliary port parameters, the computer displays:

```
Press <Do> to set
```

For the new settings to take effect, you **must** press the Do key after you select any new settings and before you move to another SETPORT menu or leave the command. The changes are not reflected in Rainbow's Set-Up.

> **NOTE**
> The computer remembers the changes you made to any printer, modem, or auxiliary port parameters until you reset or turn off the computer. If you change a parameter for a printer, the printer remembers the change until it is turned off or the parameter is reset. The SETPORT menus for the LA50, LA100, LQP02 printers always display the same set of parameters when you start the SETPORT command.

3. To view another group of parameters, press the Next Screen key or the Prev Screen key. You can then change any of these parameters by following the previous instructions.

Leaving SETPORT. After you select (and set, if necessary) any new parameters, press the Exit key to leave the SETPORT command.

Table 2-8 describes each group of SETPORT parameters that you can change.

Table 2-8. SETPORT Parameters

Parameters	Purpose
Communications Connector	To select the data settings for the printer connector on the back of the system unit. These settings must match the settings of your printer. You may need to change these settings if you use a non-DIGITAL printer.
Modem Connector	To select the data settings for the communications connector on the back of the system unit. These settings must match the settings of your modem or other computer.
Extended Communication Option Connector	To select the data settings for the extended communication connector A. To use these parameters your computer must have an extended communications option. You can only select settings for extended communication connector A with the SETPORT command.
LA50 Remote Setup LA100 Remote Setup LQP02 Remote Setup	To select the printer's settings. The list of parameters differs for each printer based on the printer's characteristics. The SETPORT command allows you to specify these parameters on its menus rather than sending escape sequences to the printer.

For more information on the parameters for the printer connector, the modem connector and the auxiliary port connector, see the *Rainbow Owner's Manual.* For more information on the parameters for the LA50, the LA100, and the LQP02 printers, see the appropriate printer manual.

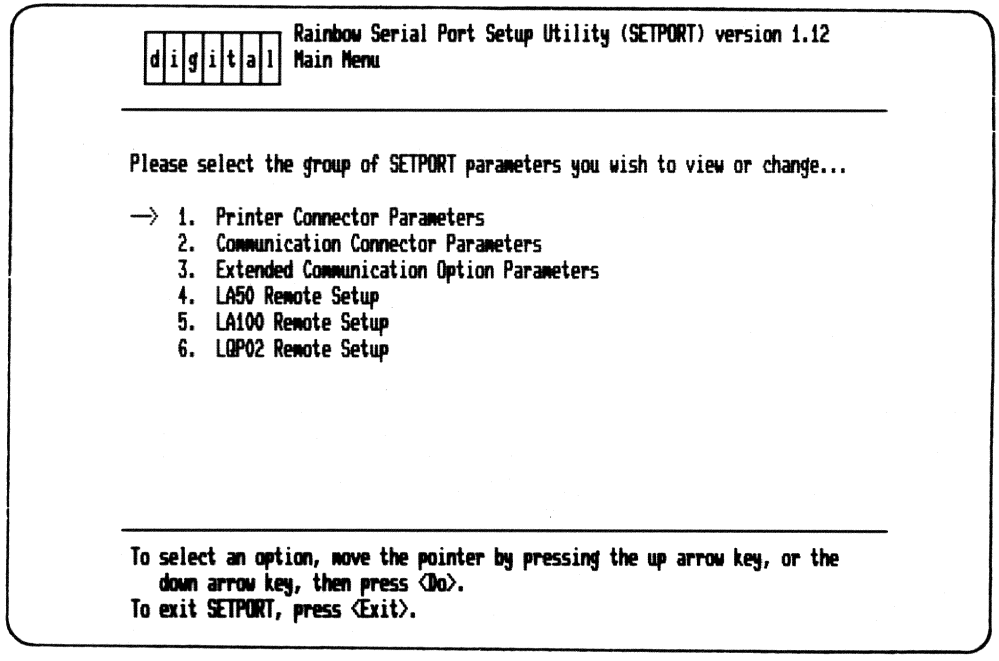
Example

The following example shows you how to change the character quality from normal to enhanced for an LA50 printer.

1. Type:

   A>SETPORT (Return)

   The computer displays the Setport Main Menu (Screen 2-10).



Screen 2-10. SETPORT Main Menu

2. Press the down arrow key three times until the arrow points to "LA50 Remote Setup". Then press the Do key.

   The computer displays the LA50 Remote Setup menu. This menu lists the current default settings for the LA50 printer.

3. Press the down arrow key four times until the reverse video bar highlights the "Print Density" parameter.
4. Press the left arrow key so that the print density changes to "enhanced".
5. Press the Do key.
6. Press the Exit key to return to the SETPORT Main Menu.

The next time you print a document, it will be printed in enhanced quality characters rather than in normal quality characters.

SYS (SYSTEM)

Purpose

SYS is an external command that transfers the MS-DOS hidden system files from the diskette in the default drive to the diskette in the drive you specify by drv:.

Form

```
SYS drv: (Return)
```

Instructions

SYS is normally used to update the operating system or to place the operating system on a formatted diskette that contains no files. You must supply an entry for drv:

If IO.SYS and MSDOS.SYS are on the destination diskette, they must take up the same amount of space on the diskette as the new system will need. For example, you cannot transfer system files from an MS-DOS Version 2.11 diskette to an MS-DOS Version 2.01 diskette. You must reformat the MS-DOS Version 2.01 diskette with the MS-DOS Version 2.11 FORMAT command before using the SYS command.

> **NOTE**
> You can transfer system files from an MS-DOS Version 2.11 diskette to an MS-DOS Version 2.05 diskette. But we recommend that you reformat the MS-DOS Version 2.05 diskette with the MS-DOS Version 2.11 FORMAT command so that you update the diskette completely.

The transferred files are copied in the following order:

1. IO.SYS
2. MSDOS.SYS

IO.SYS and MSDOS.SYS are both hidden files that are not displayed when the DIR command is executed. COMMAND.COM (the command processor) is *not* transferred. You must use the COPY command to transfer COMMAND.COM.

TIME

Purpose

TIME is an internal command that displays and sets the time.

Form

```
TIME [hh:mm] Return
```

> **NOTE**
> The time format above is for the United States. The format for the TIME command depends on the country you specify in the CONFIG.SYS file on the MS-DOS Version 2.11 diskette. See Appendix D of this guide for information on how to change the format.

Instructions

If you type the TIME command only, the following message is displayed:

```
Current time is hh:mm:ss.cc
Enter new time:
```

Press the Return key if you do not want to change the time shown. You can type a new time to the TIME command as:

```
TIME 8:20 Return
```

Type the new time using numerals only; letters are not allowed. The allowed options are:

- hh = 00 - 23
- mm = 00 - 59

Separate the hour and minute entries by colons (:) or periods (.). You do not have to type the ss (seconds) or cc (hundredths of seconds) options.

TYPE

Purpose

TYPE is an internal command that displays the contents of the file on the screen.

Form

```
TYPE [drv:]filename.typ (Return)
```

Instructions

Use the TYPE command to look at a file without modifying it. (Use DIR to find the name of a file and EDLIN to alter the contents of a file.) TYPE expands tabs to spaces that are consistent with tab stops at every eighth column. Do not display binary files with a TYPE command because a display of binary files causes control characters (such as Ctrl/Z) to be sent to your computer, including bells, form feeds, and escape sequences.

VER

Purpose

VER is an internal command that prints the MS-DOS operating system version number.

Form

VER Return

Instructions

If you want to know what version of the MS-DOS operating system you are using, type VER. The version number is displayed on your screen.

VERIFY

Purpose

VERIFY is an internal command that turns the verify switch on or off when writing to a diskette. When you turn on the verify switch, the MS-DOS operating system tells you that a file was written correctly and has no bad sectors.

Form

```
VERIFY [ON|OFF] Return
```

Instructions

This command is identical with the COPY command's /V switch. If you want to verify that all files are written correctly to a diskette, you can use the VERIFY command to tell the MS-DOS operating system to verify that your files are intact (no bad sectors, for example). The MS-DOS operating system performs a VERIFY each time you write data to a diskette. You receive a message only if the MS-DOS operating system was unable to successfully write your data to diskette.

VERIFY ON remains in effect until you change it in a program by using the SET VERIFY command, or until you issue a VERIFY OFF command to the MS-DOS operating system.

If you want to know what the current setting of VERIFY is, type VERIFY with no options.

VOL (VOLUME)

Purpose

VOL is an internal command that displays a diskette volume label, if a label exists.

Form

```
VOL [drv:] Return
```

Instructions

This command displays the volume label of the diskette in drive you specify. If no drive is specified, the MS-DOS operating system prints the volume label of the diskette in the default drive.

If the diskette does not have a volume label, VOL displays:

```
Volume in drive x has no label
```

3
Editing Keys

This chapter discusses:

- Special editing keys
- Control characters

You can use special editing keys and control keys to perform some operations on the command line and to create documents with an MS-DOS program called an editor. This chapter describes how to use the special editing keys and the control characters for use on the command line. Chapter 4 discusses how to use the editing keys and the control characters with the editor.

Special Editing Keys

The special editing keys deserve particular emphasis because they differ from the way in which most operating systems handle the way commands are entered. You do not have to type the same sequence of keys repeatedly, because the last command line is placed in a special storage area called a template.

The special editing keys allow you to:

- Repeat a command line by pressing two keys simultaneously
- Edit and retry the command when you make an error, without retyping the entire command line
- Edit and execute a command line that is similar to a preceding command with a minimum of typing

When you type a command to the MS-DOS operating system and press the the Return key, the command is automatically sent to the command processor. At the same time, a copy of this command is sent to the template, which allows you to recall the command or modify it using the special editing keys.

Table 3-1 lists the special editing keys. Each of these keys is more fully described in Chapter 4, *Creating and Changing Documents.*

Table 3-1. Special Editing Keys

Key	Editing Function
→	Copies one character from the template to the command line
Select	Copies characters up to the character specified in the template and puts these characters on the command line
Do	Copies all remaining characters in the template to the command line
Remove	Skips over (does not copy) a character in the template
Find	Skips over (does not copy) the characters in the template up to the character specified
Cancel	Cancels the current input; leaves the template unchanged
Insert Here	Enters/exits insert mode
Resume	Makes the new line the new template
Exit	Inserts an end-of-file character (Ctrl/Z) in the new template

Figure 3-1 shows the location of these keys on the keyboard.

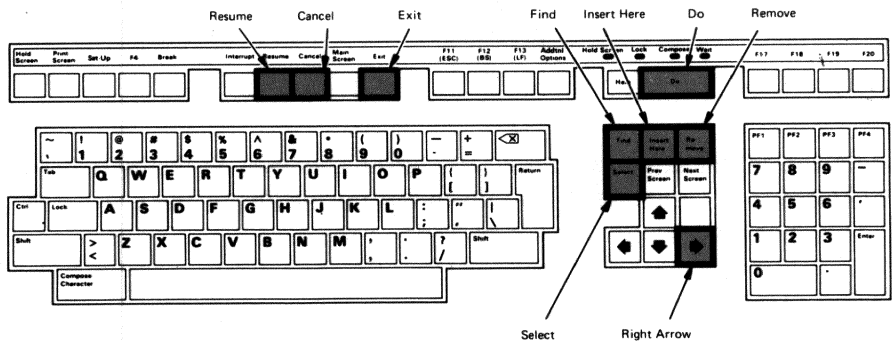


Figure 3-1. Editing Keys

Examples

These examples show you how to use the editing keys at the command line. Chapter 4 shows you how to use the editing keys with the MS-DOS text editor.

If you type the following command:

```
DIR PROG.COM
```

the MS-DOS operating system displays information about the file PROG.COM on your screen. The command line is also saved in the template. To repeat the command, just press two keys:

(Do)
(Return)

The repeated command is displayed on the screen as shown below:

```
DIR PROG.COM
```

Notice that pressing the Do key causes the contents of the template to be sent to the command line; pressing the Return key causes the command line to be executed.

