

*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
**COMPAQ™**

---

**PORABLE COMPUTER**

## **OPERATIONS GUIDE**

## **NOTICE**

The information contained in this manual is subject to change without notice.

COMPAQ Computer Corporation shall not be liable for technical or editorial errors or omissions contained herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this material.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this document may be photocopied or reproduced in any form without prior written consent from COMPAQ Computer Corporation.

Copyright © 1982  
by  
COMPAQ Computer Corporation

The software described in this document is furnished under a license agreement or nondisclosure agreement. The software may be used or copied only in accordance with the terms of the agreement. It is against the law to copy Microsoft BASIC™ or MS-DOS™ onto cassette tape, disk, diskette, or any other medium for any other purpose than the purchaser's personal use.

Copyright © 1981, 1982  
by  
Microsoft, Incorporated

## **OPERATIONS GUIDE**

First Edition (November 1982)  
Assembly #100001-001  
Text Subassembly #0340-100319-001

*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
**COMPAQ™**

PORTABLE COMPUTER

## OPERATIONS GUIDE

# **COMPAQ COMPUTER CORPORATION**

---

## **90-DAY LIMITED WARRANTY**

---

COMPAQ Computer Corporation ("COMPAQ") warrants the products which it manufactures to be free from defects in materials and workmanship for a period of 90 days from the date of purchase from COMPAQ or an authorized COMPAQ dealer. This warranty is limited to the original purchaser ("Purchaser") of the product and is not transferable.

During the 90-day (ninety-day) warranty period, COMPAQ will repair or replace, at its option, any defective products or parts at no additional charge, provided that the product is returned, shipping pre-paid, to COMPAQ or an authorized COMPAQ dealer. The Purchaser is responsible for insuring any product so returned and assumes the risk of loss during shipping. All replaced parts and products become the property of COMPAQ.

Dated proof-of-purchase must be provided by the Purchaser when requesting that warranty work be performed. The Purchaser may request information on how to obtain warranty service by contacting an authorized COMPAQ dealer or writing to COMPAQ Computer Corporation, 12330 Perry Rd., Houston, Texas 77070, for further information.

**THIS LIMITED WARRANTY DOES NOT EXTEND TO ANY PRODUCTS WHICH HAVE BEEN DAMAGED AS A RESULT OF ACCIDENT, MISUSE, ABUSE, OR AS A RESULT OF SERVICE OR MODIFICATION BY ANYONE OTHER THAN COMPAQ OR AN AUTHORIZED COMPAQ DEALER.**

EXCEPT AS EXPRESSLY SET FORTH ABOVE, NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND COMPAQ EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED HEREIN. ALL IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTIES FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS WARRANTY. IN THE EVENT THE PRODUCT IS NOT FREE FROM DEFECTS AS WARRANTED ABOVE, THE PURCHASER'S SOLE REMEDY SHALL BE REPAIR OR REPLACEMENT AS PROVIDED ABOVE. UNDER NO CIRCUMSTANCES WILL COMPAQ BE LIABLE TO THE PURCHASER OR ANY USER FOR ANY DAMAGES, INCLUDING ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, LOST PROFITS, LOST SAVINGS, OR OTHER DAMAGES ARISING OUT OF THE USE OF OR INABILITY TO USE THE PRODUCT.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS, AND SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

## \* \* \* W A R N I N G \* \* \*

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

## \* \* \* W A R N I N G \* \* \*

This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the manufacturer's instructions, it may cause interference with radio and television reception. This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference. Operating this equipment in a residential area can cause interference. Should this occur, the user will be required to take whatever measures may be necessary to eliminate the interference. In attempting to do so, the user should do the following:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver with which it interferes.
- Plug the computer into a different ac outlet so that the computer and the receiver with which it interferes are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

#### **How to Identify and Resolve Radio-TV Interference Problems**

This booklet is available from the US Government Printing Office, Washington, DC 20402, Stock Number 004-000-00345-4.

### **NOTICE**

COMPAQ Computer Corporation recommends that all peripheral devices be connected to this computer via shielded cables with metal RFI/EMI connector hoods.

**WIRE TYPE:** **Multi-paired, overall-shielded;**

**Belden #98XX;**

**Alpha #54XX;**

**or equivalent.**

**CONNECTOR HOOD:** **RFI/EMI metal shield;**

**AMP #74517X-X;**

**or equivalent.**

It is important that the chassis ground of the peripheral device be connected to the computer chassis. An Alpha #1221 flat-braid strap is sufficient. This strap is not necessary if the shielded cable connects the two chassis.

## PRODUCT REVIEW

---

The COMPAQ Portable Computer is a self-contained, compact, portable personal computer that incorporates expanded capabilities, simplicity of use, streamlined styling, high reliability, and ease of maintenance.

Major design features of the standard model include:

- Built-in video display unit (VDU).
- Tilt-adjustable, 83-key, low-profile keyboard attached to the system unit by a retractable coiled cable. The keyboard can be positioned for maximum operator convenience.
- Portability: The COMPAQ Computer sets up, closes down, and moves quickly and easily.
- 128-Kbyte random-access memory (RAM).
- Built-in high-resolution text and graphics capabilities.
- 5 1/4-inch double-sided, double-density floppy disk drive.
- IBM® Personal Computer™ hardware and software compatibility (see Appendix B for details).
- Three available slots for installing options of your choice.

A second disk drive is optional. The manufacturer suggests that you add a second drive as soon as possible. This makes using the computer faster and easier.

Many illustrations in this book show the COMPAQ Portable Computer equipped with two disk drives, although the second drive is not required to use any capability of the computer.

The peripheral devices in this book that are not manufactured by COMPAQ Computer Corporation are used only as illustrations. Their mention does not constitute a recommendation or endorsement of those products. The purchase, connection, and use of any such device is the sole responsibility of the user.

# ORGANIZATION OF THE OPERATIONS GUIDE

---

The Operations Guide is divided into six chapters and four appendices.

**Chapter 1, GETTING ACQUAINTED**, introduces you to the computer hardware and tells you how to get the computer up and running.

**Chapter 2, DOS OPERATIONS**, provides a tutorial to enable you, the new user, to learn how to accomplish basic housekeeping tasks using the Disk Operating System (DOS) diskette.

**Chapter 3, BASIC**, gives you introductory instructions to help you get a start in programming the computer in BASIC language.

**Chapter 4, OFF**, describes the procedures to follow to turn your COMPAQ Computer off in the proper way, without losing any data. It also details how to reassemble your computer for transporting.

**Chapter 5, USER DIAGNOSTICS**, tells you how to use the User Diagnostics test programs to determine if your computer is malfunctioning.

**Chapter 6, OPTIONS**, gives a brief description of some of the options that you may purchase to expand the capabilities of your computer. When you do buy an option module, you can place its accompanying instructions in this section.

**Appendix A, QUICK REFERENCE**, gives you a summary of the DOS and EDLIN (the line editor) Commands, the DOS and BASIC keyboard maps, and some of the most frequently-used DOS procedures.

**Appendix B, NOTES ON COMPATIBILITY**, discusses some differences between the COMPAQ Portable Computer and the IBM® Personal Computer™.

**Appendix C, GLOSSARY AND MNEMONIC DICTIONARY**, defines technical terms that are used in this and other manuals. Turn to this section if you see a word or an acronym that you don't recognize.

**Appendix D, INDEX**, helps you to locate specific information throughout the book.

# Contents

---

## CHAPTER 1

### GETTING ACQUAINTED

|  |      |
|--|------|
| 1-1. INTRODUCTION .....  | 1-2  |
| 1-2. OPENING IT UP .....   | 1-6  |
| 1-3. INSERTING THE DISK OPERATING SYSTEM<br>(DOS) DISKETTE ..... | 1-10 |
| 1-4. TURNING THE COMPUTER ON .....                               | 1-14 |
| 1-5. COPYING THE DISK OPERATING SYSTEM<br>(DOS) DISKETTE .....   | 1-22 |
| Copying DOS: Dual Drives .....                                   | 1-22 |
| Copying DOS: Single Drive.....                                   | 1-26 |
| 1-6. THE DEMONSTRATION PROGRAMS .....                            | 1-32 |
| 1-7. DISKETTES .....   | 1-34 |
| What Type Should You Buy?.....                                   | 1-34 |
| The Proper Way to Handle a Diskette.....                         | 1-34 |
| How Data is Organized on a Diskette .....                        | 1-36 |
| The Write-Protect Notch .....                                    | 1-37 |
| 1-8. CONCLUSION .....  | 1-38 |

## CHAPTER 2

### DOS OPERATIONS

|  |     |
|--|-----|
| 2-1. INTRODUCTION .....                              | 2-1 |
| What Do You Do When You Operate<br>a Computer? ..... | 2-1 |
| DOS: The Disk Operating System .....                 | 2-2 |
| Do You Have One Disk Drive, or Two? .....            | 2-2 |
| 2-2. HOW THE COMPUTER WORKS .....                    | 2-4 |
| The Mind in the Middle of the Machine .....          | 2-5 |
| How the Computer Acquires Its Intelligence.....      | 2-5 |

|   |             |
|---|-------------|
| The Difference Between Memory and Storage .....               | 2-6         |
| Why File Saves Are So Important .....                         | 2-7         |
| What You Do With DOS .....                                    | 2-7         |
| How It All Fits Together .....                                | 2-8         |
| <b>2-3. THE KEYBOARD .....</b>                                | <b>2-10</b> |
| Caution: Some Keys Change Their Functions .....               | 2-10        |
| A Quick Overview of the Four Keyboard Zones .....             | 2-12        |
| The Most Important Keys .....                                 | 2-15        |
| The DOS Function Keys .....                                   | 2-24        |
| The "O" and "L" Problem .....                                 | 2-32        |
| Key Click .....   | 2-32        |
| <b>2-4. HOW TO NAME FILES .....</b>                           | <b>2-33</b> |
| When to Name a File .....                                     | 2-33        |
| Some Examples of File Names .....                             | 2-34        |
| The Distinction Between a File's Name<br>and a Filename ..... | 2-36        |
| The Proper Format .....                                       | 2-37        |
| Summary of Acceptable Characters .....                        | 2-38        |
| The Drive Specifier .....                                     | 2-38        |
| Some Names Work; Some Do Not .....                            | 2-39        |
| What Files Are on This Diskette?                              |             |
| The DIR Command .....   | 2-40        |
| Halting the Display .....                                     | 2-41        |
| Using the Full Display Width<br>on Your Screen .....          | 2-41        |
| What's on File in Drive B:? .....                             | 2-41        |
| <b>2-5. HOW TO USE THE DOS COMMANDS .....</b>                 | <b>2-44</b> |
| DOS Defined .....   | 2-44        |
| Internal Commands Versus External Commands .....              | 2-45        |
| Important: Do You Have One Disk Drive, or Two? .....          | 2-46        |
| <b>2-6. DOS COMMANDS: DUAL DRIVES .....</b>                   | <b>2-48</b> |
| The FORMAT Command .....                                      | 2-48        |

|  |             |
|--|-------------|
| How to Copy a Diskette:                      |             |
| The DISKCOPY and DISKCOMP Commands .....     | 2-52        |
| How To Copy One File:                        |             |
| The COPY Command: .....                      | 2-56        |
| How to Compare Individual Files:             |             |
| The COMP Command .....                       | 2-61        |
| How to Compare While Copying:                |             |
| The /V Option .....                          | 2-66        |
| The RENAME Command.....                      | 2-66        |
| The ERASE Command .....                      | 2-68        |
| The CHKDSK Command .....                     | 2-72        |
| A Glimpse Behind the Scenes:                 |             |
| The TYPE Command .....                       | 2-73        |
| The TIME and DATE Commands .....             | 2-75        |
| The Global Commands .....                    | 2-79        |
| For More Information About DOS .....         | 2-82        |
| <b>2-7. DOS COMMANDS: SINGLE DRIVE .....</b> | <b>2-83</b> |
| The FORMAT Command.....                      | 2-83        |
| How to Copy a Diskette:                      |             |
| The DISKCOPY and DISKCOMP Commands .....     | 2-87        |
| How to Copy One File:                        |             |
| The COPY Command .....                       | 2-92        |
| How to Compare Individual Files:             |             |
| The COMP Command .....                       | 2-97        |
| How to Compare While Copying:                |             |
| The /V Option .....                          | 2-102       |
| The RENAME Command.....                      | 2-103       |
| The ERASE Command .....                      | 2-105       |
| The CHKDSK Command .....                     | 2-109       |
| A Glimpse Behind the Scenes:                 |             |
| The TYPE Command .....                       | 2-110       |
| The TIME and DATE Commands .....             | 2-112       |
| The Global Commands .....                    | 2-116       |
| For More Information About DOS .....         | 2-120       |

## **CHAPTER 3**

### **BASIC**

|   |      |
|---|------|
| 3-1. INTRODUCTION .....                                     | 3-1  |
| 3-2. HOW TO ADD, SUBTRACT, MULTIPLY,<br>AND DIVIDE .....    | 3-2  |
| How to Load BASIC .....                                     | 3-2  |
| How to Get Back to the DOS Prompt .....                     | 3-2  |
| How to Perform Calculations in BASIC .....                  | 3-3  |
| What Is a BASIC Program? .....                              | 3-5  |
| Function Key Commands .....                                 | 3-7  |
| How to Change the Statements .....                          | 3-8  |
| Generalizing and Humanizing the Program .....               | 3-9  |
| How to Make a Program Appear to Defy<br>Your Commands ..... | 3-12 |
| 3-3. THE EVOLUTION OF A PRACTICAL PROGRAM.....              | 3-14 |

## **CHAPTER 4**

### **OFF**

|                                      |     |
|--------------------------------------|-----|
| 4-1. TURNING YOUR COMPUTER OFF ..... | 4-1 |
| 4-2. PREPARING FOR TRAVEL.....       | 4-2 |

## **CHAPTER 5**

### **USER DIAGNOSTICS**

|  |     |
|--|-----|
| 5-1. WHAT ARE USER DIAGNOSTICS? .....                  | 5-1 |
| 5-2. STARTING THE DIAGNOSTIC PROCEDURES .....          | 5-2 |
| 5-3. USING THE USER DIAGNOSTICS<br>TEST PROGRAMS ..... | 5-6 |

## **CHAPTER 6 OPTIONS**

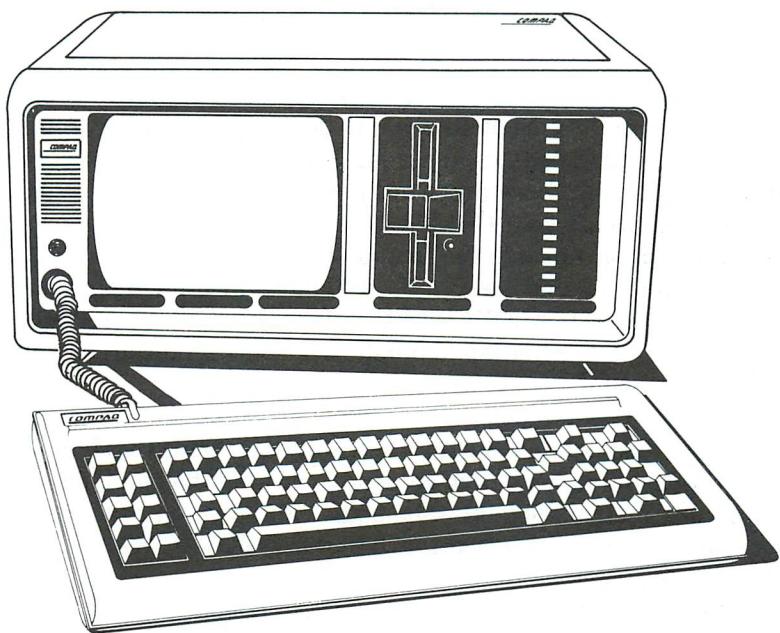
|   |     |
|---|-----|
| 6-1. AVAILABLE OPTIONS FOR YOUR COMPAQ<br>PORTABLE COMPUTER ..... | 6-1 |
| 6-2. CONNECTING YOUR OPTIONS .....                                | 6-3 |