If you want to display information about a file named PROG.ASM, you can use the contents of the template and type:

(Select) C

Pressing the Select key followed by the letter C copies all characters from the template to the command line, up to but not including the character "C". The operating system displays:

```
DIR PROG.
```

Now type:

```
ASM
```

The result is:

```
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 do this, press the Return key.

Now assume that you want to execute the following command:

```
TYPE PROG.ASM
```

To do this, type:

TYPE (Insert Here) (Space) (Do) (Return)

Notice that when you are typing, the characters are entered directly into the command line and overwrite corresponding characters in the command line and template. This automatic replacement feature is turned off when you press the Insert Here key. Thus, the characters "TYPE" replace the characters "DIR " in the template. To insert a space between "TYPE" and "PROG.ASM", press the Insert Here key and then the space bar. Finally, to copy the rest of the template to the command line, press the Do key and then the Return key. The command TYPE PROG.ASM has been processed by the operating system, and the template becomes TYPE PROG.ASM.

If you had misspelled TYPE as BYTE, an error would have occurred. Instead of aborting the whole command, you can save the misspelled line, before you press the Return key, by creating a new template with the Resume key:

BYTE PROG.ASM (Resume)

You could then edit this command by typing:

T (→) P (Do)

The right arrow key copies a single character from the template to the command line. The resulting command line is then the command that you want:

```
TYPE PROG.ASM
```

As an alternative, you can use the same template containing BYTE PROG.ASM and then use the Remove and Insert Here keys to achieve the same result:

(Remove) (Remove) (→) (Insert Here) YP (Do)

Table 3-2 shows how the command line is affected as you type.

Table 3-2. Effect of Commands on Command Line

Keys	Screen	Effect On Command Line
(Remove)	—	Skips over 1st template character
(Remove)	—	Skips over 2nd template character
(→)	T	Copies 3rd template character
(Insert Here)	YP TYP	Inserts characters
(Do)	TYPE PROG.ASM	Copies rest of template

Notice that the Remove key does not affect the command line. It affects the template by deleting the first character. Similarly, the Find key deletes characters in the template, up to but not including a given character.

Control Character Functions

A control character function is a function that affects the command line. The Ctrl key (control key) is a special key that is used in conjunction with certain other keys (see Figure 3-1 for the location of the Ctrl key). When you press the Ctrl key simultaneously with another key, a simple command is sent to the operating system that affects the command line.

Table 3-3 lists the control character keys and their functions.

Remember that when you type a control character, such as Ctrl/C, you must hold down the control key, (labeled Ctrl on the keyboard), and then press the C key at the same time.

Table 3-3. Control Character Keys and Their Functions

Control Character	Function
Ctrl/N	Turns on and off echoing of output to line printer.
Ctrl/C	Stops current command.
Ctrl/H	Removes the last character from command line, and erases character from screen.
Ctrl/J	Inserts physical end-of-line, but does not empty command line. Use the LF key (line feed) to extend the current logical line beyond the physical limits of one screen.
Ctrl/P	Turns on and off terminal output to line printer.
Ctrl/S	Stops output display on the screen. Press any key to resume.
Ctrl/X	Cancels the current line; empties the command line; and then outputs a back slash (\), carriage return, and line feed. The template used by the special editing commands is not affected.

4

Creating and Changing Documents

This chapter describes how to use an editor. An editor is a type of program that lets you create, change and display memos, reports, and other documents. The MS-DOS operating system's editor is called EDLIN.

This chapter is divided into four sections:

- Section 1 tells you how to start EDLIN.
- Section 2 describes how to use the special editing keys introduced in Chapter 3.
- Section 3 describes how to use EDLIN commands and options.
- Section 4 lists the EDLIN commands.

What You Can Do with EDLIN

You can use EDLIN to:

- Create new files and save them
- Update existing files and save both the updated and original files
- Delete, edit, insert, and display lines
- Search for, delete, or replace text within one or more lines

What Is a Line Editor?

EDLIN is a line editor. A line editor lets you create and edit files line by line. EDLIN is divided into lines; each line holds up to 253 characters. EDLIN generates line numbers and displays them during the editing process for your convenience. Line numbers are not actually stored in the saved file.

Lines are always numbered consecutively. When you insert lines, all line numbers advance automatically by the number of lines inserted. When you delete lines, all line numbers decrease automatically by the number of lines you deleted.

Section 1
Starting EDLIN

To start EDLIN, type:

```
EDLIN filename.typ (Return)
```

Creating a New File

If you are creating a new file, filename.typ should be the name of the file you wish to create. If EDLIN does not find this file on the diskette, EDLIN creates a new file with the name you specify. The following message and prompt are displayed:

```
New file
*
```

Notice that the prompt for EDLIN is an asterisk (*).

When you see the prompt, EDLIN is ready to accept commands.

To begin entering text, you must enter the Insert command to insert lines. The Insert command is discussed in Section 4 of this chapter.

Using an Existing File

If you want to change (or edit) an existing file, filename.typ should be the name of the file you want to change. When EDLIN finds the file on the designated or default drive, the file is loaded into memory.

- If the entire file can be loaded into memory, EDLIN displays the following message on your screen:

```
End of input file
*
```

  You can then edit the file using EDLIN editing commands.

- If the file is too large to be loaded into memory, EDLIN continues to load lines until memory is 3/4 full and then displays the * prompt. You can now edit the portion of the file that is in memory.

  To edit the remainder of the file, you must save some of the edited lines on the diskette to free memory using the Write command. Then use the Append command to load the unedited lines from the diskette into memory.

When you complete the editing session, save the original (old) and the revised (new) files by using the End command. The End command is discussed later in this chapter. The original file is renamed with a file type of .BAK, and the revised file has the file name and file type you specify in the EDLIN command. The original .BAK file is not erased until the end of the editing session, or until diskette space is needed by the editor, EDLIN.

Do not try to edit a file with a file type of .BAK because EDLIN assumes that any .BAK file is a backup file. If you find it necessary to edit such a file, rename the file with another file type (using the RENAME command discussed in Chapter 2), then start EDLIN and specify the new filename.typ.

Section 2
Using Special Editing Keys

The special editing keys and template discussed in Chapter 3 can be used to edit your text files. These keys are discussed in detail in this section.

Table 4-1 summarizes the commands, codes, and functions. Descriptions of the special editing keys follow the table.

Table 4-1. Special Editing Keys

Key	Function	Description
➡	Copies one character	Copies one character from the template to the new line.
Select	Copies up to character	Copies all characters from the template to the new line, up to the character specified
Do	Copies template	Copies all remaining characters in the template to the screen
Remove	Skips one character	Does not copy (skips over) a character
Find	Skips up to character	Does not copy (skips over) the characters in the template, up to the character specified
Cancel	Quits input	Voids the current input; leaves the template unchanged
Insert Here	Insert mode	Enters/exits insert mode
Insert Here	Replace mode	Turns insert mode off; this is the default
Resume	New template	Makes the new line the new template
Exit	Exits template	Inserts an end-of-file character in the new template

→ (Right Arrow Key)

Purpose

The right arrow key copies one character from the template to the command line.

Instructions

Pressing the right arrow key copies one character from the template to the command line. When you press the right arrow key, one character is inserted in the command line.

Example

If you begin an editing session and your screen displays:

```
1:*This is a sample file.
1:*
```

with the cursor positioned at the beginning of the line, after the asterisk, pressing the right arrow key copies the first character (T) to the second of the two lines displayed:

```
1:*This is a sample file.
1:* (→)
```

becomes

```
1:*This is a sample file.
1:*T
```

Each time you press the right arrow key, one more character is displayed on the same line:

Select Key

Purpose

The Select key copies multiple characters up to a character you specify.

Instructions

The Select key allows you to copy all characters, up to a character you specify, from the template to the command line. The character you specify is the character you type after you press the Select key; the character is not copied or displayed on the screen. Pressing the Select key causes the cursor to move to the single character that is specified in the command. If the template does not contain the specified character, nothing is copied.

Example

Assume that the screen shows:

```
1:*This is a sample file.
1:*
```

At the beginning of the editing session, the cursor is positioned at the beginning of the line, after the asterisk. Pressing the Select key copies all characters up to the character specified immediately after you press the Select key.

```
1:*This is a sample file.
1:*(Select) e
```

becomes

```
1:*This is a sample file.
1:*This is a sample
```

with the cursor positioned after the l in the second line.

Do Key

Purpose

The Do key allows you to copy the template to the command line.

Instructions

The Do key lets you copy all remaining characters from the template to the command line. Regardless of the cursor position at the time the Do key is pressed, the rest of the line is displayed, and the cursor is positioned after the last character on the line.

Example

Assume that the screen shows:

```
1:*This is a sample file.
1:*
```

At the beginning of the editing session, the cursor is positioned at the beginning of the line, after the asterisk. Pressing the Do key copies all characters from the template to the line with the cursor.

```
1:*This is a sample file.
1:*(Do)
1:*This is a sample file.
```

Remove Key

Purpose

The Remove key allows you to skip over one character in the template.

Instructions

Each time you press the Remove key, one character is not copied from the template. The action of the Remove key is similar to the right arrow key, except that the Remove key skips a character in the template rather than copy it to the command line.

Example

Assume that the screen shows:

```
1:*This is a sample file.
1:*
```

At the beginning of the editing session, the cursor is positioned at the beginning of the line, after the asterisk. Pressing the Remove key skips over the first character (T).

```
1:*This is a sample file.
1:* (Remove)
```

The cursor position does not change, and only the template is affected. To see how much of the line has been skipped over, press the Do key, which moves the cursor beyond the last character of the line.

```
1:*This is a sample file.
1:* (Remove) (Do) his is a sample file.
```

Find Key

Purpose

The Find key allows you to skip multiple characters in the template, up to the specified character.

Instructions

The Find key lets you skip over all characters up to a character that you specify in the template. This character is not copied and is not shown on the screen. If the template does not contain the specified character, no character is skipped over. The action of the Find key is similar to the Do key, except that the Find key allows you to skip over characters in the template rather than copying them to the command line.

Example

Assume that the screen shows:

```
1:*This is a sample file.
1:*
```

At the beginning of the editing session, the cursor is positioned at the beginning of the line, after the asterisk. The Find key lets you skip over all the characters in the template up to the character specified after you press the Find key:

```
1:*This is a sample file.
1:* (Find) p
```

The cursor position does not change. To see how much of the line has been skipped over, press the Do key to copy the template. This moves the cursor beyond the last character of the line:

```
1:*This is a sample file.
1:* (Find) p (Do)
1:*ple file.
```

Cancel Key

Purpose

The Cancel key allows you to stop inputing and empties the command line.

Instructions

The Cancel key lets you empty the command line, but leaves the template unchanged. The Cancel key also prints a backslash (\), carriage return, and line feed, and turns insert mode off. The cursor is positioned at the beginning of the line, after the asterisk. Pressing the Do key copies the template to the command line and the command line is displayed as it was before the Cancel key was pressed.

Example

Assume that the screen shows:

```
1:*This is a sample file.
1:*
```

At the beginning of the editing session, the cursor is positioned at the beginning of the line, after the asterisk. Next, assume that you want to replace the line with "Sample File":

```
1:*This is a sample file.
1:*Sample File
```

To cancel the line you just entered (Sample File), and to keep "This is a sample file.", press the Cancel key. Notice that a backslash is displayed on the Sample File line to tell you it has been canceled.