## **APPENDIX A QUICK REFERENCE**

## **APPENDIX B NOTES ON COMPATIBILITY**

## **APPENDIX C GLOSSARY AND MNEMONIC DICTIONARY**

## **APPENDIX D INDEX**



**Figure 1-1.** The COMPAQ Portable Computer.

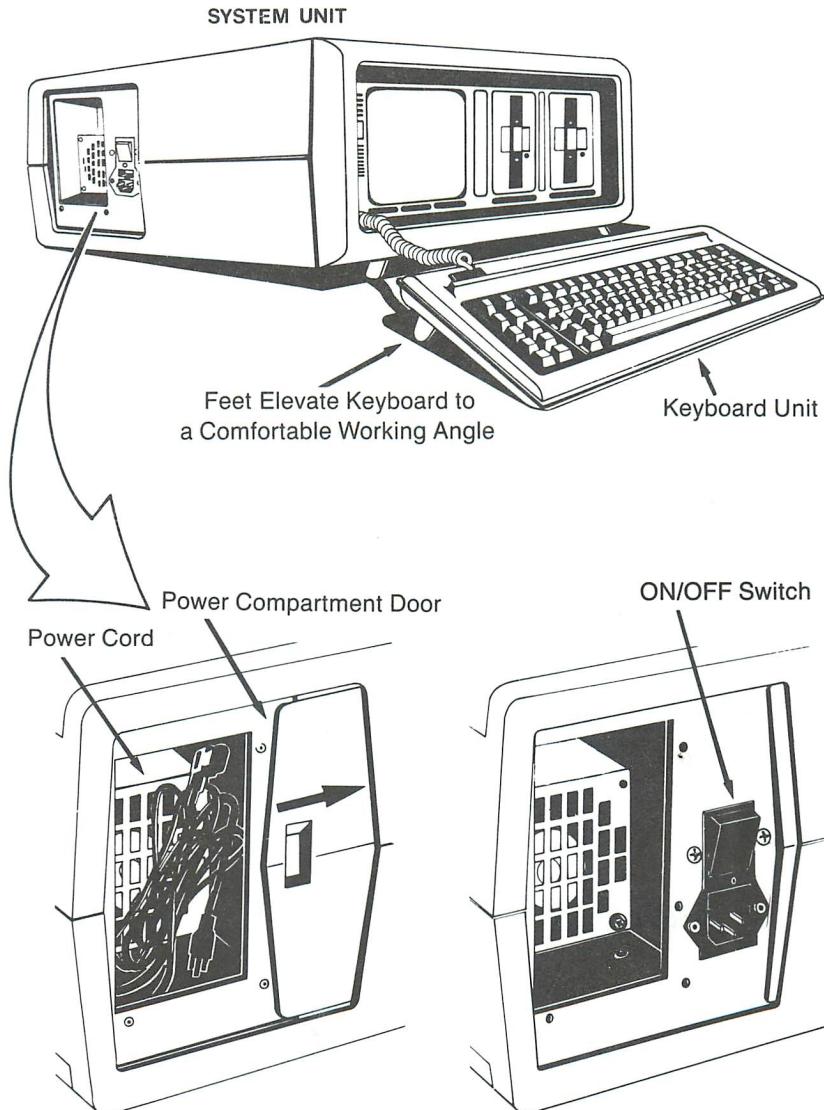
## **1-1. INTRODUCTION**

---

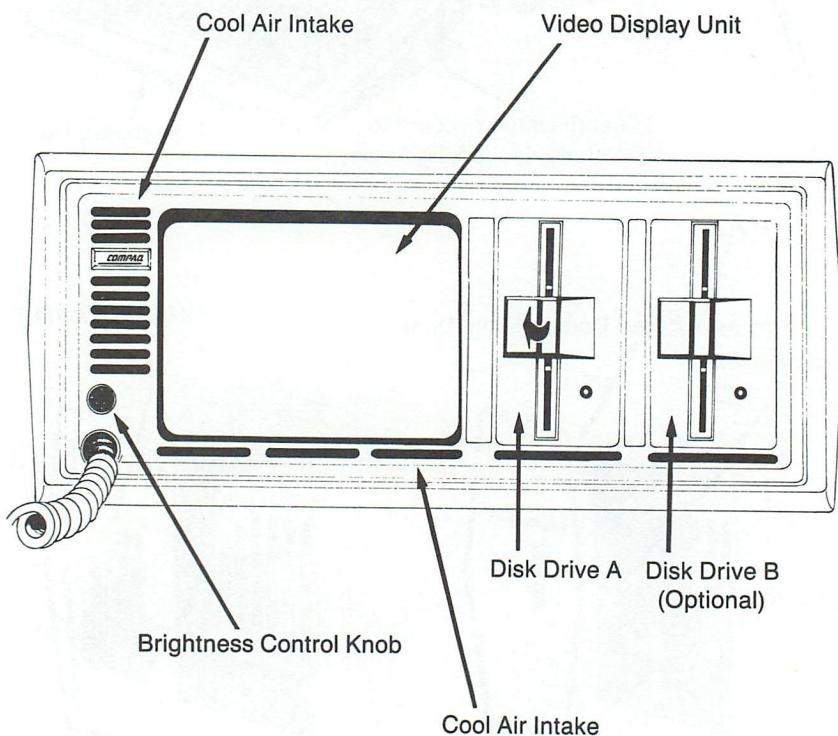
The intellect of any computer is derived from its applications programs. These programs enable you to do word processing, financial analysis, records keeping, and countless other tasks at a sophisticated level. To run these programs and use the remarkable computing power built into your COMPAQ Computer, you need to know how to enter the programs into the computer's memory, how to store data, how to protect it, and how to do a number of other housekeeping tasks. The GETTING ACQUAINTED and the DOS OPERATIONS chapters of this book are written to familiarize you with these essentials.

Learning to operate a computer is mainly learning to provide it with the correct instructions. Set up this book next to your COMPAQ Computer, and use it as an active guide to operating the machine. By following the instructions in this book, you can quickly put your computer into action. Work through the GETTING ACQUAINTED and DOS OPERATIONS chapters to fully develop your understanding of what the computer does in response to your commands.

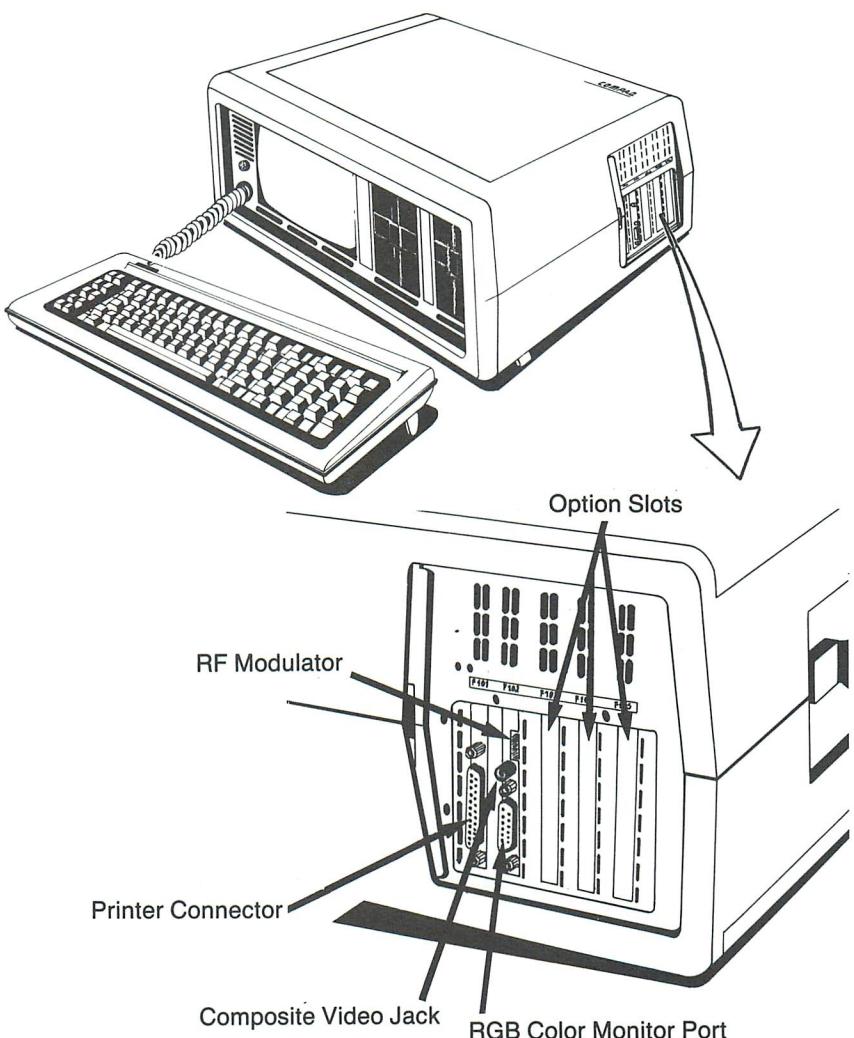
This chapter, GETTING ACQUAINTED, is written in terms simple enough for a new user to understand, but it also contains important information for experienced computer operators.



**Figure 1-2.** The Complete System Unit.  
Note the Power Compartment.



**Figure 1-3** Controls and Features.

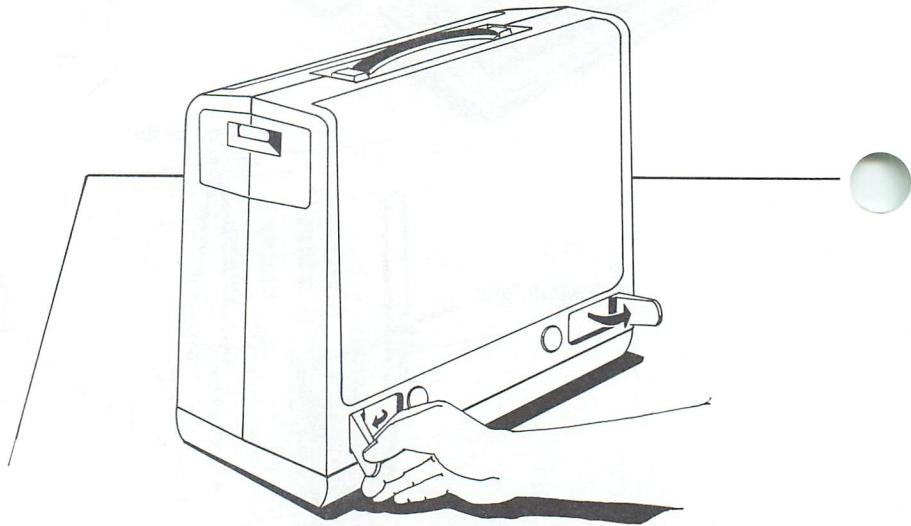


**Figure 1-4** The Input/Output (I/O) Compartment.

## 1-2. OPENING IT UP

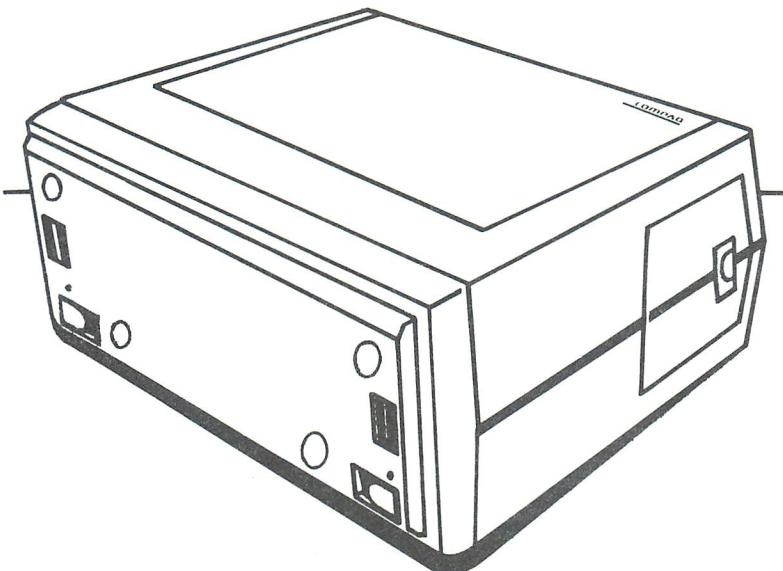
Remove the top layer of cardboard, and lift your COMPAQ Computer out of the box. Also remove the other books that are in the box.

Now set the computer down on a desktop or other working surface, in the position shown in Figure 1-5. Note the feet, indicated by the arrows. Open them up as shown to elevate the front of the computer so that the video screen, which you are about to expose, can be angled at a comfortable viewing position.

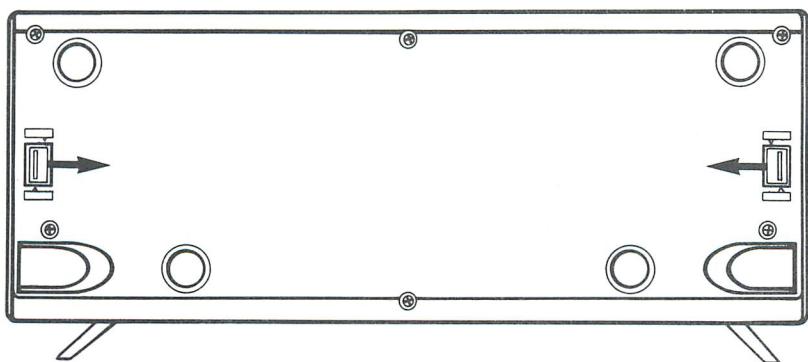


**Figure 1-5.** Opening the Feet. This Elevates the Computer for Comfortable Viewing.

Lower the computer so that it rests on its feet (see Figure 1-6), with the handle to the rear of your working surface.



**Figure 1-6.** Positioning the COMPAQ Computer on a Desktop.



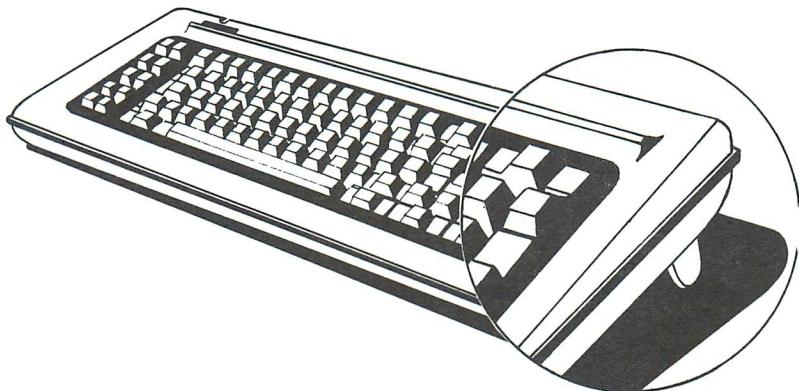
**Figure 1-7.** These Latches Release the Keyboard Unit.

Examine the panel that would correspond to the base if the unit were a suitcase. This base is the bottom of the keyboard. A pair of nylon latches secure it to the computer. Slide the latches toward the center of the panel, as indicated in Figure 1-7. There are no hinges to hold the keyboard, so make sure it does not drop.

The keyboard unit can now be lifted free. The keyboard is linked to the computer only by a coiled cord. The cord emerges from an opening in the front panel. This feature gives you maximum convenience in positioning the keyboard for your comfort, without the untidiness of long, exposed cables (see Figure 1-8). The coiled cord is always



**Figure 1-8** You Can Move the Keyboard Freely to Any Comfortable Working Position.



**Figure 1-9.** Feet Fold Out of the Base of the Keyboard to Elevate It for Comfortable Use.

connected to the system, so you never need to worry about wiring the two units together before use... a significant convenience in a computer that is designed to travel.

On the bottom of the keyboard are two hinged feet, which can be folded out to elevate the rear of the keyboard to provide a comfortable working angle. This feature is illustrated in Figure 1-9. Some operators use these feet; others prefer a flat keyboard, and leave the feet folded flush with the base of the unit.

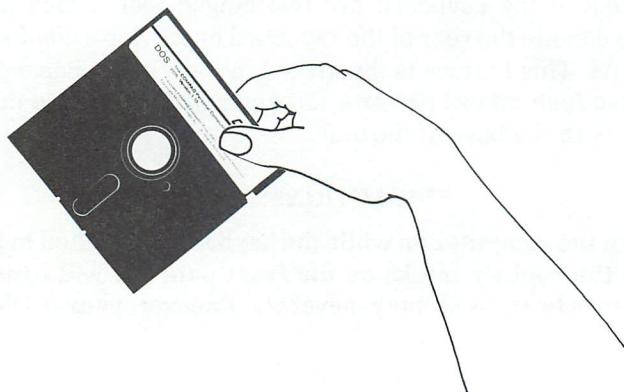
**\*\*\*CAUTION\*\*\***

**DO NOT turn the computer on while the keyboard is latched in place. This blocks the cool air intake on the front panel. It will cause the system to overheat, and may severely damage your COMPAQ Computer.**

## 1-3. INSERTING THE DISK OPERATING SYSTEM (DOS) DISKETTE

Tucked into a plastic pocket at the back of this book, you will find a diskette labeled "DOS". A diskette is a recording medium for programs and data used by the computer. This particular diskette stores a group of programs which are collectively called the Disk Operating System (DOS). A few demonstration programs are also recorded on this diskette. Later in this chapter you will use these programs to see some of the computer's capabilities.

First, you must insert the DOS diskette into a disk drive. Be careful when handling the diskette. Never touch the diskette surface, and never bend a diskette. Grasp the diskette by your thumb and forefinger only, with your thumb on the printed label (see Figure 1-10).



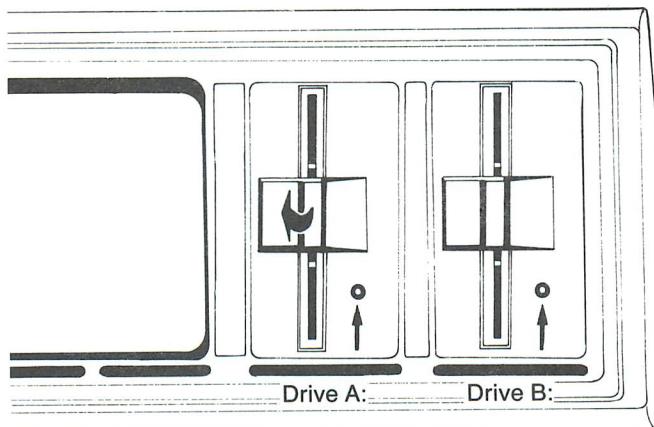
**Figure 1-10.** This Is the Proper Way to Hold a Diskette. Use Your Thumb and Forefinger Only, and Hold the Diskette by the Label.

Now, holding it in this manner, remove the diskette from the pocket in this book, and from its outer envelope. Do not attempt to remove the diskette from its protective jacket. It is permanently sealed inside.

The surface of the diskette is visible only through three pre-punched holes in its envelope. If you touch the diskette through one of these holes, you may lose data stored on the diskette.