```
1:*This is a sample file.
1:*Sample File (Cancel)\
```

Press the Return key to keep the original line, or to perform any other editing functions. If you press the Do key, the original template is copied to the command line:

```
* (Do) This a sample file.
```

Insert Here Key

Purpose

The Insert Here Key is used to insert or replace text in a file. The Insert Here key lets you turn insert and replace modes on and off.

Instructions

Pressing the Insert Here key causes EDLIN to enter and exit insert mode. The current cursor position in the template is not changed. The cursor does move as each character is inserted. However, when you have finished inserting characters, the cursor is positioned at the same character as it was before the insertion began. Thus, characters are inserted **in front of** the character to which the cursor points.

Example

Assume that the screen shows:

```
1:*This is a sample file.
1:*
```

At the beginning of the editing session, the cursor is positioned at the beginning of the line, after the asterisk. Assume that you press the Select and f keys:

```
1:*This is a sample file.
1:*(Select) f This is a sample
```

Now press the Insert Here key and insert the characters "edit" and a space:

```
1:*(Select) f This is a sample (Insert Here) edit (Space)
1:*This is a sample edit
```

If you now press the Do key, the rest of the template is copied to the line:

```
1:*This is a sample edit (Do) file.
```

To exit insert mode, simply press the Return key again.

If you pressed the Return key, the remainder of the template would be truncated, and the command line ends:

```
1:*This is a sample (Insert Here) edit (Return)
1:*This is a sample edit
```

Instructions

Pressing the Return key causes EDLIN to exit insert mode and to enter replace mode. All the characters you type overwrite and replace characters in the template. When you start to edit a line, replace mode is in effect. If the Return key is pressed, the remainder of the template is deleted.

Example

Assume that the screen shows:

```
1:*This is a sample file.
1:*
```

At the beginning of the editing session, the cursor is positioned at the beginning of the line, after the asterisk. Assume that you then type:

```
1:*This is a sample file.
1:*(Select)mThis is a sa(Insert Here)lary tax
1:*This is a salary tax(Remove)(Remove)(Remove)(Remove)(Do)
1:*This is a salary tax file.
```

Notice that you **replaced** "mple" with "lary tax". If you type characters that extend beyond the length of the template, the remaining characters in the template are automatically added when you press the Do key.

Resume Key

Purpose

The Resume key allows you to create a new template.

Instructions

Pressing the Resume key copies the current command line to the template. The contents of the old template are deleted. Pressing the Resume key outputs an @ ("at" sign) character, a carriage return, and a line feed. The command line is also emptied and insert mode is turned off.

> **IMPORTANT**
> The Resume key performs the same function as the Cancel key, except that the template is changed and an @ ("at" sign) character is printed instead of a \ (backslash).

Example

Assume that the screen shows:

```
1:*This is a sample file.
1:*
```

At the beginning of the editing session the cursor is positioned at the beginning of the line, following the asterisk. Assume that you type:

```
1:*This is a sample file.
1:* (Select) m
1:*This is a sa (Insert Here) lary tax
1:*This is a salary tax (Remove) (Remove) (Remove) (Remove) (Do)
1:*This is a salary tax file.
```

At this point, assume that you want this line to be the new template, so you press the the Resume key:

```
1:*This is a salary tax file. (Resume)@
```

The @ indicates that this new line is now the new template. Additional editing can be done using the new template.

Section 3
Using EDLIN Commands

EDLIN commands perform editing functions on lines of text. You should read the following information before you use EDLIN commands.

Locating Lines

You can reference line numbers relative to the current line (the line with the asterisk). Use a minus sign (hyphen key) with a number to indicate lines before the current line. Use a plus sign with a number to indicate lines after the current line.

Example

```
*-10,+10L (Return)
```

This command lists 10 lines before the current line, the current line, and 10 lines after the current line.

Using Multiple Commands

You can use multiple commands on one command line. When you issue a command to edit a single line, a line number and a semicolon must separate commands on the line. Otherwise, one command can follow another without any special separators. In the case of a Search and Replace command, the string can be ended by a Ctrl/Z instead of pressing the Return Key.

Examples

The following command line edits line 15 and then displays lines 10 through 20 on the screen.

```
*15;-5,+5L (Return)
```

The command line in the next example searches for "This string" and then displays five lines before and five lines after the line containing the matched string. If the search fails, then the displayed lines are those line numbers relative to the current line. (The Search command is described later in this chapter.)

```
*SThis string (Ctrl/V) -5,+5L (Return)
```

Spacing in Commands

You can type EDLIN commands **with** or **without** a space between the line number and command. For example, to delete line 6, the command 6D is the same as 6 D.

Inserting Control Characters

It is possible to insert a control character (such as Ctrl/C) into text by using the Ctrl/V characters before it, while you are in insert mode. Ctrl/V tells the MS-DOS operating system to recognize the next **capital** letter typed as a control character. It is also possible to use a control character in any of the string arguments of Search or Replace by using the special quote character. (The Replace command is described later in this chapter.)

Example

The following list describes the function of control characters.

S Ctrl/V Z	Finds the first occurrence of Ctrl/Z in a file
R Ctrl/V Z Ctrl/Z foo	Replaces all occurrences of Ctrl/Z in a file by "foo "
R Ctrl/V C Ctrl/Z bar	Replaces all occurrences of Ctrl/C by "bar "

It is possible to insert Ctrl/V into the text by typing:

Ctrl/V Ctrl/V

Inserting the Ctrl/Z Character

The Ctrl/Z character ordinarily tells EDLIN, "This is the end of the file." If you have Ctrl/Z characters elsewhere in your file, you must tell EDLIN that these other control characters do not mean end-of-file. Use the /B switch to tell EDLIN to ignore any Ctrl/Z characters in the file and to show you the entire file.

EDLIN Command Options

Several EDLIN commands accept one or more options. The effect of a command option varies, depending on which command you use. The following list describes each option.

1. line—The line option indicates a line number that you type. Line numbers must be separated by a comma or a space from other line numbers, other options, and from the command.

   You can specify the line option in one of three ways:

   - Number—Any number less than 65529. If a number larger than the largest existing line number is specified, then line means the line after the last line number.
   - Period (.)—If you specify a period for line, then line means the current line number. The current line is the last line edited, and is not necessarily the last line displayed. The current line is marked on your screen by an asterisk (*) between the line number and the first character.
   - Pound (#)—The pound sign indicates the line after the last line number. If you specify # for line, this has the same effect as specifying a number larger than the last line number.

   Pressing the Return key without any of the line specifiers listed above directs EDLIN to use a default value appropriate to the command.

2. ?—The question mark option directs EDLIN to ask you if the correct string has been found. The question mark is used only with the Replace and Search commands. Before continuing, EDLIN waits for you to type either a Y or press the Return key for a yes response, or for any other key for a no response.

3. string—The string option represents text to be found, to be replaced, or to replace other text. The string option is used only with the Search and Replace commands. Each string must be ended by typing a Ctrl/Z or by pressing the Return key (see the Replace command for details). No spaces should be typed between strings or between a string and its command letter, unless you want those spaces to be part of the string.

Section 4
EDLIN Commands

This section describes EDLIN editing commands. The commands are listed alphabetically. Refer to Table 2-5 in Chapter 2 for a list of conventions used in this manual.

Table 4-2 summarizes the EDLIN commands discussed in this chapter.

Table 4-2. EDLIN Commands

Command	Purpose
Line	Edits line number
A	Appends lines
C	Copies lines
D	Deletes lines
E	Ends editing
I	Inserts lines
L	Lists text
M	Moves lines
P	Pages text
Q	Quits editing
R	Replaces lines
S	Searches text
T	Transfers text
W	Writes lines

(A)ppend

Purpose

Append lets you 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.

Form

[n]A Return

where n = number of lines

Instructions

This command is meaningful only if the file being edited is too large to fit into memory. As many lines as possible are read into memory for editing when you start EDLIN.

To edit the remainder of the file that does not fit into memory, lines that have already been edited must be written to the diskette. Then you can load unedited lines from the diskette into memory with the Append command. Refer to the Write command in this chapter for information on how to write edited lines to the diskette.

> **IMPORTANT**
> If you do not specify the number of lines to append, lines are appended to memory until available memory is 3/4 full. No action is taken if available memory is already 3/4 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

Purpose

Copy lets you copy a range of lines to a specified line number. The lines can be copied as many times as you want by using the count option.

Form

```
[line],[line],line,[count]C Return
```

Instructions

If you do not specify a number in count, EDLIN copies the lines one time. If the first or the second line are omitted, the default is the current line. The file is renumbered automatically after the copy.

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

Examples

Assume that the following file exists and is ready to edit:

```
1: This is a sample file
2: used to show copying lines.
3: See what happens when you use
4: the Copy command
5: (the C command)
6: to copy text in your file.
```

You can copy this entire block of text by issuing the following command:

```
* 1,6,7C Return
*
```

When you display your file (using the List command), the result is:

```
*L Return

1: This is a sample file
2: used to show copying lines.
3: See what happens when you use
4: the Copy command
5: (the C command)
6: to copy text in your file.
7:*This is a sample file
8: used to show copying lines.
9: See what happens when you use
10: the Copy command
11: (the C command)
12: to copy text in your file.
*
```

If you want to place the text within other text, the third line option should specify the line **before** which you want the copied text to appear. For example, assume that you want to copy lines and insert them **within** the following file:

```
1: This is a sample file
2: used to show copying lines.
3: See what happens when you use
4: the Copy command
5: (the C command)
6: to copy text in your file.
7: You can also use COPY
8: to copy lines of text
9: to the middle of your file.
10: End of sample file.
```

The command 3,6,10C results in the following file (which you display using the List command):

```
1: This is a sample file
2: used to show copying lines.
3: See what happens when you use
4: the Copy command
5: (the C command)
6: to copy text in your file.
7: You can also use COPY
8: to copy lines of text
9: to the middle of your file.
10:*See what happens when you use
11: the Copy command
12: (the C command)
13: to copy text in your file.
14: End of sample file.
```

(D)elete

Purpose

Delete allows you to erase a specified range of lines in a file.

Form

```
[line],[line]D
```
Return

Instructions

If the first line is omitted, that option defaults to the current line (the line with the asterisk next to the line number). If the second line is omitted, then just the first line is deleted. When lines are deleted, the line immediately after the deleted section becomes the current line and has the same line number as the first deleted line had before the deletion occurred.

Examples

Deleting Multiple Lines. Assume that the following file exists and is ready to edit:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: This line will be
6: deleted
        .
        .
        .
25: (the D and I commands)
26: to edit the text
27:*in your file.
```

To delete multiple lines (lines 5 through 24), type:

```
*5,24D Return
```

result is:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
6: to edit the text
7:*in your file.
```

Deleting a Single Line. To delete a single line, type:

```
*6D Return
```

The result is:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
6:*in your file.
```

Deleting a Range of Lines. Assume you have the following file:

```
1: This is a sample file
2: used to show dynamic line numbers.
3:*See what happens when you use
4: Delete and Insert
5: (the D and I commands)
6: to edit text
7: which you
8: have put
9: in your file.
```

To delete a range of lines, beginning with the current line, type:

```
*,6D Return
```

The result is:

```
1: This is a sample file
2: used to show dynamic line numbers.
3:*which you
4: have put
5: in your file.
```

Notice that the lines are automatically renumbered.

Edit

Purpose

Edit allows you to change a line of text.

Form

[line] Return

Instructions

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 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 that the following file exists and is ready to edit:

```
1: This is a sample file.
2: used to show
3: the editing of line
4:*four.
```

To edit line 4, type:

```
*4 (Return)
```

The contents of the line are displayed with a cursor below the line following the asterisk:

```
4:* four.
4:*
```

Now, using the Do and Insert Here special editing keys, type:

```
4:  (Insert Here) number (Do) four (Return)
5:*
```

(E)nd

Purpose

End lets you stop the editing session.

Form

E Return

Instructions

This command:

- Saves the edited file on diskette
- Renames the original input file by giving it a file type 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.

If no drive is specified as the active drive when EDLIN is started, the file is saved on the diskette in the default drive. (It is still possible to copy the file to a different drive using the MS-DOS COPY command.)

You must be sure that the diskette 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 lost, although part of the file might be written out to the diskette.

Example

```
*E Return
A>
```

After you type the E command and press the Return key, the operating system default drive prompt (for example, A>) is displayed.

(I)nsert

Purpose

Insert allows you to add text immediately before the specified line.

Form

`[line]I` Return

Instructions

If you are creating a new file, the I command must be given before text can be inserted. 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.

If line is not specified, the default is the current line number and the 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.

> **NOTE**
> Use the Interrupt key to insert an escape character when required.

Examples

Assume that the following file exists and is ready to edit:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
6: to edit text
7:*in your file.
```

To insert text before a specific line that is **not** the current line, type:

```
*7I Return
```

The result is:

```
7:*
```

Now, type the new text for line 7:

```
7:* and renumber lines Return
```

Then to end the insertion, press Ctrl/C on the **next** line:

```
8:* Ctrl/C
```

To see your file type L and press the Return key.