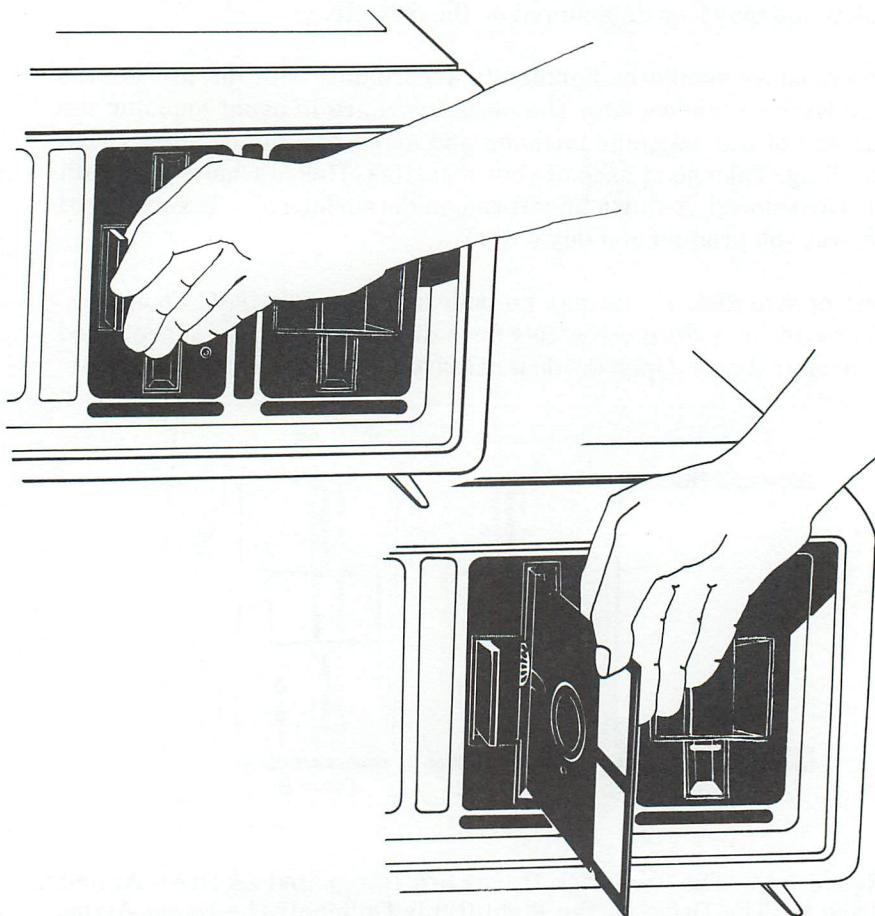
The diskette should be handled in accordance with the procedures discussed in this section. The basic ideas are to avoid touching the surface of the magnetic medium, and avoid bending or other rough handling. Take good care of your diskettes. This is where your data files are stored. A single fingerprint on the surface of a diskette could destroy the product of a day's work.

One or two disk drives may be built into your COMPAQ Computer. There are no external controls for a disk drive, just a slot protected by a central door. Open the door of Drive A:, as shown in Figure 1-11.



**Figure 1-11.** The Two Disk Drives are Designated as Drive A: and Drive B:. The Drive on the Right (B:) Is Optional. The Large Arrow Shows How to Open the Door Covering the Slot. The Small Arrows Show the IN USE Indicators.

If you have two drives, open the left-hand drive. On a COMPAQ Computer with dual drives, the drive on your left is called Drive A:, and is regarded as the primary drive for the system. The drive on your right is called Drive B:. The colons following the letters A and B are parts of the names of the drives; you will always see the names of the drives written this way.



**Figure 1-12.** How to Insert a Diskette Into Drive A:. The Procedure Is Identical for Drive B:.



Remove the cardboard insert(s) from the drive(s), and save it (them). You will need to put it (them) back into the drive(s) when you prepare your COMPAQ Computer for travelling.

Hold the DOS diskette in your right hand with your thumb on the label. Insert the diskette into the drive so that the label faces left, as shown in Figure 1-12.

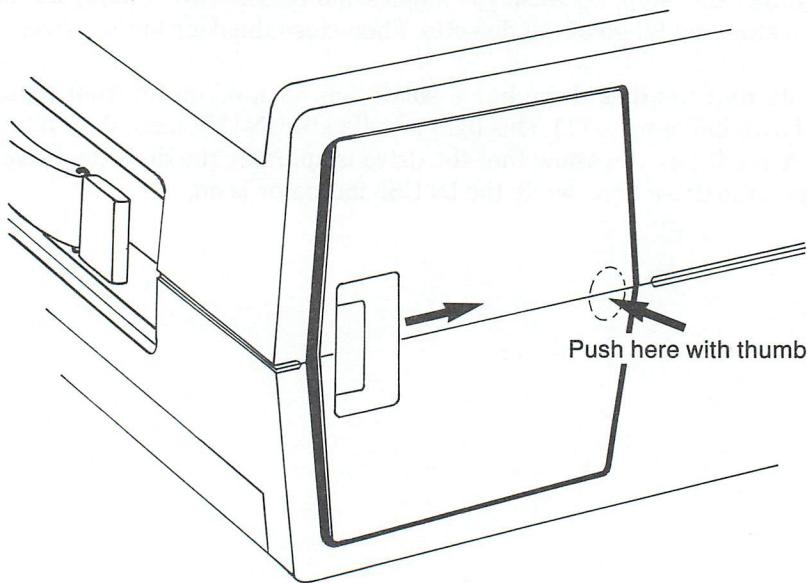
You will feel the diskette touch a solid stop. Don't push the diskette against this stop, because you might bend the diskette. Simply notice the stop and let go of the diskette. Then close the door to the drive.

Note that the disk drive has a small light located on its front panel (shown in Figure 1-11). This light is called the IN USE indicator. When it is on, it lets you know that the drive is spinning the diskette. Never open the drive door while the IN USE indicator is on.



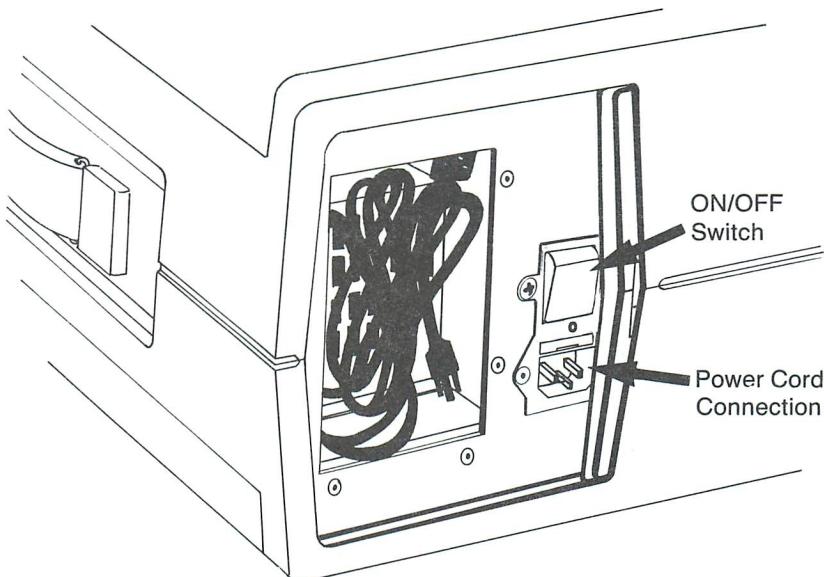
## 1-4. TURNING THE COMPUTER ON

On the left side of the computer, there is a flush-fitted, unmarked door with a molded-in fingerhold. This is the door to the power compartment. Reach back to the door and find the fingerhold with your index and middle fingers. Press firmly inward with your thumb at the front of the door, as indicated in Figure 1-13. Then pull forward on the fingerhold. The door slides forward into the casing.



**Figure 1-13.** Opening the Door to the Power Compartment.

Inside the power compartment, you will find the power cord. Uncoil it. Notice it has two different plugs: one for the computer, and the other for a wall outlet. First connect the cord to the computer using the socket located inside the power compartment (see Figure 1-14). Now you are ready to plug the computer into a wall outlet.



**Figure 1-14.** The Power Cord Is Stored Here. Note the ON/OFF Switch.

Be sure you make a properly-grounded connection. The wall outlet must have a three-pronged socket. Do not bypass the third prong on the plug by plugging the power cord into a two-pronged extension cord, or into an adapter. This third prong is a safety precaution. A grounded connection is **essential** to the proper functioning of your COMPAQ Computer.

Now press the top of the ON/OFF switch to turn your computer on.

The computer is ventilated through the open door of the power compartment. This is where the air outlet for its internal cooling fan is located. The grille opening on the front panel is the cooling fan inlet. Make sure that neither duct is blocked by books, boxes, coffee cups, or other obstructions.

When you turn your COMPAQ Computer on, you may need to adjust the intensity of the screen display. Turn the BRIGHTNESS control knob (see Figure 1-3) clockwise as far as it will go. With this knob, you can adjust the degree of brightness on your screen to suit your eye comfort. If the BRIGHTNESS control is adjusted too low when you first turn your COMPAQ Computer on, the initial system response may not be visible on the screen, and this could be interpreted as a system failure.

For about the next 10 seconds, the system cycles itself through a series of start-up diagnostic tests to check out its memory and input/output (I/O) functions. During these tests, you will hear various noises from the disk drive(s), and the speaker will beep. The IN USE indicator(s) on the drive(s) turns on and off. If you have a printer, it will make a brief sound. All of this activity is normal.

Watch the screen. If the start-up diagnostic tests are not completed successfully, the computer shifts into its full diagnostic mode. You will know that this has happened if the screen displays lots of numbers. This is unlikely, but if it happens, you have two options. One is to turn off the computer and contact your dealer for assistance. The other is to consult the USER DIAGNOSTICS chapter in this book and use the procedures there to define the problem.

After the successful completion of the start-up diagnostic tests, the screen displays this message:

Current date is Tue 1-01-1980

Enter new date:

If this message does not appear, and instead, you see a prompt directing you to insert a diskette into the drive, then you may have skipped Section 1-3, INSERTING THE DISK OPERATING SYSTEM (DOS) DISKETTE. Turn off the power, and insert the DOS diskette. Wait about 15 seconds, and then turn the computer back on. The screen then displays the message previously indicated.

**NOTE:** You need to wait the full 15 seconds before turning your COMPAQ Computer back on. There is a mechanism built into the power input circuits to protect your computer from power surges, such as those caused by lightning. If you turn the computer off and on without waiting 15 seconds, this protection mechanism sees it as a power surge, and will not allow the computer to come back on.

The computer is now ready to accept information and commands entered by you on the keyboard. The midsection of your keyboard is



Figure 1-15. The ENTER Key.

called the alphanumeric section. It is almost identical to the keyboard of an ordinary typewriter, and you use it in a similar manner. Notice the ENTER key to the right of the alphanumeric keyboard. It corresponds to a carriage return key on a typewriter, and is marked with a bent arrow. The ENTER key is illustrated in Figure 1-15.

The message on the screen requests today's date. Type it in using dashes to separate the numerals for day, month, and year; for example, **12-22-82**.

As you type these numbers, they appear on the screen. If you miss a stroke and type, for example, **12-q2-82** by mistake, you can erase your error by using the BACKSPACE key. This key is located at the upper right-hand corner of the alphanumeric section of the keyboard, and is shown in Figure 1-16.



Figure 1-16. The BACKSPACE Key.

Use the BACKSPACE key to make corrections. It erases characters from the screen. To erase an incorrect date, backspace across the date you have entered.

As you press the BACKSPACE key, a short, blinking underline called a cursor moves left beneath the characters on the screen. It lets you know exactly where you are on the screen and marks the position of the next character to be entered. When you have backspaced the cursor all the way to the colon, retype the date. Be sure to use dashes between the month, day, and year.

Up to this point, you have not entered anything into the computer. You can alter, erase, and correct the information displayed on the screen. The next step is to enter the date; do so by pressing the ENTER key. When you press ENTER, the computer accepts the date you have typed, and immediately requests the current time, with a prompt which reads like this:

Current time is 0:00:11.58  
Enter new time:

The current time figure that comes up on your screen indicates the elapsed time (in hours, minutes, seconds, and hundredths of seconds) between the moment you turned the computer on and the moment the time prompt appears. If you wish to set the computer's built-in clock to the correct time, type the time in hours and minutes, and press ENTER. It is not necessary to enter seconds and hundredths of seconds.

**NOTE:** You must reset the time each time you turn your computer on. The clock does not run when the computer is turned off.

You can bypass the prompt and continue without setting the clock. If you prefer to do this, simply respond to the time prompt by pressing ENTER.

When you choose not to answer a question on the screen and wish to bypass it to go to the next question or prompt, you have told the computer to default. It assumes that, in making the default, you have answered the question in a particular way. In this instance, the computer assumes that the numbers displayed after the current time prompt represent the current time even though no value was entered. Use of defaults in both programming and operations can often speed you through a task.

If you skip the request for current time, the computer defaults to the following message:

The COMPAQ Personal Computer DOS  
Version 1.10

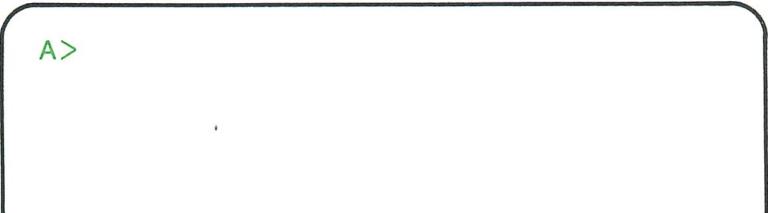
(C) Copyright COMPAQ Computer Corp. 1982  
(C) Copyright Microsoft, Inc. 1981, 82

This is the actual starting point. It is, in effect, the title page of a crucial series of computer programs called DOS.

DOS is an acronym for Disk Operating System. Operating systems are often characterized as the “heart” or “brain” of a computer, but they are perhaps more like a nervous system: a set of reflexes and

automatic responses that coordinate those types of activities (like breathing and the beating of your heart) that do not require your conscious attention. DOS automatically takes care of moving itself out of storage on the diskette and into the computer's active internal memory. Once there, DOS assumes control. DOS includes a program which reads data from and writes data to the computer memory and the attached devices. DOS interacts with applications programs and processes your commands to the computer. In summary, DOS transforms a group of hardware into a coordinated computer system.

The appearance of the prompt:



A>

Indicates that DOS is loaded into memory and that the system is ready to accept commands. This prompt appears repeatedly during the course of DOS operations. In effect, the A> is asking you, "What next?". The DOS program is essential, and you have only one copy on hand. The next thing to do, then, is to copy the DOS diskette, so that the computer will not be out of action if anything should happen to the original diskette.

## 1-5. COPYING THE DISK OPERATING SYSTEM (DOS) DISKETTE

Copying the DOS diskette is the first important task to complete with your new computer. It is presented here in two ways; one procedure for dual drives, and another procedure for single drives.

The procedure for dual drives begins here. If you have a single drive, your procedure begins on page 1-25.

### Copying DOS: Dual Drives

1. Remove a new diskette from its envelope (handling it by the label only) and insert it into Drive B: (the right-hand disk drive). You might find it helpful to refer to Figure 1-12 to see how it should pass into the slot. Note that you are now loading Drive B:, not drive A:, as depicted in the figure. When the diskette is in place, close the door.
2. There is an **A>** prompt on the screen. Respond to it by typing this:

**diskcopy a: b:**

The command name DISKCOPY comes from the name of the program that directs the copying operation. The command is a combination of the words “disk” and “copy.” Names of programs and command words are often derived this way.

Because DISKCOPY is a command, it must be reproduced exactly as shown. In this case, there is a single space between the command word DISKCOPY and the letter A, and a single space between the first colon and the letter B. The computer regards the space just as it would a character in recognizing the command word, so these spaces must be included.

The DOS program package is indifferent to the case in which command words are entered. You can type them in either upper-case or lower-case letters.

If you need to correct the command you typed, use the BACK-SPACE key to erase the error. Then retype the correct command.

After you have typed the command, press the ENTER key. The following message appears:

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

3. The diskettes are already inserted. Now press any key.

The copying process is carried out automatically. All the information stored on the diskette in Drive A: is copied onto the diskette in Drive B:. While this is being done, you will see each drive's IN USE indicator come on briefly and you will see the following message:

Copying 2 side(s)

When the copy is finished, the screen displays the following message:

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

4. The Y/N is how your COMPAQ Computer asks you, "Yes or no?" Indicate no by typing:

**n**

The DOS prompt **A>** is displayed, indicating that the DISKCOPY task is concluded.

5. You can compare the two diskettes to make sure they are identical. This is a good procedure to follow whenever you make copies. The name of the program that makes the comparison is DISKCOMP, a contraction of the words "disk" and "comparison". Type:

**diskcomp a: b:**

Now press ENTER.

Your COMPAQ Computer displays this message:

Insert first diskette in drive A:  
Insert second diskette in drive B:  
Strike any key when ready

6. The diskettes are already inserted in the drives, so press any key. You will hear the drives operate and see the IN USE indicators come on briefly. While the comparison is being made, your COMPAQ Computer displays:

Comparing 2 side(s)

When the comparison is completed, you will see the following display:

Diskettes compare ok  
Compare more diskettes? (Y/N)

If the diskettes do not compare, your COMPAQ Computer indicates this by displaying error messages. These messages tell you what areas on the diskettes do not compare. Usually, this is an indication that the diskettes are not identical, or that there is damage on one of them.

7. In response to the display, type:

n

The DOS prompt, A>, is then displayed.

8. Remove the DOS diskette from Drive A:, and store it in a place that is clean, dry, temperature-controlled, and away from any source of magnetic fields. Take the back-up (new) diskette from Drive B: and label it with a felt-tipped pen: "DOS—BACK-UP". Then insert it into Drive A: and use it as your DOS diskette.

You are now finished with the copying procedure. Proceed to page 1-31.

### Copying DOS: Single Drive

1. There is an A> prompt on the screen. Respond to it by typing:

**diskcopy**

The command name DISKCOPY comes from the name of the program that directs the copying operation. The command is a combination of the words "disk" and "copy". Names of programs and command words are often derived this way.

The DOS program package is indifferent to the case in which command words are entered. You can type them in either upper-case or lower-case letters.

If you need to correct the command you typed, use the BACK-SPACE key to erase the error, and then retype the correct command. After you have typed the command, press the ENTER key. The following message appears on the screen:

Insert source diskette in drive A:  
Strike any key when ready

2. The DOS diskette is your source diskette, and it is already inserted in the drive. Note that the computer has designated your disk drive as "Drive A:". It will refer to the drive as such in instructions displayed on the screen.

Now press any key. Your COMPAQ Computer displays the following message:

Copying 2 side(s)  
Insert target diskette in drive A:  
Strike any key when ready

3. The target diskette is a brand new one, onto which you will copy the DOS diskette. Remove the DOS (source) diskette from the drive. Now remove a new diskette from its envelope (handling it by the label only), insert it into the disk drive, and close the door.

Press any key. The screen displays:

**Insert source diskette in drive A:  
Strike any key when ready**

4. At this point, the COMPAQ Computer has copied one side of the DOS diskette onto the new diskette. It now needs to read the other side into memory. Remove the new (target) diskette from the drive and insert the DOS (source) diskette. DO NOT TURN THE DISKETTE OVER. ALWAYS INSERT A DISKETTE WITH ITS LABEL FACING LEFT.

Now press any key. The screen displays:

**Insert target diskette in drive A:  
Strike any key when ready**

5. The computer has stored the contents of the other side of the DOS (source) diskette in memory, and is now prepared to record this information onto the other side of the new (target) diskette.

Remove the DOS (source) diskette from the drive and insert the new (target) diskette. Now press any key. The screen displays:

Copy complete  
Copy another? (Y/N)

6. The Y/N is how your COMPAQ Computer asks you, "Yes or No?" Indicate no by typing:

**n**

The DOS prompt **A>** is displayed, indicating that the DISKCOPY task is concluded.

7. You can compare the two diskettes to make sure they are identical. This is a good procedure to follow whenever you make copies. The name of the program that makes the comparison is DISKCOMP, a contraction of the words "disk" and "comparison". Type:

**diskcomp**

Now press ENTER. Your COMPAQ Computer displays this message:

Insert first diskette in drive A:  
Strike any key when ready

8. Remove the new (target) diskette from the disk drive and insert the DOS diskette.

Now press any key. The screen displays:

Comparing 2 side(s)  
Insert second diskette in drive A:  
Strike any key when ready

9. Remove the DOS (first) diskette from the drive and insert the new (second) diskette.

Press any key. The screen displays:

Insert first diskette in drive A:  
Strike any key when ready

10. Remove the new (second) diskette and insert the DOS (first) diskette.

Press any key. The screen displays:

Diskettes compare ok  
Compare more diskettes? (Y/N)

If the diskettes do not compare, your COMPAQ Computer indicates this by displaying error messages. These messages tell you what areas on the diskettes do not compare. Usually, this is an indication that the diskettes are not identical, or that there is damage on one of them.

11. In response to the display, type:

**n**

The DOS prompt, **A>**, is then displayed.

12. Remove the DOS diskette from the drive, and store it in a place that is clean, dry, temperature-controlled, and away from any source of magnetic fields. Label the back-up (new) diskette with a felt-tipped pen: "DOS — BACK-UP". Then insert it in the drive and use it as your DOS diskette.

**You have completed the copying procedure**, and your COMPAQ Computer is now essentially secured. You have determined that it is operating properly, and you have provided yourself with a back-up of the DOS diskette, which is the fundamental COMPAQ Computer program package. You have also developed some skill in using the keyboard and the disk drives. Now let's exercise some of the computing power of the machine.

## 1-6. THE DEMONSTRATION PROGRAMS

A set of demonstration programs is supplied with your COMPAQ Portable Computer. They are recorded on the DOS diskette. By copying DOS, you have also copied the demonstration programs. Here is how to gain access to them:

1. The A> prompt is still displayed.

Respond to it by typing:

**demo**

Now press ENTER.

2. The screen displays:



This is called a menu, and it is a commonly-used device that presents you with a variety of choices.

3. To show you how to use the demonstration programs, select GETTING DOWN TO BUSINESS. Type:

1

You do not need to press ENTER. A demonstration will begin, showing some of the things the COMPAQ Computer can do when used with various types of business applications programs.

4. When the demonstration program finishes, the computer returns to the demonstration programs menu. Use the menu to select another choice. Try out the other demonstration programs.
5. At this point, you may turn off the computer any time that a disk drive IN USE indicator is not on. When you begin using more advanced applications programs, there will be certain special procedures to follow before turning off the power (see the OFF chapter), but you do not need to be concerned about them at this point.

If you turn the computer off now, be sure to store your DOS diskette in a safe place.

## 1-7. DISKETTES

**What Type Should You Buy?** Tell your dealer that you want double-sided, double-density, soft-sectored diskettes. These diskettes each have a capacity of about 320,000 bytes (characters). This section explains what that means. You may also hear the diskette capacity called 320K.

“Double-sided, double-density” means that the diskettes used in your COMPAQ Computer have four times the storage capacity of the earliest types of diskettes used in personal computers.

### The Proper Way to Handle a Diskette

The first important thing to learn about a diskette is the proper way to hold one, as depicted on Figure 1-18. If you always handle a diskette this way, with your thumb on the label and your index finger opposite, you will automatically avoid touching the exposed surface of the magnetic media.

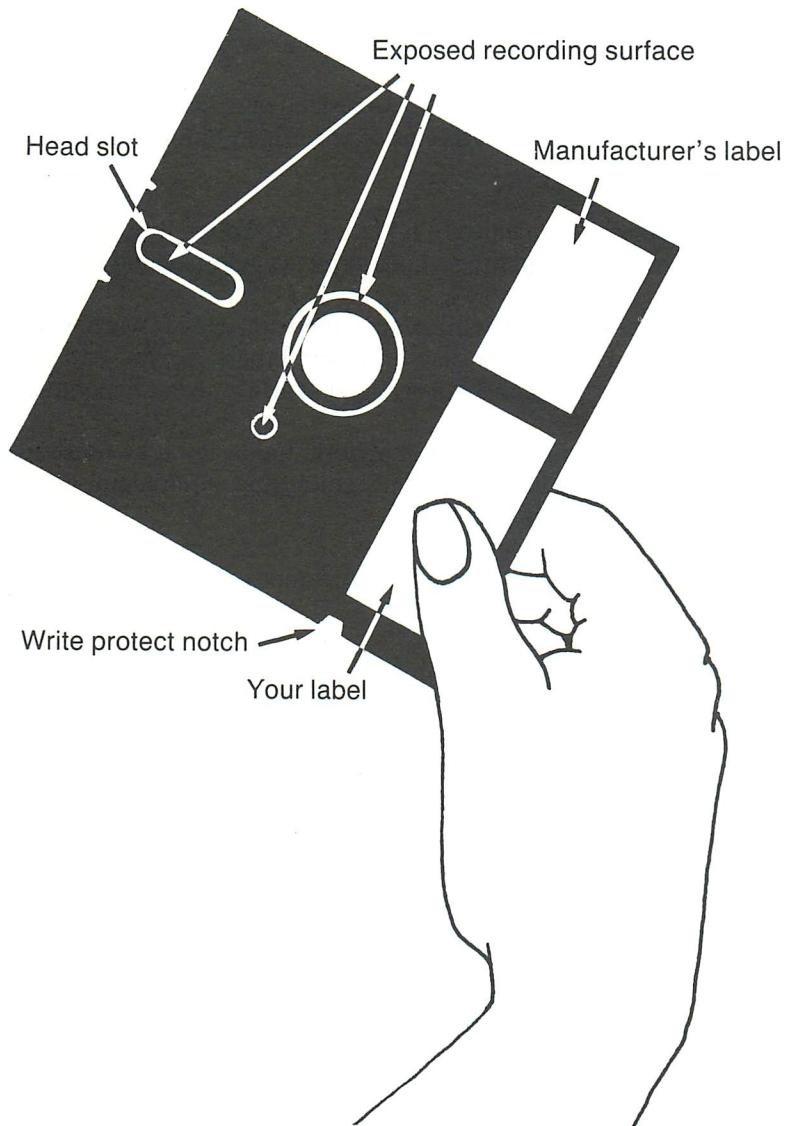
Although many people call diskettes “floppies”, they are not intended for flexing or rough handling.

Here is a list of procedures to follow when handling, storing, and using diskettes:

- Avoid touching the recording surface that is visible through the three holes in the protective jacket.
- Hold the diskette lightly between your finger and thumb. Your thumb should be on the label. Avoid bending and flexing the diskette.

Continued page 1-36

Protective jacket is permanent — don't try to extract the diskette from it.



**Figure 1-18.** A Diskette.

Continued from page 1-34

- Keep diskettes in their paper dust covers when they are not in use.
- Store diskettes in a cool, dry, dust-free place. Do not leave them in a parked car on a hot day or expose them to temperatures below 50° F (10° C).
- Store diskettes upright. Don't leave a diskette lying flat on a desktop or any other surface where objects might be piled on top of it.
- Label your diskettes with a felt-tipped pen. Never use a pencil or a ballpoint. It is best to use adhesive labels, so you can write on them before you put them on the diskette's protective jacket.
- Keep diskettes away from magnetic fields, such as those in electronic calculators, telephones, dictating equipment, and other electronic devices.
- If you spill coffee or any other substance on a diskette, discard the diskette.
- Always make copies of valuable data files and programs.

The diskette is read from and written to by a magnetic recording head in the disk drive unit. In operation, the head tracks so closely above the surface of the diskette that a speck of dust or a fingerprint represents a sizeable obstruction to the diskette's passage under the head. For this reason, you must never touch the surface of the diskettes; it almost invariably causes loss of material.

## **How Data Is Organized on a Diskette**

The capacity of a diskette is expressed in bytes. A byte describes a single character or numeral, like A or 3. Eight digital bits comprise one byte. For all practical purposes, a byte is a character. If you

assume that a single typewritten page holds about 250 words, the capacity of a COMPAQ Computer diskette is equivalent to about 200 typewritten pages. If you have a pair of disk drives, the computer can work with the equivalent of 400 pages of data. A file of diskettes is physically compact, and the number of pages you can store is limited only by the number of diskettes you have.

There are 40 concentric tracks on the diskette, and each track is subdivided into eight sectors. The outer tracks on the diskette are longer than the inner tracks. Despite this, the storage capacity of all the tracks is the same. The magnetic medium passes under the recording head much faster on an outer track than on an inner track, just as a point on the rim of any wheel always moves faster than a point near the center. A single digital bit, which is defined by a fixed time interval, is recorded onto a longer arc segment on an outer track than on an inner track. An inner track, therefore, stores precisely as much data as an outer track. Another way to think about this is to note that it takes the same amount of time (about 1/5 of a second) for any track to make a full revolution past the recording head, whether it is an inner track or an outer track.

## The Write-Protect Notch

Every time the disk drive is instructed to write data to a diskette, it checks the write-protect notch (see Figure 1-18). If the drive doesn't encounter an obstruction, it proceeds with the recording process. If the notch is blocked, however, the recording head cannot write on the diskette, and an error message appears on the display.

If you place an adhesive tab over the write-protect notch, you prevent the computer from writing any information to, or erasing any information from, the diskette. Purchased programs are protected with adhesive tabs. You can also protect important data files of your own. Adhesive tabs for this purpose are supplied with diskettes purchased from your dealer.

## 1-8. CONCLUSION

You have now completed the GETTING ACQUAINTED chapter. It was designed to help you put the computer into action without lengthy study or wasted motion. To learn the reasons behind the commands you have used, and to learn how to get top performance from your COMPAQ Portable Computer, work through the following chapter on DOS OPERATIONS.

The next chapter will introduce you to the DOS operating system and its many features. You will learn how to use DOS commands to control your computer and how to use DOS to make your computer more efficient. You will also learn how to use DOS to make your computer more powerful. This chapter will also introduce you to the DOS command line interface, which is a powerful tool for controlling your computer. By the time you finish this chapter, you will be well on your way to becoming a DOS expert.

The next chapter will introduce you to the DOS operating system and its many features. You will learn how to use DOS commands to control your computer and how to use DOS to make your computer more efficient. You will also learn how to use DOS to make your computer more powerful. This chapter will also introduce you to the DOS command line interface, which is a powerful tool for controlling your computer. By the time you finish this chapter, you will be well on your way to becoming a DOS expert.

The next chapter will introduce you to the DOS operating system and its many features. You will learn how to use DOS commands to control your computer and how to use DOS to make your computer more efficient. You will also learn how to use DOS to make your computer more powerful. This chapter will also introduce you to the DOS command line interface, which is a powerful tool for controlling your computer. By the time you finish this chapter, you will be well on your way to becoming a DOS expert.

## 2-1. INTRODUCTION

---

### What Do You Do When You Operate a Computer?

How you operate your COMPAQ Computer depends on what type of work you do with it. There are some operating procedures which are common to all kinds of tasks. For example, whether you are working with words, numbers, graphics, or all three (balance sheets, business letters, bar charts, etc), you need to put your work in files.

You need to name these files, store them, recover them, edit them, copy them, and transfer information into and out of them. You can also print out their contents. Learning the basics of operating your computer is largely a project in learning to manage files.

Another step in learning to operate the computer is using applications programs specifically written to simplify your particular task, such as word processing, business forecasting, accounting, or statistical analysis. There are many, many such programs. Each one you purchase comes with its own instructions.

At an advanced level, operating the computer means writing programs for it. Some elementary programming in the BASIC language is presented in Chapter 3 of this book.

The DOS OPERATIONS chapter concentrates on file management. It shows you how to use the hardware (the keyboard, the disk drives, and the diskettes) and the software (the computer's disk operating system, or DOS) to manage files. In these activities, DOS is vitally important.

## **DOS: The Disk Operating System**

DOS is an acronym for Disk Operation System, and is pronounced to rhyme with "boss". It knits the separate components of the COMPAQ computer into a computer system. It accepts instructions entered into it through the keyboard, and interacts with the memory, the disk drives, and the input/output (I/O) devices to carry out these instructions. It interacts with applications programs to enable you to do things such as word processing and spread sheet programming.

You have already used the DOS commands DISKCOPY and DISKCOMP. There are several more file management commands. One is called FORMAT. It is used whenever you want to prepare a brand-new diskette for use. Another one is called DIR, which is short for "directory". In response to this command, the computer displays a complete listing of the names of the files stored on a specified diskette. Other DOS commands enable you to erase files, rename files, and move them from diskette to diskette.

## **Do You Have One Disk Drive, or Two?**

Your COMPAQ computer may be fitted with one or two disk drives. Certain DOS operations are carried out differently for each of these two system configurations. Single-drive DOS operations and dual-drive DOS operations are treated in separate sections of this chapter. You can skip the section that does not apply to your own system.

- If you have a dual-drive system, and have not yet made a copy of your DOS diskette, skip directly from this page to the DISKCOPY procedures on page 1-22, and work through this operation. This gives you the security of a back-up DOS diskette.

- If you have a single-drive system, and have not yet made a copy of your DOS diskette, skip directly from this page to the DISKCOPY procedures on page 1-26, and work through this operation. This gives you the security of a back-up DOS diskette.

## **2-2. HOW THE COMPUTER WORKS**

---

Here is a brief explanation of how the COMPAQ Computer works. It will make it easier to understand DOS and to operate the computer.

### **Summary of This Section:**

1. The COMPAQ Computer has two places to put information: into storage on diskettes and into active memory within the computer. Information (data and programs) stored on diskettes is not actively available to the computer. To gain access to this stored information, the computer, at the direction of DOS, transfers information from the diskette into memory. The process of transferring the information does not erase anything from the diskette.
2. New information, created in memory, cannot be stored there indefinitely. In the event of a power failure, this information would be lost. It is a good practice to perform what is called a file save at regular intervals. To save a file, you command DOS to transfer the file to the diskette. Some operators save a file routinely every fifteen minutes. The exact procedures required to perform a file save vary from program to program. All programs, however, provide a method for saving files.

Note that only information that is held in memory is vulnerable to a power failure, or an unintentional switch-off. Information that has been stored on a diskette is not affected by a loss of power.

## The Mind in the Middle of the Machine

Many ancient cities were set up to work from a single center of commerce where all important transactions took place, and where all roads led.

Computers are also designed to work to and from a central point. The center of a computer is its memory and central processor. The routes in and out of the center of the computer are electronic, and they lead to various devices, such as a keyboard, a printer, a video display, and some form of storage medium, such as a diskette.

These devices outside the center of the computer are collectively called the peripheral devices. In the COMPAQ Portable Computer, most peripheral devices are packaged into a single unit with the central processor and memory, but functionally, they are clustered in a ring around it.

## How the Computer Acquires Its Intelligence

The COMPAQ Computer consists of a central processing unit, a memory, a keyboard, a video display, and one or two disk drives. The disk drive stores programs and files of data onto diskettes. Most computers also have a printer attached.

As you may recall from the chapter GETTING ACQUAINTED, the first step in operating the computer, after it is set up and plugged in, is to insert the DOS diskette into Drive A:.

Among the programs that make up DOS, there is one called the boot record, or simply, the boot. The name is derived from the program name, BOOTSTRAP. When you turn the computer on with the DOS diskette in Drive A:, the boot record program is automatically loaded into the machine's memory from the diskette. The boot record pro-

gram is then responsible for directing the transfer of three other very important DOS programs into active memory. These three programs, plus the boot, are collectively called the system. The system is a short term for Disk Operating System.

The computer acquires its intelligence by reading the system into active memory from the diskette. All you need to do is insert the DOS diskette into Drive A: and turn the computer on. The rest is automatic. This intelligence is sufficient to draw the various separate components into a coherent, coordinated computer.

## **The Difference Between Memory and Storage**

It is essential to note the distinction between memory and storage. When a program or data has been placed into storage on a diskette, it is safe; it does not disappear if you turn off the machine. But the information is also static. The computer cannot do anything with it there. To use the information, it must first be transferred from the diskette, which is a peripheral storage device, into the active central memory of the computer. The computer must transfer the programs and data out of storage and into memory before it can solve any problem.

The solution process (shifting and manipulating data in response to instructions stored in the programs and entered by you) is carried out by the central processing unit.

What we are calling active memory has a formal name: random-access memory or, more commonly, RAM. It must be large enough to hold DOS, the applications programs for specific tasks like word processing, and the data files upon which these programs operate. The standard model of the COMPAQ computer has 128 Kbytes of RAM, which means it can hold about 131,072 characters.

Programs permanently stored on diskettes are read into the computer's memory, but they are not erased from the diskette in the process. This way, a power failure or an unintentional switch-off cannot result in the loss of a program. It remains safely stored on the diskette.

## Why File Saves Are So Important

The memory is at the center of the system. What you see on your video screen is displayed from active memory. What is printed out on your printer (if you have one) is read from active memory. All manipulations and responses to programs and commands involve active memory.