```
*L Return

1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
6: to edit text
7. and renumber lines
8:*in your file.
```

To insert lines immediately before the current line, type:

```
*I (Return)
```

The result is:

```
8:*
```

Now, insert the following text and end by typing Ctrl/C on the next line:

```
8:  so they are consecutive (Return)
9:* (Ctrl/C)
```

To list the file, type L and press the Return key.

```
*L (Return)
```

The result is:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
6: to edit text
7: and renumber lines
8: so they are consecutive
9:*in your file.
```

To append new lines to the end of the file, type:

```
*10I Return
```

This produces the following:

```
10:*
```

Now, type the following new lines:

```
10: The insert command can place new lines
11: in the file; there's no problem
12: because the line numbers are dynamic;
13: they'll go all the way to 65529.
14:*
```

End the insertion by typing Ctrl/C on line 14. The new lines displays at the end of all previous lines in the file. Now type the List command (L) and press the Return key. The result is:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
6: to edit text
7: and renumber lines
8: so they are consecutive
9: in your file.
10: The insert command can place new lines
11: in the file; there's no problem
12: because the line numbers are dynamic;
13: they'll go all the way to 65529.
```

(L)ist

Purpose

List lets you display a range of lines, including the two lines specified.

Form

```
[line][,line]L (Return)
```

Instructions

Default values are provided if either or both of the options are omitted. If you omit the first option, as in:

```
*,lineL (Return)
```

the display starts 11 lines before the current line and ends with the specified line. The beginning comma is required to indicate the omitted first option.

> **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.

If you omit the second option, as in:

```
*lineL (Return)
```

23 lines are displayed, starting with the specified line.

If you omit both parameters, as in:

```
*L (Return)
```

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, more than 11 lines after the current line is displayed to make a total of 23 lines.

Examples

1. Assume that the following file exists and is ready to edit:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
        .
        .
        .
15:*The current line contains an asterisk.
        .
        .
        .
26: to edit text
27: in your file.
```

2. To list a range of lines without reference to the current line, type line,lineL and press the Return key:

```
*2,5L Return
```

   The result is:

```
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
```

3. To list a range of lines beginning with the current line, type:

```
*.,26L Return
```

The result is:

```
15:*The current line contains an asterisk.
          .
          .
          .
26: to edit text
```

4. To list a range of 23 lines centered around the current line, type only L:

```
* L (Return)
```

The result is:

```
4: Delete and Insert
5: (the D and I commands)
         .
         .
         .
13: The current line is listed in the middle of the range.
14: The current line remains unchanged by the L command.
15:*The current line contains an asterisk.
         .
         .
         .
26: to edit text.
```

(M)ove

Purpose

Move allows you to move a range of text to the line specified.

Form

```
[line],[line],lineM Return
```

Instructions

Use the Move command to move a block of text (ranging from the first line to the second line) to another location in the file. The lines are renumbered according to the direction of the move.

Example

```
* ,+25,100M Return
```

moves the text from the current line plus 25 lines to line 100. If the line numbers overlap, EDLIN displays an "Entry error" message.

To move lines 20–30 to line 100, type:

```
* 20,30,100M Return
```

(P)age

Purpose

Page lets you move through a file 23 lines at a time.

Form

```
[line][,line]P
```

Instructions

If the first line is omitted, that number defaults to the current line plus one. If the second line is omitted, 23 lines are listed. The line at the bottom of the screen becomes the new current line and is marked with an asterisk.

(Q)uit

Purpose

Quit lets you end the editing session and returns to the MS-DOS operating system.

Quit does not save any changes made to the file.

Form

Q (Return)

Instructions

EDLIN asks you to be sure you do not want to save your changes.

Type Y if you want to quit the editing session. No editing changes are saved and no .BAK file is created. Refer to the End command in this chapter for information about the .BAK file.

Type N or any other character except Y if you want to continue the editing session.

> **NOTE**
> When started, EDLIN erases any previous copy of the file with a file type 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.

Example

```
*Q (Return)
Abort edit (Y/N)?Y
A>
```

(R)eplace

Purpose

Replace lets you substitute all occurrences of a string of text in the specified range with a different string of text or blanks.

Form

```
[line][,line][?]Rstring1 (Ctrl/Z) string2 (Return)
```

> **NOTE**
> Ctrl/Z displays as ^Z on your screen.

Instructions

As each occurrence of string1 is found, it is replaced by string2. Each line in which a replacement occurs is displayed. If a line contains two or more replacements of string1 with string2, then the line is displayed once for each occurrence. When all occurrences of string1 in the specified range are replaced by string2, the R command terminates and the asterisk prompt reappears.

If a second string is to be given as a replacement, then string1 must be separated from string2 with a Ctrl/Z. String2 **must** also end with a Ctrl/Z and a carriage return combination or simply by pressing the Return key.

If string1 is omitted, then Replace takes the old string1 as its value. If there is no old string1, for example, the first time this is performed, then the replacement process terminates immediately.

If string2 is omitted, end the command line by pressing the Return key.

If the first line is omitted in the range (as in ,line) then the first line defaults to the line **after** the current line.

If the second line is omitted (as in line or line,), the second line defaults to #. Therefore, this is the same as line,#. Remember that # indicates the line after the last line of the file.

If string1 is ended with a Ctrl/Z and there is no string2, string2 is taken as an empty string and becomes the new replace string.

Examples

```
*Rstring2 (Ctrl/Z) (Return)
```

deletes occurrences of old string1.

If the question mark (?) option is given, the Replace command stops at each line with a string that matches string1, displays the line with string2 in place, and then displays the prompt "O.K.?".

If you press Y or the Return key, then string2 replaces string1, and the next occurrence of string1 is found. Again, the "O.K.?" prompt displays. This process continues until the end of the range or until the end of the file.

After the last occurrence of string1 is found, EDLIN displays the asterisk prompt.

If you press any key besides Y or Return after the "O.K.?" prompt, the string1 is left as it was in the line, and Replace goes to the next occurrence of string1.

If string1 occurs more than once in a line, each occurrence of string1 is replaced individually, and the "O.K.?" prompt is displayed after each replacement. In this way, only the desired string1 is replaced, and you can prevent unwanted substitutions.

Assume that the following file exists and is ready for editing:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
6: to edit text
7: in your file.
8: The insert command can place new lines
9: in the file; there's no problem
10: because the line numbers are dynamic;
11: they'll go all the way to 65529.
```

To replace all occurrences of string1 with string2 in a specified range, type:

```
*2,12Rand Ctrl/Z or Return
```

The result is:

```
4: Delete or Insert
5: (the D or I commors)
8: The insert commor can place new lines
```

> **NOTE**
> In the above replacement, some unwanted substitutions have occurred. To avoid these and to confirm each replacement, the same original file can be used with a slightly different command.

In the next example, to replace only certain occurrences of the first string with the second string, type:

```
*2?Rand Ctrl/Z or Return
```

The result is:

```
5: (The D or I commands)
O.K.? Y Return
5: (The D or I commors)
8: The insert command can place new lines
O.K.? N Return
8: The insert commor can place new lines
*
```

Now, type the List command (L) to see the result of all these changes:

```
          .
          .
          .
4: Delete or Insert
5: (The D or I commands)
          .
          .
          .
8: The insert command can place new lines
          .
          .
          .
```

(S)earch

Purpose

Search allows you to search the specified range of lines for a specified string of text.

Form

```
[line][,line][?]Sstring (Return)
```

Instructions

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.

If the question mark option is not specified, the Search command ends when a match is found. If the question mark option (?) is included in the command, EDLIN displays the first line with a matching string; it then prompt you with the message "O.K.?".

If you press either the Y or the Return key, the line becomes the current line and the search ends.

If you press any other key, the search continues until another match is found, or until all lines have been searched (and the "Not found" message is displayed).

If the first line is omitted (as in ,line S string), the first line defaults to the line **after** the current line.

If the second line is omitted (as in line S string or line, S string), the second line defaults to # (line after last line of file), which is the same as line,# S string.

If string is omitted, Search takes the old string if there is one. (Note that "old" here 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.

Examples

Assume that the following file exists and is ready for editing:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
6: to edit text
7: in your file.
8: The insert command can place new lines
9: in the file; there's no problem
10: because the line numbers are dynamic;
11:*they'll go all the way to 65529.
```

To search for the first occurrence of the string "and", type:

```
2,12 Sand (Return)
```

The following line is displayed:

```
4: Delete and Insert
```

To get the "and" in line 5, modify the search command by typing:

```
(Remove) (Do) ,12 Sand (Return)
```

The search then continues from the line after the current line (line 4), since no first line was given. The result is:

```
5: (the D and I commands)
```

To search through several occurrences of a string until the correct string is found, type:

```
1, ? Sand
```

The result is:

```
4: Delete and Insert
O.K.?
```

If you press any key (except Y or the Return key), the search continues, therefore type:

```
O.K.? N
```

Continue:

```
5: (the D and I commands)
O.K.?
```

Now press Y to terminate the search:

```
O.K.? Y
*
```

To search for string XYZ without the verification (O.K.?), type:

```
*Sxyz (Return)
```

EDLIN reports a match and continues to search for the same string when you issue the S command:

*S Return

EDLIN reports another match if there is one. If there are no more matches, EDLIN reports the string is "Not found".

NOTE
String defaults to any string specified by a previous Replace or Search command.

(T)ransfer

Purpose

Transfer lets you insert (merge) the contents of filename.typ into the file currently being edited at line. If line is omitted, then the current line is used.

Form

```
[line]T filename.typ Return
```

Instructions

This command is useful if you want to put the contents of a file into another file or into the text you are typing. The transferred text is inserted at the line number specified by line and the lines are renumbered.

(W)rite

Purpose

Write allows you to write a specified number of lines to the diskette from the lines that are being edited in memory. Lines are written to diskette beginning with line number 1.

Form

[n]W (Return)

Instructions

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 3/4 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 do not specify the number of lines, lines are written until memory is 3/4 full. No action is taken if available memory is already more than 3/4 full. All lines are renumbered, so that the first remaining line becomes line number 1.

5
Messages

This chapter lists the messages that can be displayed while using the MS-DOS Version 2.11 operating system. They are listed in alphabetical order for easy reference. The message is printed first, followed by what it means, and what to do about it.

Remember, if you are asked to reset the Rainbow computer:

- Press the Set-Up key.
- Then hold down the control key (Ctrl on the keyboard) while you press the Set-Up key.

Other Messages

If you see a message that starts with

```
See Owner's Manual - MESSAGE nn -
```

Consult the *Rainbow Owner's Manual.*

If any messages are displayed while you are using an application program, refer to the application program documentation for instructions.

Allocation error, size adjusted

The CHKDSK program found an invalid cluster number in the FAT (File Allocation Table). The CHKDSK program truncated the file at the end of the last valid cluster.

Bad call format reading/writing device

The MS-DOS Version 2.11 operating system found an incorrect length request header for the specified device. Press the A key to abort the command. Review the source code of the program that produced the message.

Bad command error reading/writing device

The MS-DOS Version 2.11 operating system found an invalid command in the command code field of the request header for the specified device. Press the A key to abort the command. Review the source code of the program that produced the message.

Bad command or file name

The MS-DOS Version 2.11 operating system did not recognize the command or file name. Check for typing errors. Reenter the command correctly.

Bad or missing Command Interpreter

The MS-DOS Version 2.11 operating system could not find the COMMAND.COM file on the disk. The COMMAND.COM file is invalid or is missing from the root directory, or the COMSPEC= parameter in the CONFIG.SYS file did not point to a COMMAND.COM file. Reset the Rainbow computer and copy the COMMAND.COM file from your MS-DOS back-up system diskette onto the disk you use to start the MS-DOS Version 2.11 operating system.

Bad or missing filename

You specified an invalid device in the CONFIG.SYS file. Check the accuracy of the DEVICE statement in the CONFIG.SYS file.

Bad unit error reading/writing device

The MS-DOS Version 2.11 operating system found an invalid subunit code in the request header for the specified device. Press the A key to abort the command. Review the source code of the program that produced the message.