Data is organized into files in active memory, and is then transferred to diskettes in an operation called a file save. Once a file has been saved, it is safe from power failure or shutdown. Information that has been transferred into the computer's memory, however, is not permanent. If the power is cut off, the information is lost. This is why files must be transferred to diskette storage before the computer is turned off.

## What You Do With DOS

When you learn to use DOS, you learn how to direct its file creation and management activities. This involves transfers of data from diskette to memory (loading a file or program), from diskette to diskette (copying a file or program), and from memory to diskette (saving a file).

With DOS, you can assign names to files of data, and store the files by name so they can be easily recovered. On request, DOS can provide you with an on-screen directory of the names of the files recorded on the diskette in either drive. DOS also provides the means to enter data into the files and to manipulate the data once it is there. File editing

and manipulation using DOS by itself requires some programming experience, but in combination with applications programs, DOS can be used without any special skills to enter and edit files. These programs make DOS operations much easier.

## **How It All Fits Together**

You can now visualize the COMPAQ computer at work. Imagine yourself as the central processing unit, and position yourself at the center of a ring of peripheral devices. Reach out to a disk drive for the DOS programs, and read them into your memory. Accept a command from the keyboard to load an applications program. Reach out to the diskette for the program, and read it into memory. Accept a command from the keyboard to access a particular file of data. Go to the diskette and read that data into your memory. Now, following the instructions of the program you have memorized, respond in appropriate ways to requests from the keyboard to operate upon the data file. When you have finished, save the data file by writing it back out to the diskette.

An applications program might be used to create a file in memory to receive new data, or to read an existing file into memory from a diskette. The data in this file (words, numbers, or pictures) can now be operated upon by the program at your direction. You may add, delete, and edit information, or direct the performance of mathematical and logical operations, such as add, multiply, rank, sort, or extract by various criteria.

The central processor accomplishes such tasks according to the plans in memory called programs. It can locate an item of data in memory, move that item to another location, operate upon it there (for example, subtract it from another item), and then remove the results to other locations in memory as appropriate.

The finished product is a data file. When you finish working in the file, it can be saved (transferred out of the memory onto a diskette for storage) and its contents can be printed out by a printer.

The important things to understand are the ideas of moving commands and information in and out of the center of a circle to various devices on the edge of the circle, and the role of the computer's active memory in each of these transactions.

## 2-3. THE KEYBOARD

A computer keyboard is an advanced control system. It is a fast, practical, and widely-used method of communicating with the computer. If this is your first encounter with a computer keyboard, take some time to become familiar with it. An ordinary typewriter keyboard simply puts characters on paper. A computer keyboard puts you into contact with a galaxy of information, and enables you to command and control the management of that information. When you use your COMPAQ computer keyboard, you are not typing. You are using the keyboard to guide the computer to give you exactly the information and operations that you require.

For most applications, keyboard entry consists of entering command words. It is not necessary to be a skilled typist to enter these words. Even if you do not know how to type, you will have no difficulty making keystrokes to enter short commands like DIR or COPY, or commands like Y (for yes) or N (for no). Most command words are short, simple, and easy to remember. Knowing how to type is helpful, but it is not an essential skill.

### **Caution: Some Keys Change Their Functions**

One of the advantages of using a computer keyboard as a control device is that the functions assigned to particular keys can be set up by the programmer. Accordingly, some of the keys are considered to be applications-dependent. This means that their functions change, depending on which applications program you are using.

The BACKSPACE key, for example, erases characters as it moves the cursor from right to left, if the computer is simply running on its operating system, DOS. But when certain word processing programs are in the system, the BACKSPACE key produces a different effect. It slides the cursor along under a letter or word, leaving the characters intact.

Similarly, certain keystrokes have different functions when you use DOS than when you use the computer language called BASIC. The function key F3, for example, stands for "redisplay entire previously entered line" when the computer is under the direct control of DOS. But in BASIC, the F3 key commands the computer to transfer a program from diskette storage into memory.

This may appear complicated. It is a useful complication, however, because redefinable keys are more efficient and actually simplify the use of your computer.

Another capability that all keys have is the repeat function. When you press and hold down a key for several seconds, the character or function repeats until you release the key.

Maps for key functions associated with DOS and BASIC are provided in APPENDIX A, QUICK REFERENCE. Different keyboard maps may apply if you are using applications programs supplied by other manufacturers. Consult their maps for specific key functions. The maps are especially useful when a given keystroke produces an unpredicted result.

## A Quick Overview of the Four Keyboard Zones



Figure 2-1. Keyboard. The Alphanumeric Zone Is in Green.

**Zone 1, the Alphanumeric Keys:** This part of the keyboard corresponds to that of a typewriter. The keys can be used to produce upper-case and lower-case letters, numbers, and symbols on the video screen. In word processing operations, the alphanumeric keyboard is used just like a typewriter keyboard. In spread sheet programs, the linear array of numbers at the top of the keyboard is used to enter numerical data, and the alphabetic keys are used to enter commands.

**Zone 2, the Control Keys:** Some of these keys are also on the typewriter keyboard, such as the BACKSPACE key, the SHIFT keys (indicated with vertical arrows), and the CAPS LOCK key. Other control keys are specifically associated with computer operations, such as the keys marked ESC, CTRL, and ALT. Each of these keys is discussed in this section.



Figure 2-2. Keyboard. The Control Keys Are in Green.

**Zone 3, the Cursor/Number Pad Keys:** These keys may be used in either of two modes, when supported by the appropriate applications program. When the number lock (NUM LOCK) key is pressed, the number pad mode is activated, and the pad may be used to enter numeric data. When the NUM LOCK key is pressed again, the mode switches back to cursor control. In the cursor control mode, the number keys that have directional arrows can be used to move the cursor.



Figure 2-3. Keyboard. The Cursor Keys and Number Pad Are in Green.

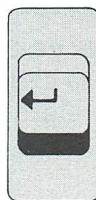
This on/off switching capability is called toggling, and is used frequently on the computer keyboard. Also, the number keys marked with commands can be used to enter those commands. PGUP and PGDN, for example, can be used to scan up and down video pages, when the applications program supports these functions.



Figure 2-4. Keyboard. The Function Keys Are in Green.

**Zone 4, the Function Keys:** These keys have different functions when you are using different programs. Their functions can be defined and redefined by programmers. This means that they are applications-dependent. The key F1, for example, might move a paragraph if the computer were operating under the control of a word processing program. But under the control of a different program, it might start a calculation of rankings from data entered about 100 football teams. In short, the purpose of each function key is up to the applications programmer, and must be specified in the documentation that you receive when you purchase the program. When you are using the BASIC programming language, for example, the keys have certain useful housekeeping functions, including loading and saving files. You may enter the BASIC command, LOAD, in one of two ways: by typing it out letter-by-letter on the alphanumeric keyboard, or by simply pressing the function key marked F3. As you can see, the function keys save time.

## The Most Important Keys



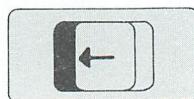
**The ENTER Key:** This key was discussed in the chapter, GETTING ACQUAINTED. Its primary function is to enter command words and responses to prompts. In a typical operation, the screen displays the A> prompt. In response, you type the command:

**diskcomp a: b:**

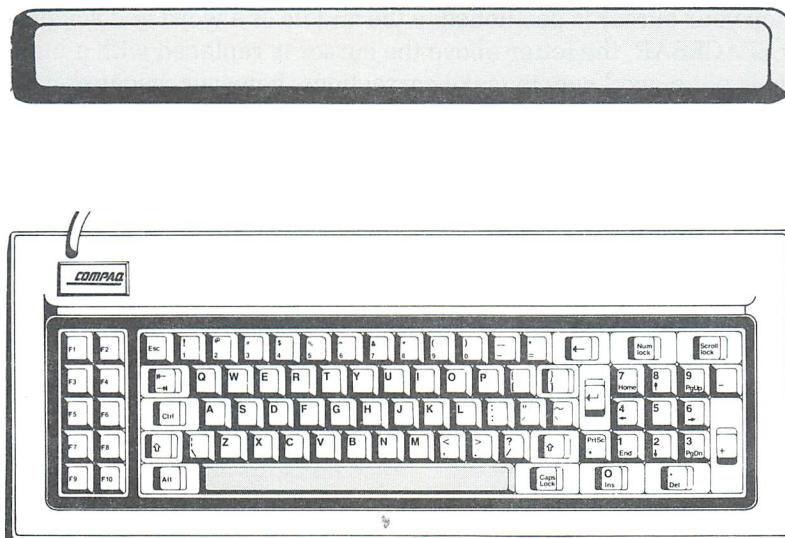
which means that DOS is to compare the diskette in Drive A: to that in Drive B:.

To make the computer execute this command, you then press the ENTER key.

The ENTER key is located on the alphanumeric keyboard map where the carriage return key is located on an ordinary typewriter, but the ENTER key has an essentially different function. It does shift the cursor down one line like a carriage return key, but it also enters a command in the process. In some applications, particularly word processing, the ENTER key is used to establish new paragraphs, and the carriage return function is carried out automatically.



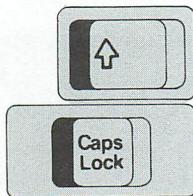
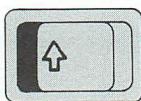
**The BACKSPACE Key:** This key corrects mistakes. If you press the BACKSPACE key when using DOS, the cursor moves one character space to the left, erasing as it goes. Before you press the ENTER key, you can erase and retype any incorrect command or word. If you enter a command in error, DOS will usually reject the erroneous command and request another.



**The SPACEBAR:** This key's function seems obvious, but it has some special aspects. It does not position the cursor like a typewriter spacebar positions characters on a page. Instead, the SPACEBAR enters a blank character each time it is pressed. To the computer, a blank is like a 27th letter of the alphabet. The computer recognizes it and considers its meaning. This matters when you are entering commands. The computer responds to **A> b:** by switching its attention from files on Drive A: to those on Drive B:. It does not, however, respond to **A> b:** because the space is read as a blank character. The computer responds to an improper command of this type by displaying:

Bad command or filename

When your cursor is positioned in the middle of a word and you press the SPACEBAR, the letter above the cursor is replaced with a blank. This is not a good way to make corrections, however, because it puts blank characters into the memory of the computer, even though they are invisible to you. It is better to use the BACKSPACE key, which also makes characters disappear, but is specifically designed for making corrections.



**The SHIFT and CAPS LOCK Keys:** The two SHIFT keys are located in similar places as they are on a typewriter keyboard. The shift key on a typewriter operates by switching letters from the lower case (the most-frequently used case, or the usual case), to the upper case (the less-frequently used case, or the occasional case).

In using a computer, you often find that the usual case is the upper case. The CAPS LOCK key lets you define which case, upper or lower, is to be displayed as the usual case. The function of the CAPS LOCK key is very similar to the shift lock key of a typewriter, but it works differently in two respects:

- 1) It affects only the letters. Regardless of the case dictated by the CAPS LOCK key, upper or lower, the symbols above the numbers and the upper symbols on the punctuation keys still require the use of the SHIFT key.
- 2) It is a toggle key. The first time you press the CAPS LOCK key, it locks the keyboard into upper-case letters. The next time you press it, the keyboard locks into lower-case letters. It might be helpful to think of this key as a “case alternator”.

**The CONTROL (CTRL) Key:** This key is always used in conjunction with one or two other keys. It is useful when you are working with specific applications programs.

When you press a character key, the character simply appears on the screen. But when the CTRL key and a character key are pressed at the same time, the character key conveys a special instruction to the computer.

For example, if the character T is entered while the CTRL key is pressed, the computer might, under the direction of a word processing program, move an entire paragraph from one place to another within a text. The letter Y, entered as a control signal, might cause a sentence to be deleted. The specific effect of a character entered as a

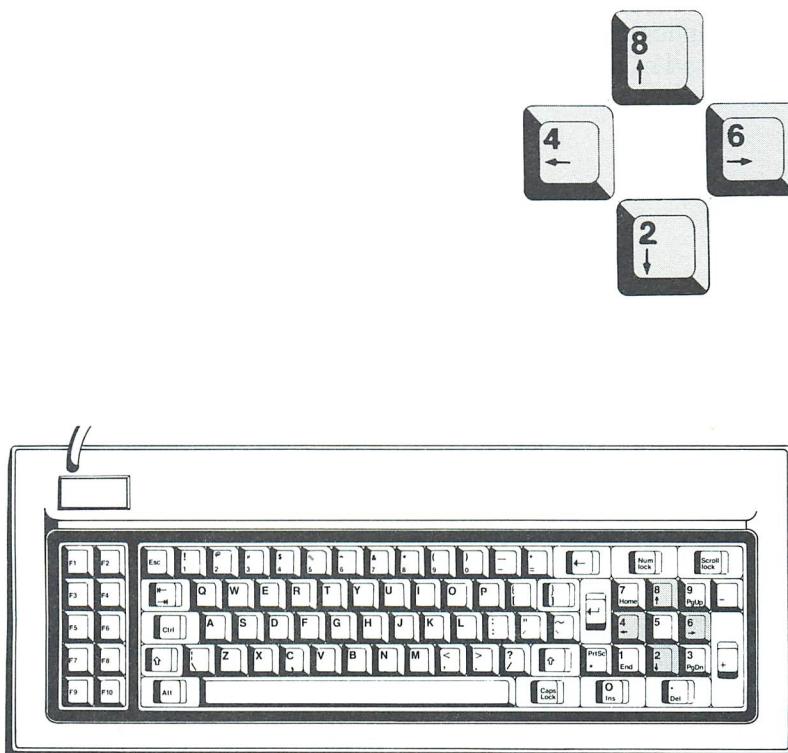


control signal is defined by the programmer. When an applications program is read into the computer's memory, the keyboard characters assume the control signal functions assigned to them in that particular program.

The CTRL key is sometimes used with one or two other labeled function keys. The meanings of these control signals are defined in DOS. They are discussed later in this chapter.

In this book, and in many program descriptions, there is a special symbol used to indicate control signals. For example, if the letter T is to be used as a control signal, it is written as <sup>A</sup>T. The caret superscript always means that you must first press and hold down the CTRL key, and then press the designated character key. The <sup>A</sup>T symbol is read aloud as "control T".

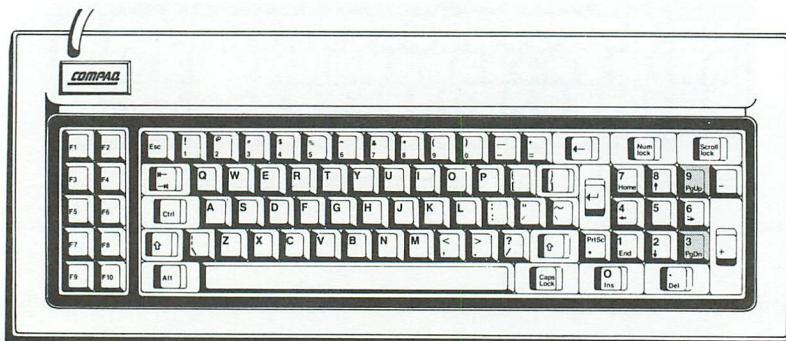
**The Cursor Controls:** The cursor is the short, blinking underline that appears on the screen as a position marker. It underlines the space where the next entered character will appear on the screen.



The four keys marked with arrows give you the equivalent of an aircraft joystick, if your applications program supports this. The arrows on the keys indicate what direction the cursor will move in when the key is pressed: up, down, right, or left. A single touch to one of these keys moves the cursor one space. If the key is held down, the cursor will advance continuously in that direction.

Note that under DOS control, the key that moves the cursor to the left also acts like a the BACKSPACE key and erases characters as it shifts the cursor.

These four keys also make up part of the number pad. When using certain applications programs, you can use these keys to enter numbers (instead of moving the cursor) by pressing the NUM LOCK key. To restore cursor control, press NUM LOCK again.



**Scrolling:** The PGUP and PGDN keys help you scan the contents of a data file, if your program supports these functions (DOS does not). Visualize a file as one very long page. When you open an existing data file, material at the very top of this page appears on the screen. PGDN is an abbreviation for "page down". It is helpful to think of this as a way to look down the page. To use the PGDN key, the number pad must be toggled off. If it is not off, switch it off by pressing the NUM LOCK key. If you are using an applications program that supports this

feature, when you press the PGDN key, the screen moves down the page about the distance of an average paragraph.

The key labeled PGUP has exactly the opposite effect. It is an abbreviation for “page up”, and enables you to scan up the page, moving up about a paragraph’s length each time you press the key.

This process of moving up or down on a page is called scrolling. Think in terms of a single long page, fixed in place. You can scan up and down this long page using the PGUP and PGDN keys, when your program supports these functions.

**Skipping:** If your program supports PGDN and PGUP, it is not necessary to use the PGDN key to move down through a file to the bottom. You can skip directly to the last item entered by using the END key.



You can also skip from any point in the file to the beginning of the file. The key marked HOME puts you back at the first item entered.

**Reminder:** Remember that the definition of key functions may change, depending on the applications programs that have been read into memory. When no applications programs are present, and only DOS is in memory, some of the functions described here do not work. When applications programs are in use, their specific keyboard definitions apply. There is no universal guide to using the keys.

## The DOS Function Keys

Note that the function keys are redefined by specific applications programs. The function key commands specified here work only if your COMPAQ Computer is running on DOS alone. It is a bit difficult to visualize what these keys do from the verbal description of their functions. To acquaint yourself with what they do, first bring the system up in DOS. Then type some letters after the prompt, and try out a function key.



**The F1 Key** commands DOS to redisplay the previously entered line, one character at a time.



**The F2 Key**, followed by a character from a previously entered line, causes DOS to display all of the previously entered lines, up to the particular character which has been entered.



**The F3 Key** redisplays the previously entered line in its entirety.



**The F4 Key**, followed by a character key-stroke, causes DOS to omit from the display all of the characters up to the particular character which has been entered. When you press F3, the computer displays the remainder of the line.

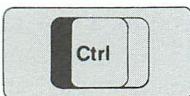


**The F5 Key** moves the cursor from the currently displayed line to the following line for further editing or retying.

Later, as you work, if you forget what a particular function key does, consult this section (2-3. THE KEYBOARD); Chapter 3, BASIC; or APPENDIX A, QUICK REFERENCE for a definition of the functions assumed by these keys as defined by BASIC or DOS.

**The Control Break Procedure:** This is an example of a procedure requiring the use of the CTRL key and one other key, the SCROLL LOCK/BREAK key. Ignore the term SCROLL LOCK for now. The important word here is BREAK. A control break is used to halt an operation in progress.

Suppose, for example, that your applications program is to extract every third name from a list of 15,000 names. This is a common technique for reducing the size of a mailing list without altering its demographic makeup. But suddenly you discover you have inadvertently entered the number 4 in response to the prompt, and the computer is dutifully extracting every fourth name instead of every third name.



Break



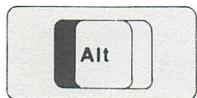
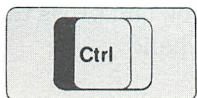
It is not necessary to wait while the computer works all the way through 15,000 names. You can stop the process with these three steps.

- 1) Press CTRL, and hold it down.
- 2) Press BREAK.
- 3) Release both keys.

What happens next depends upon which applications program you are using. The process in progress stops. The program may request that you follow certain steps to begin again with the correct numbers. Or, it may be necessary to exit and reenter the program using the system reset procedure, which is discussed next in this section.

Note that the control break procedure does not necessarily halt the printer if it is in use. This is because the printer pulls information

from the diskette and temporarily stores it. The printer will not stop until it has printed all the information it already has stored.



**The System Reset Procedure:** At any time, you can return your COMPAQ Computer to the condition it was in when you first turned it on; that is, with only DOS in memory. System reset is the procedure you use to do that. It is most frequently used when a new applications program diskette has been inserted into Drive A:, or when the machine has been turned on without inserting a program diskette. After you insert the appropriate diskette, system reset brings the COMPAQ Computer up in the desired program.

A system reset requires four steps:

- 1) Press the CTRL key and hold it down.
- 2) Press the ALT key and hold it down also. You can press the CTRL and ALT keys with two fingers of your left hand.
- 3) Now press the key marked DEL, which is to your right on the keyboard.
- 4) Release all three keys.

The computer reacts as if it had just been turned on. It cycles through its diagnostics, and then displays the DOS prompt, **A>**.

System reset is useful under certain special circumstances (after a control break, for example), but it should not be done casually. The procedure completely clears the memory, just as a power failure would. Before initiating a system reset, then, it is essential to do a file save. Otherwise, everything in the memory file which has not been saved (transferred from memory to diskette) will be lost.

This is why the procedure requires the use of three keys simultaneously. It isn't likely to be entered by accident. The markings on the three keys, CTRL, ALT, and DEL stand for "control", "alternate", and "delete". These names are not meant to be descriptive of their role in resetting the computer. Used individually, the keys have other purposes. These are defined on appropriate keyboard maps.

The computer may not automatically restart when the power is restored after a power failure. When the power comes back on, it may be necessary to turn the computer off, wait about 15 seconds, and turn it on again. A system reset will not work. This feature protects the computer from surges when the line power comes back on.



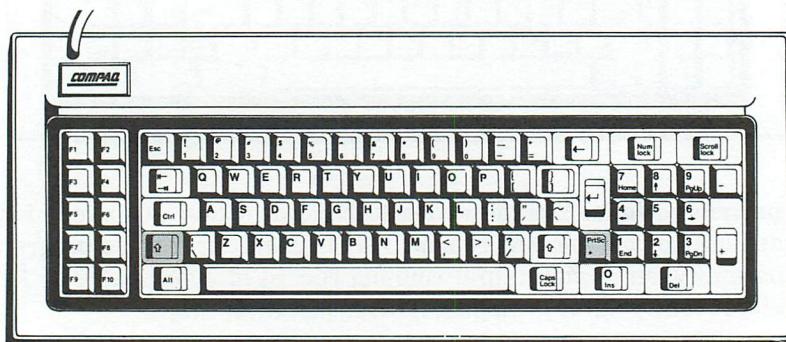
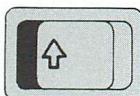
**Typewriter Mode:** You may wish to have a printer echo your keyboard entries as you make them. This is useful if you are programming and wish to maintain a running record of every entry as it is made. If your printer is on-line, it takes just three steps:

- 1) Press CTRL and hold it down.
- 2) Press PRTSC. This is an abbreviation of "print screen".
- 3) Now release both keys.

The printer prints out each line as it is ended. It also prints out each time the ENTER key is pressed.

To terminate the print screen operation, press CTRL and PRTSC again.

If a continuous record of entry is not necessary, there is a more efficient way to print out work as you go. This procedure is described in the following text.



**The Print Screen Procedure:** Use this technique if you want to print everything that appears on the screen at a particular moment.

- 1) Press the SHIFT key and hold it down.
- 2) Press the PRTSC key.
- 3) Now release both keys.

Everything currently displayed on the screen prints out on paper.



**The ESCAPE (ESC) Key:** This key is useful if a command entry is incorrect, and it would be better to start over than to try to correct it. The ESC key shifts the cursor down by one line, cancels the old command, and gives you a fresh start. As a signal to let you know the old line has been cancelled, a backslash (\ ) is left to mark the abandoned line.

The ESC key is widely used in applications programs to cancel a request, exit a program, and (occasionally) enter a command.

## The “O” and “L” Problem

A typewriter makes no distinction between the numeral one (1) and the lower-case letter “l”. To the computer, however, the difference matters, and you must always be careful to enter the number one with a numeric key. Do not use the lower-case L key for the number one.

Similarly, the letter “O” cannot be substituted for a zero (0). You must use the numeric zero key.

## Key Click

When you press the keys on your COMPAQ Computer keyboard, they make a slight clicking sound. This is called key click. You can vary the loudness of the key click by using the following procedures.

To reduce the loudness:  
*CTRL + ALT*

- 1) Press the **ALT** key, and hold it down.
- 2) Press the – (minus sign) key.
- 3) Release both keys.

To increase the loudness:  
*CTRL + ALT*

- 1) Press the **ALT** key, and hold it down.
- 2) Press the + (plus sign) key.
- 3) Release both keys.

Press a few keys on the keyboard to check the volume level. Each time you press the – or + key, the loudness is changed one degree. If you hold down the – or + key, the loudness will change several degrees. Continue this process until the key click is at a comfortable volume level for you.

## 2-4. HOW TO NAME FILES

As we have noted, the process of learning to operate a computer is largely a project in learning to manage files. The first step in doing this is to assign unique names to the files. As many as 112 different files may be recorded on a double-sided diskette. Each file must have its own name so that DOS can distinguish the difference when retrieving them, reading them into active memory, and returning them to their respective places on the diskette.

### When to Name a File

When the COMPAQ Computer is used with an applications program (for example, a spread sheet program), it is necessary to create a place to file the finished work. Specific instructions for opening a file are presented in the applications program on-screen menu, or they are provided as part of the program instructions.

Different programs use different terms to describe the process of opening a file. Sometimes it is called opening a file, but the same process might also be called creating a file, or saving a file.

The term "saving a file" is a little unclear. It might be helpful to remember it this way. The file to be saved may be either a brand-new file or a file that already exists on the diskette. You have opened this file, updated it, and are now ready to return it to storage.

In one spread sheet program, a blank spread sheet is presented as soon as the program is loaded. You can use this display for organizing and operating upon your data as you enter it, but the data does not formally constitute a file until you save it; that is, give it a name and transfer it to a diskette.

In one word processing program, opening a file is done a bit differently. Immediately after the program is loaded, a menu displays a

request for a file name. Only after entering the name you have chosen is the file opened. Once it is open, you can proceed with your work.

In both of the example programs just noted, you are given an option of reopening a file which you have already named and stored on the diskette. When the request for a file name appears, you type in the name of an existing file, and this file is loaded into memory from the diskette.

Giving a name to a file when working in BASIC is very straightforward. Specific commands to save or load a named file can be typed in or entered with function keys.

## Some Examples of File Names

A file name can be almost anything you choose it to be. You can use names, numbers, alphanumeric codes, or combinations of certain symbols, like @#%!&<. There is, however, a sharply defined format that must be followed, and also some conventions you may find helpful.

Typically, a file name is chosen to denote the contents of the file. What kinds of things are put into files? The two broad categories are programs and data. Here are some examples:

**File Name:      Contents of the File:**

- |          |   |
|----------|---|
| NTH-NAME | A program designed to extract every 2nd, 3rd, 4th, or Nth name from a large master mailing list, and use those names to create a smaller list with a similar demographic character. |
| FRIENDS  | A list of names, addresses, and birthdays of your friends.  |

|          |   |
|----------|---|
| ACCT     | A listing of current accounts receivable, including names, addresses, amounts due, and status. Such a file would probably be a component of a complete system of files. |
| GET-30S  | A program which extracts, each day, those accounts receivable which have been outstanding for 30 days.  |
| SUBS     | A list of subscribers to a club publication.  |
| FUNSTERS | An educational word game that you have made up for your children.   |
| PRICING  | A tabular display of optional equipment that you can use to develop, on the spot, an exact price for a customer.  |
| QUANBRK  | A program which calculates price discounts associated with the purchase of a particular quantity of goods.  |
| ITIN     | An itinerary for a trip.  |
| XMIT4PM  | The text of a letter to be transmitted from computer to computer via the telephone at 4:00 p.m.   |

## The Distinction Between a File's Name and a Filename

The names of the files used in the foregoing examples are a little simpler in form than those commonly used. A file's name is formed from two components. The first is called the *filename*, and the second is called the *extension*.

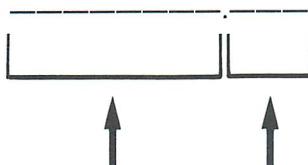
Here are several examples of compound names for files, each formed from a filename plus an extension:

ACCTSREC.JAN  
ACCTSREC.FEB  
ACCTSREC.MAR  
ACCTSREC.APR  
BALSHEET.'79  
BALSHEET.'80  
BALSHEET.'81  
BALSHEET.'82

As you can see, the extension marks the distinction between files with similar contents. It does not have to be used this way, but this is one valuable application for it. Often the extension is used to denote a programming language, as in the file named PIECHART.BAS. The BAS is short for BASIC.

## The Proper Format

The correct way to write a file's name is illustrated below:



As Many as Eight Characters  
Can be in the Filename.

As Many as Three Characters  
Can be in the Extension.

The filename can have as many as eight characters. The extension can have as many as three characters. The two components of the name are always linked by a period. No blank (SPACEBAR) characters can interrupt the filename or extension. Numbers are fine, and certain symbols and punctuation marks are acceptable. Commas may not be used, and the period can be used only to link the filename and the extension. The codes A: and B: specify the disk drive in which a file is to be found. Like the period, the colon must appear in a particular place, and so cannot be used elsewhere in the file name. It is not necessary to use an extension, but it is often helpful.

## Summary of Acceptable Characters

Here is a summary of the characters which can be used to form a file's name:

- 1) Any letter in the alphabet. Remember, DOS does not distinguish between upper- and lower-case entries, so you can use either case to enter a file name.
- 2) Numbers.
- 3) Punctuation marks and symbols as follow:

\$ # & @ ! % ( ) - < > ' ^ \ { } ~ ' \_ !

Double quotation marks and commas cannot be used. Colons and periods are used only in their specified positions.

## The Drive Specifier

If you are working with dual disk drives, you can create files on either of two active diskettes. It then becomes necessary to specify to the computer which drive holds the diskette with the particular file you are seeking. This is done by adding a drive specifier as a prefix to the file's name. The two specifiers are A: and B:, and they direct the computer to Drive A: and Drive B:. File names with drive specifiers are written with no space between the colon and the file name. Some examples are:

B:GUIDE.OPS  
B:BB  
A:STURGIS  
A:BALSHEET.83  
B:TEXT.CH4

In the example A:BALSHEET.83, the drive specifier A: is not strictly necessary. This is because the computer regards Drive A: as the default drive. If no drive specifier precedes the file name, the computer assumes the file exists on a diskette in Drive A:, and looks for it there. Therefore, A:BALSHEET.83 can be written as simply BALSHEET.83.

The complete name of a file, including the drive specifier, the filename, and the extension, is called the file specification, but the most frequently-used term is file name. It is helpful to realize that a file name (two words) is a complete name, and a filename (one word) is one of three components that make up a file name.

## Some Names Work; Some Do Not

The following are examples of file names that are not acceptable to DOS and the reasons why they are not.

| <b>Erroneous File Specification:</b> | <b>Reason:</b>   |
|--------------------------------------|--|
| BOOK I                               | Space not allowed.   |
| FERGESON'S.LETTER                    | Too long.  |
| STURGIS,M                            | Comma not allowed.   |
| STURGIS:M                            | Colon improperly used. It can only be used in the drive specifier. |
| .STU                                 | Missing filename.  |
| AN.EPIC                              | Extension too long.  |

Some file names are formally correct, but fail to convey any information about what is in the file. For example, #\$\$%&().### is fine with DOS, but is difficult to recall and says nothing about the file's contents. A good file name is CALENDAR.83, because it instantly communicates the contents. Of course, you may wish to use cryptic file names for security reasons, or numerical codes in accordance with your own records keeping system. A file name like 12345678.123 is fine.

## What Files Are On This Diskette? The DIR Command

If you respond to the DOS prompt **A>** by typing the command DIR, the computer displays the contents of the diskette in Drive A:. This is the DOS diskette, and files are recorded on it that contain the various programs which make up the operating system, plus the programs in the demonstration package. To bring up the contents, type:

**dir**

and press ENTER. The computer displays a directory that shows the filenames, their extensions, the number of bytes each occupies on the diskette, and the date and time that each file was last accessed.

Note that the files' names are displayed in a somewhat different format than that which is required for entry. The extensions are not linked to the filenames by periods. In the extensions that you see on the screen, COM stands for command, EXE for execute, and BAS for BASIC.

Displayed adjacent to each file's name is a number expressing the total size of the file, in bytes. This tells you how much memory is occupied by the program or data. Adjacent to this are two other columns, which are the date and time the file was last accessed.

## Halting the Display

Sometimes when you enter DIR, the upper portion of the list of files goes speeding upscreen and out of sight. There is a method for viewing the list in sections. Instead of DIR, type:

**dir/p**

and press ENTER. The scrolling on the display will stop when the screen is filled.

After you have examined the information displayed, you can continue the scrolling by pressing the SPACEBAR.

## Using the Full Display Width of Your Screen

In a lengthy directory, you may find it inconvenient to stop and start the scrolling effect to scan down a long list. You can break the long list into a series of short components arranged in columns across the width of your screen. Type:

**dir/w**

and press ENTER. You will see a display that is divided into several columns.

Note that the number of bytes, date, and time of file access are suppressed in this listing. These are accessible using an unmodified DIR command.

## What's on File in Drive B:?

Open the door to Drive A:, remove the DOS diskette, and insert it into Drive B:. Now try again to gain access to the file directory on the diskette. You cannot simply type the command DIR, because this calls up

the directory for the diskette in the default drive, which is Drive A:, in this case. You must change the definition of the default drive so that the computer defaults to Drive B: instead of Drive A:.

The **A>** prompt is displayed on the screen. Respond to it by typing:

**b:**

Then press ENTER. The screen displays:

**A>b:  
B>**

Drive B: is now established as the default drive. If you now type:

**dir**

and press ENTER, the computer checks Drive B:, and displays a directory of the files recorded on the diskette in that drive. In this case, it is the familiar directory of DOS and the sample programs. This technique of changing default drives in order to view a directory of the diskette in Drive B: is quite useful.

During a typical operation, you might insert a diskette containing working files into Drive B:.

The steps you follow are:

- 1) First, insert an applications program diskette (which also bears a copy of DOS) into the default drive (Drive A:).

- 2) Then, insert the diskette containing your working files into Drive B:.
- 3) To refresh your memory of which files are recorded on the diskette, change the default drive from A: to B:, and enter the DIR command.
- 4) Having noted the exact name of the file you wish to open, change the default drive back to Drive A:, load the applications program, and open (load into memory) the file you have selected from the Drive B: file directory.

## 2-5. HOW TO USE THE DOS COMMANDS

---

### DOS Defined

At this point, it might be helpful to define the multiple meanings of the term "DOS". The Disk Operating System, or DOS, is a term that has been defined and redefined with the growth of the technology it describes, so that it means many things to many people. Consider the range of meanings that might be intended when someone says DOS.

DOS can mean:

- 1) A single, rather short program concerned with file management; that is, the interchange of data between memory and the disk drive. This is probably the original source of the term disk operating system.
- 2) A package of four programs which include, and are inseparable from, the DOS program noted above. All four are automatically read into memory when the computer is turned on. This package is frequently called the system. The system is the most important of the many programs recorded on the DOS diskette supplied with your COMPAQ Computer. The system is often rerecorded onto a diskette containing applications programs or data files. The system gives such a diskette the power to bring the computer up. The term "system" is derived from the phrase "disk operating system", and is another way of saying DOS. You may also occasionally hear the term "DOS system".
- 3) The entire set of programs recorded on the DOS diskette. This encompasses the system, all the external command programs supplied on the diskette, and any original command programs you might create and add to the existing package. When you

turn your COMPAQ Computer on, only the system is read into memory. The rest remains behind on the diskette, to be accessed as needed. Command programs that remain on the diskette are called external because they are stored external to the memory until they are needed.

- 4) A generic term that can be applied to any disk operating system on any computer.

In the beginning, there was only one program called the Disk Operating System. As other programs came to be associated with this original DOS in a functional way, the name DOS became an umbrella to cover the whole set of programs, which we now regard as the system. Then, because these programs were stored on a diskette, the diskette came to be called the DOS diskette, and through this verbal association, all the programs on the diskette (the system plus the external commands) came to be called DOS. The meaning of the term DOS has expanded to cover more and more programs, and the process will probably continue in this manner. The main objective is to determine from context just how many programs are denoted by the term DOS each time you encounter it.