Batch file missing

The MS-DOS Version 2.11 operating system could not find the batch file (.BAT) you tried to process.

Cannot CHDIR to filename – tree past this point not processed

The CHKDSK program was unable to proceed to the specified directory while traveling the tree structure of the directory. All sub-directories underneath this directory will not be verified. Copy the files on your disk to another disk. If you have trouble copying the files, run the RECOVER program.

Cannot CHDIR to root
Processing cannot continue

The CHKDSK program was unable to return to the root directory while traveling the tree structure of the directory. The CHKDSK program cannot continue checking the remaining sub-directories to the root. Copy the files on your disk to another disk. If you have trouble copying the files, run the RECOVER program.

Cannot do binary reads from a device

You used the /B option while copying from a device other than a disk. Try again without the /B option.

Cannot edit .BAK file—rename file

You specified a file with a .BAK file type for the EDLIN program to edit. The EDLIN program cannot edit a file with a .BAK file type. Rename or copy the file with a different file type.

Cannot format disk on default drive.

You either specified the default drive or did not specify a drive when using the FORMAT program. Specify a drive other than the default drive.

Cannot format this disk.

The MS-DOS Version 2.11 operating system could not format this disk because of physical errors on the disk. Run the FORMAT program again with the /I switch or try another disk.

Cannot load COMMAND, system halted

The MS-DOS Version 2.11 operating system was unable to reload the non-resident portion of the COMMAND.COM file into memory. Reset your Rainbow computer and reload the MS-DOS Version 2.11 operating system.

Cannot open filename

The PRINT program failed to find the specified file to print, or the file does not exist. Check the command for a valid file name.

Cannot recover . entry, processing continued.

The CHKDSK program found the . (current directory) entry defective. Copy the files on your disk to another disk. If you have trouble copying the files, run the RECOVER program.

Cannot recover .. entry,

The CHKDSK program found the .. (parent directory) entry defective. Copy the files on your disk to another disk. If you have trouble copying the files, run the RECOVER program.

Cannot start COMMAND, exiting

The MS-DOS Version 2.11 operating system could not load another copy of the COMMAND.COM file into memory. Either you do not have enough memory, or the FILES= parameter in the CONFIG.SYS file is set too low.

Cannot use Mdrive for formatting.

You specified MDRIVE for formatting. MDRIVE is already formatted.

Can't find MDRIVE.SYS

The MS-DOS Version 2.11 operating system could not find the MDRIVE.SYS file. Your MS-DOS start-up disk must contain both the MDRIVE.COM and MDRIVE.SYS files in the root directory. Copy the MDRIVE.SYS file from your MS-DOS back-up diskette.

Can't read setup.

The SETPORT program could not read the extended communications data. You are probably using the MS-DOS Version 2.01 operating system. Check to make sure you are using the MS-DOS Version 2.11 operating system.

CHDIR .. failed, trying alternate method

The CHKDSK program could not return to a parent directory while traveling the tree structure. The CHKDSK program tries to return to that directory by starting over at the root and traveling down. Copy the files on your disk to another disk. If you have trouble copying the files, run the RECOVER program.

Content of destination lost before copy

A source file in your COPY command was also the destination file. The COPY program overwrote the source file prior to completion of the copy. You can no longer use that file.

Copy not completed

The DISKCOPY program could not copy the entire disk because of physical errors on the disk. Use another diskette.

CP/M drive must be 'A' through 'D' No Wini Support

The RDCPM program tried to read a CP/M-86/80 hard disk partition. The RDCPM program cannot read CP/M-86/80 hard disk partitions. If you want to read a CP/M-86/80 file from a hard disk:

1. Start the CP/M-86/80 operating system.
2. Copy the file to a diskette.
3. Restart the MS-DOS Version 2.11 operating system.
4. Use the RDCPM program to read the file from the diskette.

CP/M source cannot be the current default drive

The current default drive contains an MS-DOS disk. Reenter the command specifying the drive that contains the CP/M-86/80 file.

Data error reading/writing drive drv
Abort, Retry, Ignore?

The MS-DOS Version 2.11 operating system could not read from or write to the disk. The disk is probably unusable. Press the R key to retry the command.

If the problem persists and you are performing a back-up, restore, or verify operation, press the I key to ignore the problem and continue the operation. A file is most probably corrupted.

If you are not performing a back-up, restore, or verify operation and the problem persists, press the A key to abort the command. Copy all files to a new diskette or back up and reformat your hard disk.

Directory is totally empty,
no . or ..

The specified directory did not contain references to current and parent directories. Delete the specified directory and recreate it.

Disk error reading/writing drive drv
Abort, Retry, Ignore?

The MS-DOS Version 2.11 operating system could not read from or write to the disk. The disk is probably unusable. Press the R key to retry the command.

If the problem persists, press the A key to abort the command. Copy all files to a new diskette or back up and reformat your hard disk.

Disk error reading FAT

The CHKDSK program found a defective sector while trying to read the FAT (File Allocation Table). The MS-DOS Version 2.11 operating system automatically uses the other FAT (File Allocation Table). Copy all files to a new diskette or back up and reformat your hard disk.

Disk error writing FAT

The CHKDSK program found a defective sector while trying to write the FAT (File Allocation Table). The MS-DOS Version 2.11 operating system automatically uses the other FAT (File Allocation Table). Copy all files to a new diskette or back up and reformat your hard disk.

Disk full— write not completed

You entered the EDLIN END command, but the disk did not contain enough free space for the file. The EDLIN program stops the END command and returns you to the operating system. Delete some files to free some space on your disk. Restart the editing session.

Disk is not properly initialized. Possible blank disk? Try "FORMAT drv:/I".

You used an improperly initialized diskette on your Rainbow computer. Use the FORMAT command with the /I switch to prepare your diskette.

Disk unsuitable for system disk

The FORMAT program found a bad sector on the disk where some system data resides. You can use this disk for general data storage, but you cannot use it as a system disk.

Disks must be the same size

You tried to copy a diskette to another diskette with a different format using the DISKCOPY program. Use the COPY program to copy files onto the diskette.

Divide overflow

The Intel 8088 processor set the divide overflow flag, which is usually caused by division by zero. Review the source code or contact the vendor of the program that produced the message.

Drive Error.

Your disk drive may be malfunctioning. Reset your Rainbow computer and run the Rainbow self-test diagnostics by pressing S from the Rainbow Main System Menu.

Duplicate file name or File not found

You tried to rename a file to a file name that already exists, or the name you specified could not be found. Use a different file name for the destination file or check to make sure the source file exists.

Entry error

You entered an EDLIN command incorrectly. Reenter the command correctly and press the Return key.

Entry has a bad attribute (or size or link)

If one period displayed before the message, the CHKDSK program found an error in an entry in the current directory. If two periods displayed before the message, the CHKDSK program found an error in an entry in the subdirectory. The CHKDSK program with the /F switch attempts to correct this error.

Error creating output file.

The RDCPM program tried to copy a file to a disk that is full or has too many directory entries. Delete some files from the disk.

Error in command line

You entered the command line incorrectly. Reenter the command line correctly. Refer to the documentation on the MS-DOS command you are using.

Error in .EXE file

The MS-DOS Version 2.11 operating system tried to load an .EXE file containing an invalid internal format. Copy the .EXE file from your MS-DOS Version 2.11 operating system back-up diskette.

Error modifying MDRIVE.SYS

The MS-DOS Version 2.11 operating system found a faulty copy of MDRIVE.SYS. Copy the file from your MS-DOS back-up system diskette.

Error reading CP/M file

The RDCPM program found an error while reading the CP/M-86/80 file. Check the integrity of the file by loading the CP/M-86/80 operating system and typing the file. If your file is correct, copy the file to a new diskette and use the RDCPM program again.

Error reading floppy disk file

The BACKUP program found an error while verifying your diskette produced by the BACKUP program. Run the BACKUP program again using a new diskette.

Error reading hard disk file

The VERIFY program found an error in the files on your hard disk while verifying your back-up diskettes. Restore the file causing the error on your hard disk from your back-up diskette.

Error reading MDRIVE.SYS

The MS-DOS Version 2.11 operating system found a faulty copy of MDRIVE.SYS. Copy the file from your MS-DOS back-up system diskette.

Error reading the disk
Type any key to try again

The MS-DOS Version 2.11 operating system found a problem while loading. Start the MS-DOS Version 2.11 operating system from your back-up diskette. Copy all files to a new diskette or back up and reformat your hard disk.

Error transferring system area.

The FORMAT program could not transfer the loader to the new disk. Use the FORMAT program with the /I switch.

Error writing Allocation Table.

The FORMAT program could not write the Disk Allocation Table. Use the FORMAT command with the /I switch.

Error writing MSDOS file

The RDCPM program found a problem while writing the MS-DOS file. Use a different destination disk.

Error writing to device

You sent too much data to a device. The MS-DOS Version 2.11 operating system could not write the data to the specified device. Check the amount of data in the file that requested the input/output function and try again.

Errors found, F parameter not specified. Corrections will not be written to disk.

The CHKDSK program found problems on the disk. You must use the /F switch if you want the CHKDSK program to correct the problems.

Errors on list device indicate that it may be off-line. Please check it.

Your printer is offline. Turn it online.

EXEC failure

The MS-DOS Version 2.11 operating system either found a problem when reading a command, or you set the FILES statement in the CONFIG.SYS file too low. Increase the value of the FILES statement and restart the MS-DOS Version 2.11 operating system.

Extended Communication Option (PC1XX-BB) is not installed.

The extended communications option board is missing or not working correctly.

File allocation table bad for drive drv

The disk may be faulty. Use the CHKDSK program with the /F switch to check the disk. Then retry the operation. If the message persists, format the disk using the FORMAT program.

File cannot be copied onto itself

You used the same file name for the source and destination file names. Specify a different destination file name.

File creation error

You tried to add a new file name or replace a file that already exists in the directory. If the file already exists, it is a read-only file and cannot be replaced. Use the CHKDSK program on the disk to determine the cause of the problem.

File name must be specified

You did not specify a file name when you started the EDLIN program. Specify a file name.

File not found

The MS-DOS Version 2.11 operating system could not find the file that you specified. Check to see that the path name is accurate and the file exists in the directory you specified.

File on floppy disk is missing

The BACKUP program verify option could not find the files on the diskette. Check to make sure you are using the correct back-up diskettes.

File on hard disk is missing

The BACKUP program verify option could not find the files on the hard disk. You are trying to verify files you deleted. Set the verify file specifier option and the verify exclusion file specifier option in the advanced verify menu so you do not try to verify files you have deleted.

Filename.typ contains x non-contiguous blocks.

The CHKDSK program found non-contiguous blocks in the file you specified. This means that the MS-DOS Version 2.11 operating system stored the file in fragments on the disk rather than sequentially. Copy the fragmented file to another disk to improve reading performance.

Filename.typ has invalid cluster, file truncated.

The CHKDSK program found a file that contains an invalid pointer. If you specified the /F switch, the CHKDSK program truncates the file at the last valid data block. The file may be missing data.

Filename.typ is cross linked on cluster

The CHKDSK program found an area of the disk that belongs to two files. Make a copy of the file that has the problem. Then, delete both files that are cross linked.

FIND: File not found filename

The FIND program could not find the file you specified. Check to see that the path name is accurate and the file exists in the directory you specified.

FIND: Invalid number of parameters

You did not specify a string in the FIND command. Reenter the command with a string.

FIND: Invalid parameter param

You tried to use an invalid parameter in the command line. The valid parameters are /V, /C, and /N. Reenter the command with a valid parameter.

FIND: Read error in filename

The FIND program could not read the file. Reenter the command. If the problem persists, use the CHKDSK program.

FIND: Syntax error

You typed an illegal string in the FIND command. You must enclose the string in quotes ("string"). Reenter the command enclosing the string in quotes.

First cluster number is invalid, entry truncated.

The CHKDSK program found an invalid pointer to the data area in the file directory entry. Use the CHKDSK program with the /F switch to truncate the file to a zero-length file, which you should delete.

FOR cannot be nested

You tried to nest FOR statements in a batch file. You cannot nest FOR statements in a batch file. Remove the FOR statements from the batch file.