## Internal Commands Versus External Commands

When you turn your COMPAQ Computer on, it does not transfer the entire contents of your DOS diskette into memory. As noted under Definition 2 of DOS in the preceding section, four programs that constitute the nucleus of the operating system (and are collectively called the system) are read into memory. These few programs are sufficient to bring the system up. This process is the way the COMPAQ Computer acquires its intelligence.

Included with the programs that make up the system are the internal command programs. One such command is DIR. The response to the DIR command is immediate because it is always in memory.

When the system has been transferred into memory, many programs that are part of the DOS program package are left behind on the DOS diskette. These programs, which correspond to the external commands, must be called into memory as required. Some of the external command programs are quite large.

An external command program called LINK, for example, uses 41.8 Kbytes of storage space. This is equivalent to about a third of the computer's available memory capacity in an unexpanded model. The COMPAQ Computer has plenty of room for LINK in memory, but there is little point in dedicating memory space to it on a permanent basis, since it is used only occasionally. For a program like LINK, it is better to leave it on the diskette, and call it up only as necessary.

The programs which constitute the system require less than 15 Kbytes of memory space. Of this total, only about a third, or 5 Kbytes, is used up by all the internal command programs put together.

### **Important:** **Do You Have One Disk Drive, or Two?**

The rest of this chapter is divided into two sections. The first section covers operations as they are carried out on a COMPAQ Computer with two disk drive units. The second section is for a COMPAQ Computer with one disk drive unit.

The computer "thinks" it has two drives installed, even if this is not actually the case. If it has a single drive, this drive must alternately play the roles of Drive A: and Drive B:. As the operator, you change the drive's identity, and remove and insert diskettes as appropriate to maintain the illusion of two drives.

In practice, this is not difficult, but the description of this process requires more steps than does the description of dual-drive operations. Accordingly, we have described each command twice; in one section, as practiced with two drives, and in the following section as practiced with one drive. If you have dual drives, your command procedures begin here.

If you have a single drive, your command procedures begin on page 2-83.

## 2-6. DOS COMMANDS: DUAL DRIVES

---

### The FORMAT Command

Every new diskette must be formatted. If you use the DISKCOPY command (described later in this section) to transfer the entire contents of a previously-recorded diskette to a new one, the formatting operation is carried out automatically. But in every other circumstance, you must initiate a new diskette by using the FORMAT command. For that reason, FORMAT is the first step in many computer operations.

The FORMAT program prepares the diskette for filing operations. It sets up empty files and assigns addresses to them so they can later be given file names, filled with data, and retrieved on command. In addition, the FORMAT program establishes a blank directory. As files are created, the directory is filled in, and can be displayed in response to the DIR command to show you what files are recorded on the diskette.

At your option, the FORMAT program can copy the DOS system onto the diskette (system is described under DOS definition 2, page 2-44). After FORMAT has been used to record the system onto a diskette, that diskette can be used to boot the computer.

You can also use FORMAT to record the system onto diskettes that are to be used to store data files. If the DOS system is on such a diskette, you can, without inserting a DOS diskette in a separate operation, bring the computer up and use the DIR command to learn what is stored on the diskette. Because DIR is an internal command, it is part of the system. Some other internal commands are COPY, ERASE, and TYPE.

When you use FORMAT to record the system onto a diskette, you are giving the diskette the power to bring the computer up, and giving yourself access to the internal commands, but you are not transferring to the diskette the entire package of programs that constitutes DOS. The DOS system consists only of those DOS programs which must be in memory at all times. By definition, the external commands that reside on the DOS diskette are not included. To use external commands, you must first insert the DOS diskette into Drive A:, and then load the command program into memory. DISKCOPY, DISKCOMP, and FORMAT are some of the external commands.

The FORMAT command is sometimes used to erase diskettes containing files that never need to be accessed again. FORMAT eliminates all previously-filed information, and produces a newly-formatted, ready-to-use diskette.

**NOTE:** Use FORMAT to erase and reformat an entire diskette. Use ERASE to erase individual files and leave the original formatting intact.

In addition to its functions in initiating new diskettes and erasing old ones, FORMAT has a third purpose. If a diskette has developed defective areas, FORMAT makes sure that these areas are excluded from recording data files. The CHKDSK program lets you know if defective areas are present.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted in Drive A:, and the **A>** prompt is displayed on your screen.

**The Screen Displays:**

**A>**

**You Respond and/or Enter:**

You have a choice. If you want to record the system onto the new diskette, type:

Continued

*Continued*

**The Screen Displays:**

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

**Formatting... . .**

Formatting . . . Format complete  
System transferred

**You Respond and/or Enter:**

**format b:/s**

If you don't want DOS on  
your new diskette, type:

**format b:**

Press ENTER.

Insert the diskette you want  
to format, and press any key.

Suppose, for this example,  
that you have commanded  
the system to be put onto the  
new diskette.

First, the screen displays:

The drives hum briefly while  
the command is carried out.  
Then the screen displays this  
message:

The screen does not display  
the message “**System transferred**” when you use the  
**FORMAT B:** command.

The Screen Displays:

Format complete

322560 bytes total disk space  
14336 bytes used by system  
308224 bytes available on disk

You Respond and/or Enter:

Format another? (Y/N)

The numbers you see on your screen may vary from these. If you chose the FORMAT B:/S command, the computer tells you how much space on the diskette was used for the system.

Type:

n

A>

This concludes the formatting operation. If you want to format more than one diskette, enter Y, insert another new diskette into Drive B:, and repeat the operation.

Sometimes the FORMAT program discovers bad sectors. If so, it reports to you the number of bytes lost to bad sectors in the status report on diskette capacity.

If you choose to format several diskettes in succession, your initial decision regarding whether to record the DOS system on the first diskette affects all the following diskettes, if you follow the programmed instructions displayed on the screen. If you would like to record the system on some diskettes but not on others, you must actively specify which formatting operation you require for

each diskette. Respond to “Format another” with N, to return to the DOS prompt A>. Now enter the appropriate formatting command (FORMAT B: or FORMAT B:/S), and insert a new diskette into Drive B:.

If you make a mistake in formatting a new diskette (for example, neglecting to put the system on, or putting the system on a diskette and then deciding you don’t need it there), you can immediately reformat to meet your specification. No extra steps are required to erase the existing format information on the diskette.

## **How to Copy A Diskette: The DISKCOPY and DISKCOMP Commands**

The commands DISKCOPY and DISKCOMP are external commands, and must be read into the computer’s memory from the DOS diskette before they can be carried out. When you copy the DOS diskette, the commands are readily accessible, since the DOS diskette is in Drive A: throughout the operation.

To copy any other diskette, however, you must first load the DISKCOPY command program into memory from the DOS diskette. The DOS diskette can then be removed to make room for the diskette to be copied.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted in Drive A:, and the A> prompt is displayed on your screen.

**The Screen Displays:**

A>

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

Copying 2 side(s)

**You Respond and/or Enter:**

Type:

**diskcopy a: b:**

Press ENTER.

This loads the external program for copying diskettes into memory.

The source diskette is the diskette you want to copy. The target diskette is the diskette onto which you want the copy recorded. Remove the DOS diskette from Drive A:, and then follow the displayed instructions.

While the computer is copying, the screen displays:

Continued

*Continued*

**The Screen Displays:**

**You Respond and/or Enter:**

Copy complete

Copy another? (Y/N)

Type:

**n**

Remove the source diskette from Drive A:, and temporarily replace it with the DOS diskette.

Now use the DISKCOMP command to compare the two diskettes. Type:

**diskcomp a: b:**

Press ENTER.

This loads the external program for comparing diskettes into memory.

Insert first diskette in drive A:

Insert second diskette in drive B:

Strike any key when ready

Remove the DOS diskette, and replace it with the diskette you made the copy from (the source diskette).

**The Screen Displays:****You Respond and/or Enter:**

In the prompts for the DISKCOMP program, this diskette is designated as the first diskette. Now press any key.

While the computer is comparing, the screen displays:

Comparing 2 side(s)

Diskettes compare ok

Compare more diskettes? (Y/N)

Type:

n

The procedure is now concluded. Remove the new diskette from Drive B: and label it as a duplicate with a felt-tipped pen. Begin using the new diskette, or store it, whichever you prefer.

Note that in this procedure, you have used two programs in succession, DISKCOPY and DISKCOMP. The names of the programs were entered as commands.

The DISKCOMP program compared the contents of the newly-recorded and the original diskettes to make sure the copying operation had worked perfectly. This checking step is not necessary, but is a good procedure to follow, especially when you copy a diskette as essential as the DOS diskette.

## How to Copy One File: The COPY Command

The COPY command is used to record a copy of just one file. The copy can be made on the same diskette as the original, or it can be made on a different diskette. If you make it on the same diskette, you need to change the file's name to maintain a distinction between the original file and its copy. In fact, the command to copy a file to the same diskette cannot be carried out unless a new name is specified.

There are several reasons to copy a file onto the same diskette. You can make the copy as a back-up of your original file. You can also reserve the original file, and set up a copy of it for scratchpad work or for revision.

For example, suppose you have written a business letter and decide to send it to more than one person. You can copy the file where the letter was written, and then alter the contents of the copied files as appropriate to personalize each version of the letter.

Another possibility is a file that contains a blank but fairly elaborate form, for example, a tax record, a tabular statistical format, or an expense account form. You can make a copy of it before filling in the blanks with new information.

For similar reasons, you might want to copy a file onto a second diskette. This gives you the convenience and extra security of physically separate files. You can then store the diskette containing the original file to have in reserve if the copy is accidentally lost, altered, or erased.

You can also copy a file to a second diskette if the original diskette has become full. Check the contents of the diskette with the DIR command to determine the number of bytes in each file. As the number of bytes used on the diskette approaches the total capacity (320 Kbytes), you can copy one of the files to a new diskette, and continue adding to it

there. Or, you can copy several of the less essential files to a new diskette, and then erase them from the original to make room for expanding the file you are working in. You can also copy a file to a second diskette in order to send it to an associate or friend.

As you can see, there are many reasons to copy files and shift them around. The COPY command is an essential tool in carrying out these file management operations.

### **How to Copy a File From One Diskette to Another.**

For this task, you will need a target diskette. This is the diskette onto which the copy will be written. If your target diskette is brand new, and has not yet been formatted, refer to the FORMAT Command section, pg. 2-49, and format a diskette now.

**Summary of Commands and Displayed Responses:** To begin, make sure the A> prompt is displayed on your screen. COPY is an internal command, so it is not necessary to load the DOS diskette.

**The Screen Displays:**

A>

**You Respond and/or Enter:**

Insert the diskette that contains the file you want to copy into Drive B:.

If you are a new user, use the DOS diskette. It contains a file named WORDS. You will use that file in this example. Type:

**copy words b:words.a**

Now press ENTER.

*Continued*

Continued

**The Screen Displays:****1 File (s) copied****A>****You Respond and/or Enter:**

The computer has copied the file, WORDS, from the DOS diskette to the target diskette, and renamed it WORDS.A.

The general form of this COPY command is as follows:

Command Word.



Drive Specifier.

This specifies Drive B:, where the copy will be written on the target diskette.



File Name of the File to be Copied.  
That is, the file on the diskette in the  
default drive, which is Drive A:.



New Name Assigned to the Copied File.  
This is optional.



The command works if you leave off a new file name. In this example, you might have typed the command as simply COPY WORDS B:, and entered it. When this form is used, the new file retains the original's name, WORDS. Since the files are located on separate diskettes, the computer has no difficulty distinguishing between them, but you might confuse the original and its copy.

The distinction becomes important if either version is altered. Even if the file is an exact duplicate, it is sometimes helpful to rename it with a number designation. For example, a file named LETTER might be renamed in the copying operation as LETTER.001, and following copies might be designated as LETTER.002, LETTER.003, and so on.

### How to Copy a File to Available Space on the Same Diskette

When you copy a file onto the same diskette, you must assign a new name to the copy. Otherwise, the computer has no way to distinguish between the original file and its copy.

**Summary of Commands and Displayed Responses:** To begin, make sure the A> prompt is displayed on your screen. COPY is an internal command, so it is not necessary to load the DOS diskette.

**The Screen Displays:**

A>

**You Respond and/or Enter:**

Insert the diskette that contains the file you want to copy into Drive B:.

If you are a new user, use the diskette from the previous exercise that contains the file named WORDS.A. You will use that file in this example. Type:

**copy b:words.a b:words.b**

Press ENTER.

1 File(s) copied

Continued

Continued

**The Screen Displays:****You Respond and/or Enter:****A>**

Now check the contents of the diskette to make sure the copy was made. Type:

**dir b:**

Press ENTER.

WORDSA 1649 3-02-82 9:00p

WORDSB 1649 3-02-82 9:00p

2 File(s)

The numbers you see on your screen may vary from these.

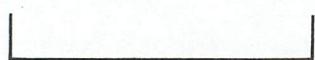
Both the original and the copy are now on the diskette. Note that if it were not for the different file name extensions (A versus B), the computer would have no way to distinguish between the two files.

The general form of this COPY command is:

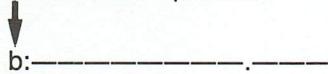
Command Word.

Drive Specifier.

copy b: ----- b:-----



Second Drive Specifier.



File Name  
of the Original File.

New File Name  
Created for the Copy.  
It *must* be different  
from the name of the original,  
or the computer will not  
accept the command.

## How to Compare Individual Files: The COMP Command

The COMP command is similar to the DISKCOMP command, but it is used to compare individual files, rather than entire diskettes. You can use COMP to compare the contents of two files on a single diskette, or on two different diskettes. It confirms that a copying operation was successful. It can also be used to determine if two seemingly identical files are really identical, or if one of them has been altered since the copy was made.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted into Drive A: and the **A>** prompt is displayed on your screen. Because COMP is an external command, it must be read into memory from the DOS diskette before it can be executed.

**The Screen Displays:**

**A>**

**You Respond and/or Enter:**

Type:

**comp**

Press ENTER.

**Enter primary file name**

Enter the name of the file you want to compare.

*Continued*

Continued

**The Screen Displays:****You Respond and/or Enter:**

If you are a new user, you have on one diskette the files WORDS.A and WORDS.B from the preceding exercises on copying. You copied one to make the other, so they should be identical. The original file, named WORDS, is on the DOS diskette. It is a third identical file.

First, compare the two files that are on the same diskette. In response to the request for the name of the primary file, type:

**b:words.a**

and press ENTER.

**Enter 2nd file name or drive id**

The name you assigned to the copied version of this file was WORDS.B. Type:

**b:words.b**

Press ENTER.

**The Screen Displays:**

Insert diskette(s) with files to compare  
and strike any key when ready

EOF mark not found  
Files compare ok  
Compare more files? (Y/N)

**You Respond and/or Enter:**

Insert the diskette that contains the files WORDS.A and WORDS.B into Drive B:.

Now press any key.

The "EOF" means "end-of-file". It is discussed in the DOS Reference Guide supplied with your computer.

To make the next comparison, type:

y

You can now make a comparison between files on two separate diskettes. You will use the DOS diskette and the diskette containing the two copied files, WORDS.A and WORDS.B. These diskettes are already in place in the drives.

Continued

Continued

**The Screen Displays:**

Enter primary file name

**You Respond and/or Enter:**

Type:

**a:words**

Press ENTER.

Enter 2nd file name or drive id

Now type:

**b:words.a**

Press ENTER.

Insert diskette(s) with files to compare  
and strike any key when ready.

Press any key. One file  
is on the diskette in  
Drive A:, and the other  
file is on the diskette in  
Drive B:.

EOF mark not found  
Files compare ok  
Compare more files? (Y/N)

Type:

**n**

A>

Here is the general form of the COMP command.

Command Word.

Drive Specifier.

This indicates which drive the primary file is in. The primary file is the one the comparison is to be made against.

Second Drive Specifier.

This indicates the drive in which the secondary file is to be found.

comp a:-----b:-----



File Name of the Primary File. File Name of the Secondary File.

Here is a quick way to use the COMP command. Insert the DOS diskette into Drive A:. Type in a complete command, such as COMP B:WORDS.A B:WORDS.B, and press ENTER. The program makes the comparison without pausing to prompt for individual file names, although it does pause to request that you insert a diskette into Drive B: (the diskette on which both files are recorded).

If you are comparing files on separate diskettes, you can also enter a complete command, for example, COMP A:WORDS B:WORDS.A. If you choose to leave out the first drive specifier in typing the command, the computer assumes that you mean the primary file in Drive A:. You must specify the drive in which the secondary file is to be found, however.

## How to Compare While Copying: The /V Option

You can compare two files while they are being copied by using the COPY command with the /V option. Use the regular COPY command format for your particular task, but type /V before pressing ENTER. For example, type:

**copy filespec b:/V**

“Filespec” indicates that you type the filename plus the extension, if there is one. It is short for “file specification”.

Using the /V option provides a shortcut so that you can combine the COPY and COMP procedures into one command.

## The RENAME Command

Suppose you have two files on one diskette named WORDS.A and WORDS.B. If you decide the two names are too similar for you to distinguish between them at a glance, you can rename the files using the RENAME command.

**Summary of Commands and Displayed Responses:** To begin, make sure the A> prompt is displayed on your screen. RENAME is an internal command, so it is not necessary to load the DOS diskette.

If you are a new user, insert the diskette that contains the files named WORDS.A and WORDS.B into Drive B.:

**The Screen Displays:****A>****You Respond and/or Enter:**

WORDS.A was recorded as a back-up file to the original file, WORDS, which is still on the DOS diskette. The file named WORDS.B was copied from WORDS.A. All three files are exactly alike. For this exercise, you will rename the two back-up files as WORDS.1 and WORDS.2.

Begin by renaming WORDS.A. Type:

**rename b:words.a b:words.1**

and press ENTER.

**A>**

The file is automatically renamed. Now rename WORDS.B. Type:

**rename b:words.b b:words.2**

and press ENTER.

**A>**

Both files are now renamed. To confirm this, Type:

**dir b:**

and press ENTER.