Format failure

The MS-DOS Version 2.11 operating system could not format the disk. This message is displayed with an explanation as to why the MS-DOS Version 2.11 operating system could not format the disk.

Incompatible system size

The SYS program could not copy the system files (IO.SYS and MSDOS.SYS). These files occupy more space on the source diskette than is available on the destination diskette. Format a blank diskette with the /S switch and copy all files except the COMMAND.COM file from the source diskette.

Incorrect DOS version

You tried to use a program that will not run on the MS-DOS Version 2.11 operating system. Use the MS-DOS Version 2.11 operating system version of the same program.

Insert COMMAND.COM disk in drive drv and strike any key when ready

The MS-DOS Version 2.11 operating system tried to reload the COMMAND.COM file but could not find the file in the specified drive. Insert your MS-DOS Version 2.11 operating system diskette into the specified drive and press any key. If the specified drive is not A:, B:, C:, or D:, reset the Rainbow computer and restart the MS-DOS Version 2.11 operating system.

Insufficient disk space

You tried to perform an operation on a disk which is full. Try again using a disk that contains sufficient room to perform the operation.

Insufficient memory

You tried to perform an operation without enough memory. If you have a BUFFERS= statement in your CONFIG.SYS file, specify a smaller value in the BUFFERS= statement. Restart the MS-DOS Version 2.11 operating system and try the command again. If this message displays again, you need to purchase additional memory for your Rainbow computer.

Insufficient memory for requested size

You specified too many blocks of memory for your MDRIVE. Specify a lower value for the number of blocks to install for your MDRIVE.

Insufficient memory for system transfer

You did not have enough memory to transfer the MS-DOS Version 2.11 system files (IO.SYS and MSDOS.SYS) using the FORMAT command with the /S switch. Use the SYS program to copy the system files.

Insufficient room in root directory. Erase files in root and repeat CHKDSK.

The CHKDSK program tried to recover lost files into a full root directory. Delete some files in your root directory to make room for the lost files.

Intermediate file error during pipe

The pipe operation uses temporary files on the disk, which are automatically deleted after completion of the piping process. An error occurred in one of these files. Delete some files from your root directory and reenter the piping operation.

Invalid character

You typed an invalid character in the file name of the BACKUP program's backup, restore, or verify file specifier option or the backup, restore, or verify exclusion file specifier option. Reenter the file name using a valid character.

Invalid characters in volume label

You tried to name a volume label with an invalid alphanumeric character. Reenter the volume label with valid alphanumeric characters.

Invalid COMMAND.COM in drive drv

The application program you used has taken most of your memory. The MS-DOS Version 2.11 operating system must reload the COMMAND.COM file from disk. However, the COMMAND.COM file found is a different version from the COMMAND.COM file you started the MS-DOS Version 2.11 operating system with. Insert the diskette you used to start the MS-DOS Version 2.11 operating system into the specified drive.

Invalid country code

You specified an invalid country number in your CONFIG.SYS file. The country number you entered is not supported by the MS-DOS Version 2.11 operating system. Use a valid country code.

Invalid current directory.
Processing cannot continue

The CHKDSK program could not read the current directory. Your disk is faulty. Copy all files and reformat your disk.

Invalid date
Enter new date:

You used an invalid DATE value or separator. Enter a valid date and press the Return key. If you do not want to enter a date, press the Return key.

Invalid device

You used an invalid device. Valid devices are CON, NUL, AUX, or PRN. Reenter the device.

Invalid directory

You specified an invalid or nonexistent directory. Reenter the directory name correctly.

Invalid drive in search path

You specified an invalid drive to the PATH command. Reenter the command with a valid drive.

Invalid drive or file name

You specified an invalid drive or invalid file name when starting the EDLIN program. Restart the EDLIN program specifying a valid drive or file name.

Invalid drive specification

You specified an invalid drive specification. Reenter the command with a correct drive specification.

Invalid number of parameters

You used an incorrect number of options in the command line. See the documentation on the specified command you are using to determine how many options you can use. Then, reenter the command using the correct number of options.

Invalid parameter

You used an incorrect switch. See the documentation on the specified command you are using to determine what switches you can use. Then, reenter the command using the correct switches.

Invalid path, not directory, or directory not empty

You could not remove the directory requested because you specified an invalid path, an invalid directory, or a directory that is not empty. Specify the correct path name and directory, or delete all the files in the directory you are trying to remove. Reenter the RMDIR command.

Invalid path or file name

You used an invalid path or file name with the COPY command. Reenter the COPY command line with a valid path or file name.

Invalid path specified

You used an invalid path in the RDCPM program. Run the RDCPM program again using a valid path.

Invalid sub-directory entry

You used an invalid or nonexistent sub-directory. Check to see that you entered the sub-directory name correctly. Run the CHKDSK program using a valid sub-directory.

Invalid time
Enter new time:

You used an invalid TIME value or separator. Reenter a valid time and press the Return key. If you do not want to enter a time, press the Return key.

Label not found

Your batch file contained a GOTO command to a nonexistent label. You must begin a label with a colon. Edit your batch file or use an existent label, and run the batch file again.

Line too long

The EDLIN program stopped the REPLACE command when a replacement string caused the line to expand beyond the 253 character limit. Divide the long line into two lines, then use the REPLACE command twice.

List output is not assigned to a device

You specified a nonexistent device the first time you used the PRINT program. Run the PRINT program and specify a valid device (pressing the Return key specifies the PRN device).

X lost clusters found in y chains.
Convert lost chains to files (Y/N)?

The CHKDSK program found files for which the directory entry has been lost. This is usually caused by a program exiting without closing the files.

If you did not specify the /F switch, the CHKDSK program displays the number of bytes that are lost but does not recover the lost space.

If you did specify the /F switch and answer N(o) to the question, the CHKDSK program makes this otherwise unusable space available for use.

If you did specify the /F switch and answer Y(es) to the question, the CHKDSK program creates a file in the root directory for each lost chain. Files created by the CHKDSK program are named FILEnnnn.CHK. Look at the files to see if they contain valuable information. Delete the files that contain information you do not need.

***** Mdrive disabled. *****
Not enough system memory for requested size.

You configured MDRIVE on a Rainbow computer with more memory than the Rainbow computer you are currently using. Reconfigure MDRIVE for the Rainbow computer you are using.

Memory allocation error
Cannot load COMMAND, system halted

The MS-DOS Version 2.11 operating system had a problem managing memory. Reset the Rainbow computer and restart the MS-DOS Version 2.11 operating system. If this message persists, copy your MS-DOS Version 2.11 operating system from your back-up MS-DOS Version 2.11 operating system diskette.

Minimum 192K bytes of RAM needed to activate Mdrive

You tried to configure MDRIVE with less than the 192K bytes of required memory. To use MDRIVE, you need to purchase additional memory for your Rainbow computer.

Must specify destination line number

You omitted a destination line number when you tried to copy or move lines with the EDLIN program. Reenter the EDLIN program and specify a destination line number with the COPY or MOVE command.

No files found

The RDCPM program could not find any of the CP/M-86/80 files you specified. Run the RDCPM program and use the DIR option to make sure the file exists.

No files match d:XXXXXXXX.XXX

You specified an invalid file specification to be added to the PRINT queue. Run the PRINT program and specify a valid file specification.

No free file handles
Cannot start COMMAND.COM, exiting

The CONFIG.SYS file contains a FILES= parameter that is too small. Restart the MS-DOS Version 2.11 operating system from your back-up MS-DOS Version 2.11 operation system diskette. Edit the CONFIG.SYS file on your working diskette to increase the value of the FILES= parameter.

No room for system on destination disk

You tried to copy the system files to a full disk using the SYS program. Delete some files to make room for the system files or use another disk. You may need to reformat the disk to copy the system files.

No room in directory for file

You tried to save a file in the root directory, but the directory is full while using the EDLIN program. Unlike the root directory, sub-directories are not limited in size. Delete some files from your root directory and reenter the command.

Non-DOS disk error reading/writing drive drv
Abort, Retry, Ignore?

The MS-DOS Version 2.11 operating system did not recognize the disk format. Press the A key to abort the command. You cannot use this disk with the MS-DOS Version 2.11 operating system. Reformat the disk.

Not an MS-DOS system disk
Type any key to try again

You tried to start the MS-DOS Version 2.11 operating system from a non-system MS-DOS disk. Restart the MS-DOS Version 2.11 operating system using a valid system disk.

Not enough memory to transfer files

The RDCPM program did not have enough memory to transfer all the files you specified. Transfer the files one at a time.

Not enough room to merge the entire file

You used the EDLIN TRANSFER command to transfer a file to memory, but there was not enough room in memory to hold the file. Free some memory by writing some files to disk and then transfer the file.

Not ready error reading/writing drive drv Abort, Retry, Ignore?

The MS-DOS Version 2.11 operating system could not access the drive you specified.

1. Check the door of the drive specified in the message. If it is open, close the door and press the R key to retry the command.
2. Check the diskette in the drive specified in the message. If it is upside-down, insert it in the drive correctly and press the R key to retry the command.

Out of environment space

You used a SET command but there is not enough room in the program environment to accept more data. Reduce the size of the data in the program environment by entering smaller SET parameters.

Please set the system date and time first.

You used the BACKUP program without setting the date and time. You must set the date and time before you can back up, restore, or verify files.

PRINT queue is full

You tried to place more than 10 files in the PRINT queue. Wait until some files are printed before adding more files to the queue.

Printer isn't on.

The SETPORT program tried to use the printer but either the printer is turned off, the printer cable is not connected, or the printer is not supported. Turn the printer on or connect the printer cable.

Probable non-DOS disk.
Continue (Y/N)?

You created a disk that the MS-DOS Version 2.11 operating system did not recognize. Either you created the disk on another system with a format not supported on the MS-DOS Version 2.11 operating system, or the disk is not an MS-DOS disk.

If the CHKDSK program displays this message for a diskette, stop processing. If the CHKDSK program displays this message for a hard disk, the information describing the characteristics of the disk to the MS-DOS Version 2.11 operating system has been destroyed. In this case, you can continue the CHKDSK program processing.

Program too big to fit in memory

You used an application program that needs more memory than you have in your Rainbow computer. If you configured MDRIVE, either configure a smaller MDRIVE or remove MDRIVE. If you did not have MDRIVE configured, you must acquire more memory to run your application program.

It is also possible that you just used an application program that is still in memory. Restart the MS-DOS Version 2.11 operating system and try to use the application program again. If this message is displayed again, you must acquire more memory.

Read error occured

The RDCPM program found an error while reading a CP/M-86/80 file. Check the integrity of the file by loading the CP/M-86/80 operating system and typing the file. If your file is correct, copy the file to a new diskette and use the RDCPM program again.

Read fault error reading/writing drive drv
Abort, Retry, Ignore?

The MS-DOS Version 2.11 operating system could not read from or write to the disk drive. Press the R key to retry the command.

If the problem persists, press the A key to abort the command. Your disk drive may be malfunctioning. Reset your Rainbow computer and run the Rainbow self-test diagnostics by pressing S from the Rainbow Main System Menu.

Save volume is bad

The BACKUP program found an error on the back-up diskettes while verifying the files. Your back-up diskettes are unusable. Reformat the faulty back-up diskette and use the BACKUP program again.

Sector not found error reading/writing drive drv
Abort, Retry, Ignore?

The MS-DOS Version 2.11 operating system could not read from or write to the disk. The disk may be unusable. Press the R key to retry the command.

If the problem persists, press the A key to abort the command. Then, copy all files to a new diskette or back up and reformat your hard disk.

Sector size too large in file filename

The CONFIG.SYS file loaded the specified device driver that used a sector size larger than that of any other device driver on the system. You cannot run this device driver. Edit the CONFIG.SYS file to delete the DEVICE= entry.

Seek error reading/writing drive drv
Abort, Retry, Ignore?

The MS-DOS Version 2.11 operating system could not read from or write to the disk. The disk may be unusable. Press the R key to retry the command.

If the problem persists, press the A key to abort the command. Copy all files to a new diskette or back up and reformat your hard disk.

SETPORT uses no command line arguments

You used an argument on the SETPORT command line. You cannot use arguments on the SETPORT command line.

Sorry, a disk erase error occured

The BACKUP program found an unrecoverable error on the diskette being erased. Use the FORMAT program with the /I switch and then start the BACKUP program again.

Sorry, a drive specifier is allowed only for indirect files

You specified a drive specification in the BACKUP program's backup, restore, or verify file specifier option. You cannot specify a drive specification in the backup, restore, or verify file specifier option unless it is for an indirect file.

If you are specifying an indirect file, you must precede the file specification with an @ sign. Otherwise, enter the drive specification by the displayed menu items above the file specification by pressing the arrow keys.

Sorry, a file specifier can't contain a drive name.

The BACKUP program found one or more file names with a drive specification in the file specified in the backup, restore, or verify file specifier option. Edit the file and remove the drive specifications.

Sorry, an indirect file cannot be specified here

You specified an indirect file in the BACKUP program's backup, restore, or verify exclusion file specifier option. Remove the indirect file reference in the backup, restore, or verify exclusion file specifier option.

Sorry, an unidentified error has occured

The BACKUP program found an unidentified error. Run the BACKUP program again. If the problem persists, copy the BACKUP.EXE file from your back-up MS-DOS Version 2.11 operating system diskette and try again. If the problem still persists, call the DIGITAL Help Line for help.

Sorry, can't open the directory file

The BACKUP program found an error with the data on your back-up diskettes while restoring your files. Run the BACKUP program again. If the problem persists, copy the BACKUP.EXE file from your back-up MS-DOS Version 2.11 operating system diskette and try again. If this does not work, restore your hard disk from an older back-up volume.

Sorry, can't open the specified indirect (<) file.

The BACKUP program could not find the indirect file you specified. Reenter a valid indirect file name.

Sorry, legal switches are: /D and /A.

You used an invalid switch in the BACKUP program's backup, restore, or verify file specifier option. You can only use the /D and /A switches in the backup, restore, or verify file specifier options. Reenter a valid switch.

Sorry, no files have been matched.

You specified file names in the BACKUP program's backup, restore, or verify file specifier option and the backup, restore, or verify exclusion file specifier option that did not match any of the files on either the hard disk or back-up diskettes. Reenter a backup, restore, or verify file specifier option and a backup, restore, or verify exclusion file specifier option that include valid file names.

Sorry, not enough memory for the file buffer.

You tried to copy too many files to back-up diskettes using the BACKUP program. Instead of copying all your files at once, use the BACKUP program several times.

Sorry, not enough memory for the file list.

You tried to copy too many files to back-up diskettes using the BACKUP program. Instead of copying all your files at once, use the BACKUP program several times.

Sorry, not enough memory for the indirect file.

You tried to copy too many files to back-up diskettes using the BACKUP program. Instead of copying all your files at once, use the BACKUP program several times.

Sorry, not enough room in the hard disk root for another sub-directory

The BACKUP program tried to create a sub-directory but there are too many directory entries on the root directory of the hard disk. Delete some files from your root directory on the hard disk and copy them back into sub-directories on the hard disk.

Sorry, not enough room on the hard disk for another sub-directory

The BACKUP program tried to create a sub-directory but there is not enough room on your hard disk. Delete some files from your hard disk and run the BACKUP program again.

Sorry, not enough room on the hard disk for this file

The BACKUP program tried to restore a file to your hard disk. There are either too many directory entries on the root directory of the hard disk, or the hard disk is full. Delete some files from your root directory on the hard disk, and run the BACKUP program again.

Sorry, pathnames are limited to 64 characters.

The BACKUP program tried to backup a file with a file specification larger than 64 characters. Use the CHDIR program to change your current path, and use the BACKUP program several times.

Sorry, the destination drive must be specified

You did not specify a destination drive to the BACKUP program. Run the BACKUP program again and specify a valid destination drive.

Sorry, the disk is not a backup volume

You used a diskette that was not written by the BACKUP program. Insert the correct back-up diskette.

Sorry, the indirect file is is incorrectly formatted.

The BACKUP program found an invalid list of file names in the indirect file. Edit and enter a valid list of file names in your indirect file.

Sorry, the source drive must be specified

You did not identify either the drive on a RESTORE command, or the hard disk drive on a BACKUP command in the command line. Reenter the RESTORE or BACKUP command specifying the source drive.

Sorry, this entry cannot contain a file extension.

You specified a period in the BACKUP program volume name. Reenter another volume name without a period.

Sorry, this entry cannot contain a path specification.

You specified a backslash (\) in the BACKUP program volume name. Reenter another volume name without a backslash.

Sorry, this entry may contain a single file specifier only

You specified a comma in the BACKUP program volume name. Reenter another volume name without a comma.

Sorry, this entry may not contain any 'switches'

You specified a slash (/) in the BACKUP program volume name. Reenter another volume name without a slash.

Sorry, valid flags are: /ALL and /CHANGED

You specified an invalid switch on the BACKUP command line. You can only use the /ALL and /CHANGED switches. Reenter the command line with the correct switch.

Sorry, valid floppy drives are: A, B, C, and D

You specified a nonexistent drive on the BACKUP command line. Reenter the command line with the correct drive (A:, B:, C:, or D:).

Sorry, valid winchester drives are: E, F, G, and H

You specified a nonexistent hard disk drive on the BACKUP command line. Reenter the command line with the correct drive (E:, F:, G:, or H:).

Sorry, volume name is improper.

You specified an incorrect back-up diskette name while using the BACKUP program advanced menu option. The name does not match those on the actual back-up diskettes. Use the DIRECTORY command to obtain the name of the back-up diskettes and enter that name into the advanced menu option.

Sorry, volume sequence is out of order

The BACKUP program found an internal programming error. Save your diskettes. Call the DIGITAL Help Line for help.

Sorry, wildcards (* or ?) are not allowed in this entry.

You specified an asterisk (*) or question mark (?) in the BACKUP program volume name. Reenter another volume name without an asterisk or question mark.

Sorry, you have not selected a valid winchester drive

You specified a nonexistent hard disk drive on the BACKUP command line. Reenter the command line with a valid hard disk drive.

SORT: Incorrect DOS version

You tried to use a version of the SORT program that cannot be used with the MS-DOS Version 2.11 operating system. Use the SORT program on the MS-DOS Version 2.11 operating system diskette.

SORT: Insufficient disk space

You tried to create a file with the SORT program by redirecting the file to a disk that is full. Specify a different disk or delete some files.

SORT: Insufficient memory

You tried to use the SORT program on a Rainbow computer with insufficient memory. If you configured MDRIVE, either configure a smaller MDRIVE or remove MDRIVE. If you did not have MDRIVE configured, you must acquire more memory to sort this list.

Source and target disks are not the same format. Cannot do the copy.

The diskettes you used for the DISKCOPY program are not the same format. Reformat the target diskette so it is the same format as the source diskette.

Specified COMMAND search directory bad

The COMSPEC= statement in the SET environment is invalid. Either the place that you told the MS-DOS Version 2.11 operating system to look for the COMMAND.COM file does not exist, or the COMMAND.COM file is not in that place. Enter the SET COMSPEC= statement with a valid COMMAND.COM file location.

Syntax error

The MS-DOS Version 2.11 operating system did not recognize the command you typed. Check to make sure that you typed the command correctly.

The command is incorrectly formatted

You typed the BACKUP command line using a wrong format. Reenter the command using the correct format.

Too many resident drivers or programs to permit formatting.

Device drivers or resident programs (such as the PRINT program) are using too much memory to allow the FORMAT program to run. Edit the CONFIG.SYS file, remove one of the drivers to provide more system memory for the operation, and restart the MS-DOS Version 2.11 operating system.

Track 0 bad – disk unusable

The FORMAT program found a defective sector. The FORMAT program can compensate for defective sectors on the disk except for those near the beginning. Use another disk.

Unable to create directory

The MS-DOS Version 2.11 operating system could not create the directory you specified. Check for a name conflict (that is, you may already have a directory with the same name) or the disk may be full.

Unrecognized command in CONFIG.SYS

You used an invalid statement in your CONFIG.SYS file. Edit the CONFIG.SYS file and correct the statement.

Unrecoverable error in directory
Convert directory to file (Y/N)?

The CHKDSK program found an error in the directory. If you specified the /F switch and respond Y(es) to the question, the CHKDSK program converts the bad directory to a file. You can then fix the directory yourself or delete it.

If you respond N(o) to the question, you may not be able to write to or read from the bad directory.

Use LA50 Remote Setup.

You used the LA100 or LQP02 setup menu with your LA50 printer. Use the LA50 setup menu.

Use LA100 Remote Setup.

You used the LA50 or LQP02 setup menu with your LA100 printer. Use the LA100 setup menu.

Use LQP02 Remote Setup.

You used the LA50 or LA100 setup menu with your LQP02 printer. Use the LQP02 setup menu.

WARNING: Cannot read bad block information from hard disk. Errors in files may occur on this drive.

The FORMAT program could not read the information telling it where bad blocks (if any) are located. Back up the hard disk and use the Winchester Utility Program to test the hard disk and reinitialize if necessary.

Warning - directory full

The root directory was too full for RECOVER processing. Delete some files in the root directory to free space.

WARNING: Files may not be intact on drive drv

If you have a hard disk, this message can display when you start the operating system. It indicates that there may be a problem with the files on the hard disk.

Make a back-up copy of the files on the hard disk. Then, run the Winchester Utility Program to initialize the hard disk, or reformat the partitions on the hard disk.

**WARNING: Only 8 MBytes of the hard disk is usable.
Refer to the MS-DOS installation instructions.**

You created a 10M byte MS-DOS partition using the Winchester Utility Program Version 1.0. However, you can only use 8M bytes of this partition on your hard disk. Do not exceed 8M bytes of storage on this partition. Back up all files currently on your hard disk. Using the Winchester Utility Program Version 2.0, test and initialize your hard disk. Then, repartition and create a configuration that meets your needs. Finally, restore your files.

WARNING: The hard disk is not formatted or not partitioned

This message occurs if:

- The hard disk has not been installed properly for the MS-DOS Version 2.11 operating system.
- The hard disk has been tested and installed successfully for the MS-DOS Version 2.11 operating system, but the MS-DOS Version 2.11 operating system does not recognize the hard disk.

Use the Winchester Utility Program Version 2.0 to run the diagnostic test and the initialization procedure.

If the problem persists:

- Call your vendor.
- Call the DIGITAL Help Line.

Write fault error reading/writing drive drv
Abort, Retry, Ignore?

The MS-DOS Version 2.11 operating system could not read from or write to the disk drive. Press the R key to retry the command.

If the problem persists, press the A key to abort the command. Your disk drive may be malfunctioning. Reset your Rainbow computer and run the Rainbow self-test diagnostics by pressing S from the Rainbow Main System Menu.

Write protect error reading/writing drive drv
Abort, Retry, Ignore?

The MS-DOS Version 2.11 operating system could not write to the diskette displayed in the message. Check to see if the diskette has a write-protect tab. If it does, remove the write-protect tab. Press the R key to proceed.

If the error persists, press the A key to abort the command. Your disk drive may be malfunctioning. Reset your Rainbow computer and run the Rainbow self-test diagnostics by pressing S from the Rainbow Main System Menu.

Appendixes

A

Getting Help

Help Line Phone Numbers

Country	Phone Number
U.S.A.	(800) DEC-8000
Canada	(800) 267-5251
United Kingdom	(0256) 59 200
Belgium	(02)-24 26 790
West Germany	(089) 95 91 66 44
Italy	(02)-617 53 81 or 617 53 82
Japan	(0424) 64-3302
Denmark	(04)-30 10 05
Spain	(1)-73 34 307
Finland	(90)-42 33 32
Holland	(1820)-31 100
Switzerland	(01)-810 51 21
Sweden	(08)-98 88 35
Norway	(02)-25 64 22
France	(1)-687 31 52
Austria	(222)-67 76 41 extension 444
Australia	
Sydney	(02) 412-5555
All other areas	(008) 226377

B

Diskettes

Flexible diskettes, when used with care, are remarkably durable and reliable storage devices. Any given portion of a diskette's surface can be read and written upon millions of times before the oxide film that holds the data begins to wear too thin to consistently hold data. Moreover, flexible diskettes routinely pass, without a single error, diagnostic tests that fill the diskette tracks with data which is checked, changed, and rewritten in worst-case format, over and over and over.

In spite of their ruggedness and reliability, flexible diskettes (the pros call them "floppies") have acquired a somewhat poor reputation in data processing circles. Why?

A glance in any computer room or office where flexible diskettes are used shows them sitting on top of video terminals exposed to heat and magnetic fields, sitting beneath coffee cups and cold drink cans, and even lying on the floor without their protective envelopes.

Although many of these diskettes forget what they were told, a surprising number of them continue working through the coffee and cola rings, through the grit and grime and magnetic influences, for months or years at a time.

Don't push your luck. If you wish to avoid joining the ranks of frustrated flexible diskette users, carefully observe the following precautions.

Storing Diskettes

- Keep flexible diskettes in close-fitting, dust-tight boxes (like those they are packaged in when you buy them ten at a time).
- Store these boxes in rooms with consistent temperature, humidity, and cleanliness.

Handling Diskettes

Follow the tips below when handling diskettes.

- Avoid bending the diskettes. The "flexibility" of flexible diskettes is an accident of their design, not a goal. They will bend, but when bent their covers tend to crease or warp in ways that cause wear and binding when the drives rotate the diskette inside. Insert diskettes **gently** into their drives.
- Never allow your fingers to touch the diskette data surface (that is, the shiny, usually brown or black surface inside the black cover). Body oils cause the drive read/write heads (small electromagnets used to read or write information) to behave erratically—usually at the cost of data.
- Always return diskettes to their protective envelopes—even if you expect to use them again in a few seconds. One piece of grit on a diskette picked up from a desk top can wipe out a week's work.
- Keep diskettes far away from magnets. Magnets are often used to hold notes and pictures to metal surfaces. These handy items can damage diskettes.
- The best place to store diskettes, even temporarily, is in their storage boxes. However, if you **must** lay your diskettes (in their protective envelopes, of course) on your desk top rather than replace them in their storage boxes, never lay **anything** on top of them. Once you cover a diskette with a memo, the next thing you lay down will inevitably be a magnetized paperweight, stapler, or a key ring.

Using Diskettes

- Always identify your diskettes with the self-sticking labels. You can always ask the computer to tell you what is on the diskette, but this slows you down unnecessarily. If you fill out these labels after they are applied to the diskette cover, use only felt-tip pens because they require minimum pressure. **Never** use a ball-point pen or pencil. They can seriously deform both the diskette cover and the diskette inside. If you place a new label on a diskette, be sure to gently peel off the old label first. Placing labels on top of labels can cause the diskette to be seated improperly in a drive.
- Never allow diskettes to become so full that you risk running out of space while trying to write data to them. Leave some free space on your data diskettes.
- When running application programs that write data to diskettes, do not exchange one diskette for another except when the program tells you to do so or has finished executing. Some programs open files and leave them open until all the required data has been entered and acted upon. You almost certainly will have trouble if you exchange diskettes in the middle of such an operation.
- Do not turn the computer's power on or off when a diskette is inserted into any drive.

Diskette Backup Procedures

These procedures involve making copies of any edited diskettes.

Why? A diskette is not immortal. Sliding a diskette in and out of its jacket or a poor drive will wear it out. Accidents mentioned above and under "Handling Diskettes" may also occur.

Follow these tips and protect your work.

- Make copies of original diskettes. Label the original "master" and store it. You might want to make two copies of the original.
- Set up a diskette rotation method. Use five diskettes. At the close of day one, copy diskette work onto day two's diskette. At the close of day two copy work onto day three's diskette. Label diskettes with the numbers, actual dates, or days of the week.
- Take diskettes out of use after six months of rotation.

Above all "better safe than sorry". Months of work can be lost due to worn-out or damaged diskettes.

Diskettes and Files

The MS-DOS operating system deals with a wide range of information including programs, text, and data. Information is organized in the form of files, and the files are stored on diskettes. File names distinguish electronic files much the same way as labels on file folders distinguish paper files in a cabinet.

Storing Information on Diskettes

The computer stores and retrieves files by referring to tracks and sectors on a diskette (see Figure B-1). Rainbow diskettes have 80 tracks, (numbered 0–79); each track is composed of ten sectors. Sectors store blocks of "bytes, " each byte represents one character such as a letter, a digit, or a symbol. Because each sector has a unique location on a diskette, the computer can find a particular sector on a particular track and store information in it or retrieve information from it.

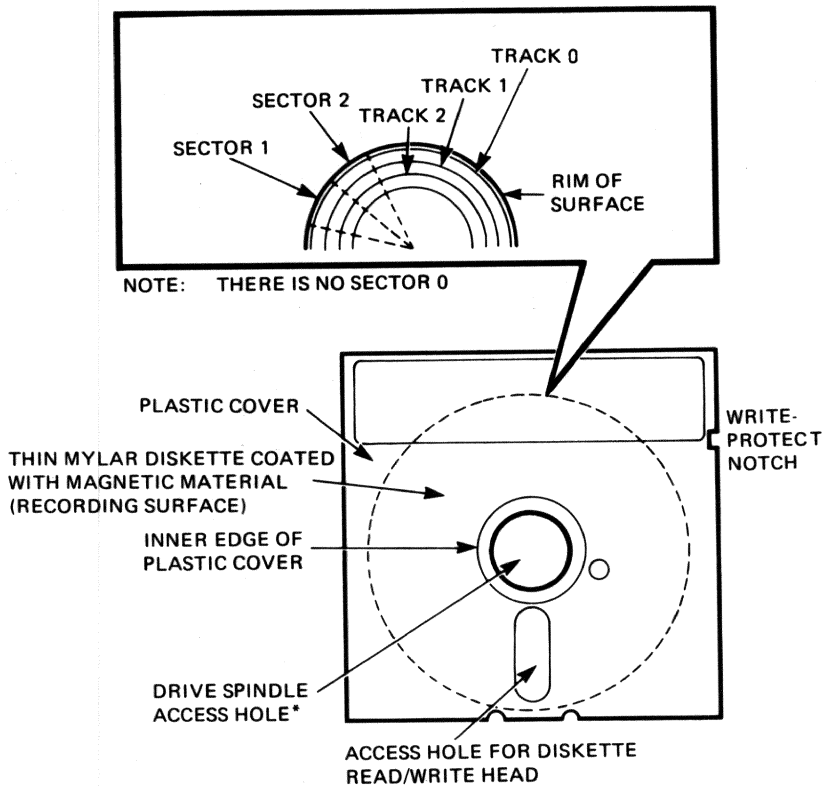


Figure B-1. Tracks and Sectors on a Diskette

The amount of information you can store on a diskette depends on the diskette's "density." The Rainbow computer's double density diskettes can hold twice as much information as single density diskettes. You can store about 115 pages of typewritten text on one diskette assuming 54 lines per page and 65 characters per line.

Protecting Data on Diskettes

You can protect the data on a diskette from being accidentally deleted by applying a self-sticking write-protect tab onto the diskette's write-protect notch (Figure B-2). This tab prevents the computer from writing on the diskette. You can remove the write-protect tab by peeling it off the diskette when you want the computer to write on it.

You can purchase write-protect tabs at any computer store.

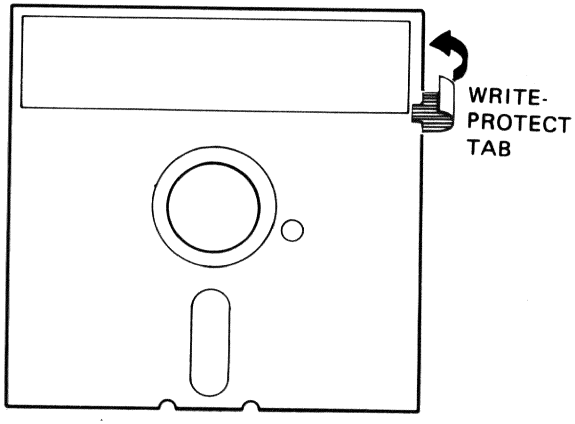


Figure B-2. Applying a Write-Protect Tab

C

Reading IBM Diskettes

Copying Data or Programs from IBM Diskettes

The Rainbow MS-DOS operating system can copy an 8-sector or 9-sector, single-sided IBM diskette.

If you want to copy data files or programs from an IBM diskette to a Rainbow diskette, follow the steps below.

1. Display the Rainbow Main System Menu according to one of the following procedures:
   - Turn on the Rainbow computer if it is turned off
   - Reset the Rainbow computer if it is turned on
2. Remove the MS-DOS working diskette from its protective envelope.
3. Open the drive A door and insert the MS-DOS working diskette.
4. Start the MS-DOS operating system by pressing the A key in response to the Main System Menu. After entering the correct time and date, the operating system prompt, "A>", should be the last characters displayed on the screen.
5. Remove the IBM diskette from its protective envelope.

6. Open the drive B door and insert the IBM diskette.
7. Use COPY to copy all or some of the data files or programs from the IBM diskette to the MS-DOS working diskette.

   To copy **ALL** files, type:

```
A> COPY B:*.* A:/V (Return)
```

   To copy **SOME** files, type:

```
A> COPY B:filename.typ A:/V (Return)
```

> **NOTE**
> We do not recommend writing onto non-RX50K diskettes or diskettes that have not been formatted with the /I switch. The MS-DOS operating system allows you to do this, but you could see unexpected results if you try to read the diskettes on a computer other than the Rainbow.

D

International Features

This appendix includes information about the international features of the MS-DOS Version 2.11 operating system. These features include:

1. Using international characters in file names
2. Using the international conventions for date, time, currency and more.

International Characters

Figure D-1 lists the international characters you can use in file names.

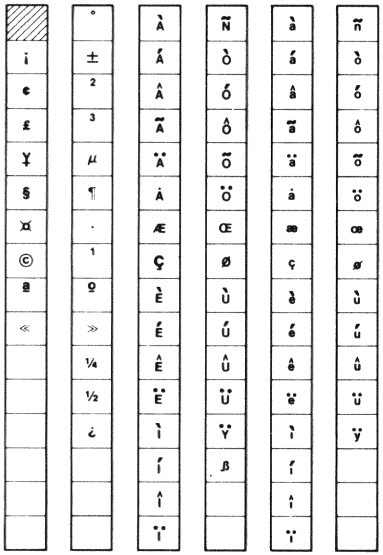


Figure D-1. International Characters

If these keys are not printed on your keycaps and you have a Rainbow 100B or Rainbow 100+ computer, you can create them by using the three key compose sequence. See the *Rainbow Owner's Manual* for more information about compose character sequences.

International Conventions

The MS-DOS Version 2.11 operating system can modify the information it displays with the DIR, DATE and TIME commands and some applications to support the conventions used in your country. These conventions include:

Date
Time
Currency
Thousands Separator
Decimal Point

To tell the MS-DOS operating system which country's convention you want to use, insert the country's code into the CONFIG.SYS file. This file is stored on the operating system diskette.

> **NOTE**
> The default country code is 1 (for the United States). When you first display the contents of the file CONFIG.SYS, there is no country code visible. If you want to specify another country, you must add the country code to the file.

An example of changing the conventions follows:

1. Type:

```
A>EDLIN CONFIG.SYS
```

MS-DOS displays:

```
End of input file
*
```

2. Type:

```
Insert (Return)
```

MS-DOS displays:

```
*2
```

> **NOTE**
> This may be another number depending on how many lines are already in the CONFIG.SYS file on your diskette.

3. Type:

```
Country=nn
```

Where:

nn Is one of the country codes below:

United States	1
France	33
Spain	34
Portugal	35
Italy	39
United Kingdom	44
Germany	49
Japan	81
Israel	97

For example, to specify France, type:

```
Country=33
```

4. Press:

   Ctrl/C

5. Type:

```
*End
```

The next time you reset or turn on your computer, the conventions for the country you specified will be reflected.

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Rainbow™
MS™–DOS
Version 2.11
User's Guide
AA–EA07A–XV

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Street_____

City_____

State_____

Zip Code
or Country_____

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