*Continued*

*Continued***The Screen Displays:**

WORDS 1 1649 5-07-82 9:00p  
WORDS 2 1649 5-07-82 9:01p  
2 File(s)

A&gt;

**You Respond and/or Enter:**

The numbers you see on your screen may vary from these.

This is the typical form of the RENAME command:

Command Word.



rename b:----- b:-----



Drive Specifier.

If none is entered, the computer assumes that Drive A: contains the file whose name is to be changed.



Existing Name of the File.      Desired New Name of the File.

## The ERASE Command

This is a useful command, but it must be entered carefully. Anything you erase is eliminated from the diskette. If you are concerned that you might lose data by accidentally erasing it, protect yourself by making a back-up diskette before using the ERASE command.

Use ERASE after COPY when you want to move a file from one diskette to another. The COPY command transfers the contents of a file to a new diskette, but the original file is left intact and is not erased. Use the ERASE command to erase the original file.

Typically, a file is moved to make more file space available on the diskette where it was created. It is also useful if the file has grown large and you expect to continue adding to it. By moving the file to a new diskette, you are giving it plenty of room to grow.

Files are also moved to maintain good organization. You might want to keep all current tax records on a particular diskette, for example, and this might involve collecting files from several different diskettes.

**NOTE:** Use ERASE to eliminate an individual file. Use FORMAT to erase and reformat an entire diskette.

**Summary of Commands and Displayed Responses:** To begin, make sure the A> prompt is displayed on your screen. Because ERASE is an internal command, it is not necessary to load the DOS diskette.

If you are a new user, for this exercise, continue using the diskette where the files now named WORDS.1 and WORDS.2 are recorded. This diskette was in Drive B: at the conclusion of the COMP and RENAME procedures. Insert it into Drive B:, if it is not already there. You will erase the file named WORDS.2 in this procedure.

**The Screen Displays:**

A>

**You Respond and/or Enter:**

First, make sure you know the exact name of the file to

Continued

*Continued*

**The Screen Displays:**

WORDS 1 1649 5-07-82 9:00p  
WORDS 2 1649 5-07-82 9:01p  
2 File(s)

**You Respond and/or Enter:**

be erased. It is a good procedure to confirm your spelling of the file's name by using the DIR command to examine the file's name as displayed in the directory. Type:

**dir b:**

Press ENTER.

Remember that the directory display omits the period separating the filename from the extension. When you enter the command, you must include this period. In every other respect, you must reproduce the file's name exactly as it appears in the directory. Now type this command:

**erase b: words.2**

Press ENTER.

The Screen Displays:

A>

WORDS 1 1649 5-07-82 9:00p  
1 File(s)

You Respond and/or Enter:

To make sure the file was erased, type:

**dir b:**

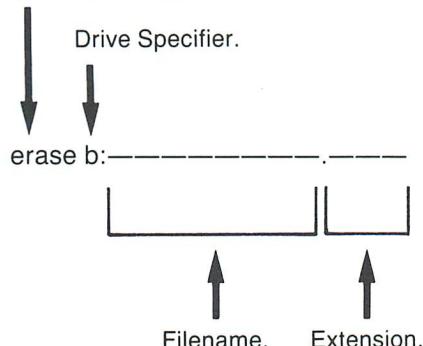
Press ENTER.

A>

The file is no longer listed in the directory.

Here is the general form of the ERASE command.

Command Word.



Don't Forget the Period.

Even though the directory listing omits it, it must be entered as part of the file's name.

The ERASE command can also be used with global file names to erase many files at once. This ability to erase many files at once is why it is so essential to enter the names of the files with exactly the right spelling. The procedure for using ERASE as a global command is discussed under the heading Global Commands at the conclusion of this section. Familiarize yourself with that material before using ERASE in actual practice. An unintentional global erase command could eliminate the product of many days of work. Back-up files are a good way to protect your files from this hazard, and they are particularly important if more than one person uses your COMPAQ Computer.

## The CHKDSK Command

This command word is a contraction of “check disk”, but it checks the computer’s memory as well as the diskette. Use CHKDSK to produce a status report on the space available both on the diskette and in the computer’s memory.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted in Drive A:, and the **A>** prompt is displayed on your screen. This is an external command, so it must be read into memory from the DOS diskette.

**The Screen Displays:**

**A>**

**You Respond and/or Enter:**

If you are a new user, you can use the DOS diskette as the diskette to be checked in this exercise. Type:

**chkdsk a:**

Press ENTER.

**The Screen Displays:**

160256 bytes total disk space  
8192 bytes in 2 hidden files  
123392 bytes in 13 user files  
28672 bytes available on disk

131072 bytes total memory  
118096 bytes free

A>

**You Respond and/or Enter:**

The numbers you see on your screen may vary from these.

The two hidden files are components of the system. They are hidden only in the sense that they are excluded from lists of files displayed in response to the DIR command.

### **A Glimpse Behind the Scenes: The TYPE Command**

You can display the contents of a file by using the TYPE command. Using TYPE to open and look into a file is not the same as opening a file, however. It is similar to the difference between opening a pocket watch to look at the time, and opening a pocket watch to look at the gears. The TYPE command shows you the gears.

**Summary of Commands and Displayed Responses:** To begin make sure the A> prompt is displayed on your screen. Type is an internal command, so it is not necessary to load the DOS diskette.

*Continued*

*Continued*

If you are a new user, insert the diskette containing the file named WORDS.1 into Drive B:.

**The Screen Displays:**      **You Respond and/or Enter:**

A>

Type:

**type b:words.1**

Press ENTER.

The computer responds by displaying the contents of the file, WORDS.1.

The general form of the TYPE command is:

Command Word.

Drive Specifier.

Include a drive specifier if the file you want to investigate is not in the default drive.

type b: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

↑

Name of the File.

The file, WORDS.1, contains a piece of text entitled "A Few Words About Diskettes and Disk Drives". The words and symbols you see are recognizable. However, sometimes when you use the TYPE command to open a file, you may see some strange symbols. These symbols indicate to the computer the details of things such as spacing, font style, and justification.

The TYPE command shows you the exact contents of a file. What you usually see on the screen has been translated from the computer language, or symbols, into a form that is easier to understand and work with.

## The TIME and DATE Commands

When you turn your COMPAQ Computer on, or perform a system reset with the DOS diskette in Drive A:, the computer displays a date and time prompt. If you respond by entering the current date and time, the computer uses this information in constructing directories. When you use the DIR command, the date and time a file was created or last accessed is displayed.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted in Drive A:, and either turn the computer on, or perform a system reset (CTRL + ALT + DEL).

**The Screen Displays:**

Current date is Tue 1-01-1980

Enter new date:

**You Respond and/or Enter:**

Enter today's date. The day, month, and year are separated by hyphens. Do not enter the day of the week. For example, type:

8-23-82

and press ENTER.

Continued

Continued

**The Screen Displays:**

**You Respond and/or Enter:**

Current date is Tue 1-01-1980

Enter new date: 8-23-82

Current time is 0:00:15.37

Enter new time:

Under new time, enter the current time in the following familiar form. For example, type:

**12:35**

and press ENTER.

Current date is Tue 1-01-1980

Enter new date: 8-23-82

Current time is 0:00:15.37

Enter new time: 12:35

The COMPAQ Personal Computer DOS

Version 1.10

(C) Copyright COMPAQ Computer Corp. 1982

(C) Copyright Microsoft, Inc. 1981,82

**A>**

You can recover the time prompt and change the time entered into the system. Type:

**time**

and press ENTER.

**The Screen Displays:**

Current time is 12:37:29.11  
Enter new time:

**You Respond and/or Enter:**

The first four digits of the current time statement represent the hours and minutes (12:37). The 29.11 means 29 seconds and 11 hundredths of a second. The computer generates these numbers by counting from the instant of original entry.

Type in the correct time and press ENTER.

A>

Current date is Mon 8-23-82  
Enter new date:

You can also modify the date.  
Type:

**date**

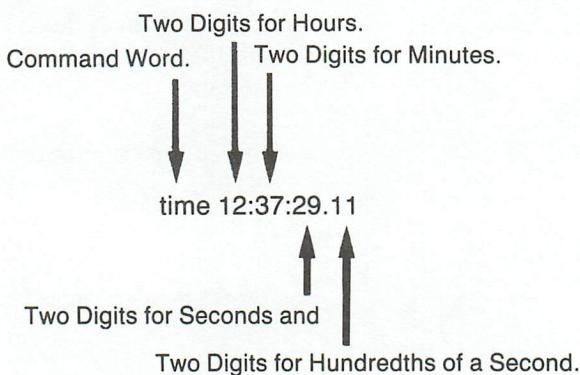
and press ENTER.

If you wish to enter a new date, do not enter the day of the week, as previously noted. The computer supplies and displays this information when you recover the date prompt. Do enter the month, the day of the month, and the year. Type in the correct date, and press ENTER.

A>

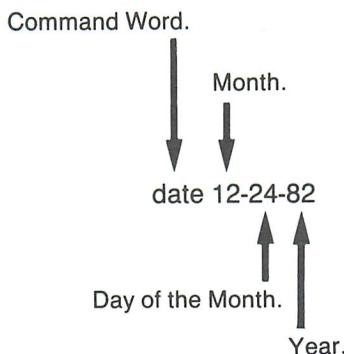
When using the TIME and DATE commands, it is not necessary to work through the prompts. Instead, the commands and the information can be entered at the same time by using the following command formats.

Here is the format for the TIME command:



You must enter the time using a 24-hour system. For example, enter 2:30 p.m. as 14:30. The COMPAQ Computer displays the familiar 2:30p when the time is redisplayed. You can enter seconds if you want to, but most operators rely on the computer to generate the numbers for both seconds and hundredths of a second. Hundredths of seconds matter in operations involving other computers or systems, but you do not need to be concerned about entering them.

Here is the format for the DATE command:



You are not restricted to using hyphens or two-digit entries. For example, DATE 2/22/1982 is a valid entry. The computer does not, however, accept dates that are illogical. For example, 4/31/82 does not work, because there is no 31st day in April.

## The Global Commands

Global commands are carried out on all files of a particular type specified by you. The type is specified by creating an appropriate global file name. A typical global file name is B:WORDS.?.

If this global file name is used with the ERASE command, all files of the following type would be erased:

B:WORDS.1  
B:WORDS.2  
B:WORDS.3

The ? character means, to the computer, that any character may occupy the position indicated by the question mark. The global ERASE command eliminates all numbered back-up files of the original file. Note that only those files which appear on the diskette in the specified drive (Drive B:, in this example) are eliminated. Here is another example of a global command using the ? character:

ERASE ACCTSREC.7?

Consider the effect of the global ERASE command on the following group of accounts receivable files:

ACCTSREC.71  
ACCTSREC.72  
ACCTSREC.73  
ACCTSREC.74  
ACCTSREC.75  
ACCTSREC.80  
ACCTSREC.81  
ACCTSREC.82

In response to the global ERASE command, all files dating from 1971 through 1975 are erased. You might use the same file name with the COPY command to copy those files onto a different diskette before erasing them from the present diskette. This is a good way to make space on the diskette for additional files from the 1980s.

The \* (asterisk) character can also be used in global file names. When the \* character is used in a global file name, it means that the character position it occupies, and all following positions in the name up to the extension, can be occupied by any character. Suppose, for example, you used a global command like this:

DIR B:ACCTS\*.82

This command causes your COMPAQ Computer to selectively displays a directory of the files on the diskette in Drive B: that have names beginning with the term ACCTS. The list displayed might include files of both accounts receivable (ACCTSREC) and accounts payable (ACCTSPAY).

Another example using the \* character is in a global command of this type:

DIR B:\*.BAS

This command displays a directory of all files on the diskette in Drive B: that have file names with the extension .BAS. This command is often used to identify all those files that contain programs written in the BASIC programming language.

Global file names and commands can be powerful aids in organizing your work. Because of their sweeping effects, however, they must always be used with care. Define names with precision, and know beforehand just what files on the diskette will be affected. Always check the directory before you write global file names. Work out the consequences before you enter a global command.

### **Summary of Strategies for DOS Operations**

In working through commands and operations, there are three basic items to consider:

- 1) The computer must be brought up on the system. It must have access to it from either a diskette that has been formatted with the system, or from the DOS diskette.
- 2) The computer must load a command program in order to carry out the command. If the command is internal, like the COPY command, the computer loads it as a part of the system, and can carry it out at any time. If it is an external command, like FORMAT or DISKCOPY, you must give the computer access to the program by inserting the DOS diskette into the default drive (usually Drive A:).

In practice, the computer is usually brought up once on the system from some source (a file diskette, an applications program diskette, or the DOS diskette) and it stays up. At the conclusion of most operations, the DOS prompt, **A>**, is displayed, and you can then proceed to enter any internal command. External commands require the temporary insertion of the DOS diskette for program loading. Once the command program has been loaded, the DOS diskette can be removed to make the drive available for another diskette.

- 3) You are not restricted to the use of Drive A: as the default drive. You can change it to Drive B: at any time by entering B: in response to the DOS prompt, **A>**. When you do this, the **B>** prompt appears. Sometimes, it is more convenient to switch drives than diskettes.

## For More Information About DOS

We have presented the most prominent features of the most commonly used DOS commands. You can learn more about these commands, other commands, and other programs in the DOS package by consulting the Disk Operating System Reference Guide supplied with your COMPAQ Portable Computer.

## 2-7. DOS COMMANDS: SINGLE DRIVE

---

### The FORMAT Command

Every new diskette must be formatted. If you use the DISKCOPY command (described later in this section) to transfer the entire contents of a previously-recorded diskette to a new one, the formatting operation is carried out automatically. But in every other circumstance, you must initiate a new diskette by using the FORMAT command. For that reason, FORMAT is the first step in many computer operations.

The FORMAT program prepares the diskette for filing operations. It sets up empty files and assigns addresses to them so they can later be given file names, filled with data, and retrieved on command. In addition, the FORMAT program establishes a blank directory. As files are created, the directory is filled in, and can be displayed in response to the DIR command to show you what files are recorded on the diskette.

At your option, the FORMAT program can copy the DOS system onto the diskette (system is described under DOS definition 2, page 2-44). After FORMAT has been used to record the system onto a diskette, that diskette can be used to boot the computer.

You can also use FORMAT to record the system onto diskettes that are to be used to store data files. If the DOS system is on such a diskette, you can, without inserting a DOS diskette in a separate operation, bring the computer up and use the DIR command to learn what is stored on the diskette. Because DIR is an internal command, it is part of the system. Some other internal commands are COPY, ERASE, and TYPE.

When you use FORMAT to record the system onto a diskette, you are giving the diskette the power to bring the computer up, and give yourself access to the internal commands. But you are not transferring to the diskette the entire package of programs that constitutes DOS.

The DOS system consists only of those DOS programs that must be in memory at all times. By definition, the external commands that reside on the DOS diskette are not included. To use external commands, you must first insert the DOS diskette into the drive, and then load the command program into memory. DISKCOPY, DISKCOMP, and FORMAT are some of the external commands.

The FORMAT command is sometimes used to erase diskettes containing files that never need to be accessed again. FORMAT eliminates all previously-filed information, and produces a newly-formatted, ready-to-use diskette.

**NOTE:** Use FORMAT to erase and reformat the entire diskette. Use ERASE to erase individual files and leave the original formatting intact.

In addition to its functions in initiating new diskettes and erasing old ones, FORMAT has a third purpose. If a diskette has developed defective areas, FORMAT makes sure that these areas are excluded from recording data files. The CHKDSK program lets you know if defective areas are present.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted in the drive, and the A> prompt is displayed on your screen.

**The Screen Displays:**

A>

**You Respond and/or Enter:**

You have a choice. If you want to record the system onto the new diskette, type:

format /s

If you don't want DOS on your new diskette, type:

**format**

Press ENTER

Insert new diskette for drive A:  
and strike any key when ready

Remove the DOS diskette,  
replace it with the diskette  
you want to format, and  
press any key.

Suppose, for this example,  
that you have commanded  
the system to be put onto the  
new diskette.

First, the screen displays:

Formatting . . .

The drives hum briefly while  
the command is carried out.  
Then the screen displays this  
message:

Formatting ...Format complete  
System transferred

The screen does not display  
the message, “**System transferred**” when you use the  
**FORMAT** command.

*Continued*

*Continued***The Screen Displays:****Format complete****322560 bytes total disk space  
14336 bytes used by system  
308224 bytes available on disk****You Respond and/or Enter:**

The numbers you see on your screen may vary from these. If you chose the FORMAT/S command, the computer tells you how much space on the diskette was used for the system.

**Format another? (Y/N)****Type:****n****A>**

This concludes the formatting operation. If you want to format more than one diskette, enter Y, insert another new diskette into the drive, and repeat the operation.

Sometimes the FORMAT program discovers bad sectors. If so, it reports to you the number of bytes lost to bad sectors in the status report on diskette capacity.

If you choose to format several diskettes in succession, your initial decision regarding whether to record the DOS system on the first diskette affects all the following diskettes, if you follow the programmed instructions displayed on the screen. If you would like to record the system on some diskettes but not on others, you must actively specify which formatting operation you require for each diskette. Respond to "Format another" with N, to return to the DOS prompt **A>**. Now enter the appropriate formatting command (FORMAT B: or FORMAT B:/S), and insert a new diskette into Drive B:.

If you make a mistake in formatting a new diskette (for example, neglecting to put the system on, or putting the system on a diskette and then deciding you don't need it there), you can immediately reformat to meet your specification. No extra steps are required to erase the existing format information on the diskette.

## How to Copy A Diskette: The DISKCOPY and DISKCOMP Commands

The commands DISKCOPY and DISKCOMP are external commands, and must be read into the computer's memory from the DOS diskette before they can be carried out. When you copy the DOS diskette, the commands are readily accessible, because the DOS diskette is in Drive A: when the DISKCOPY and DISKCOMP command programs are needed.

To copy any other diskette, however, you must first load the DISKCOPY command program into memory from the DOS diskette. The DOS diskette can then be removed to make room for the diskette to be copied.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted in the drive and the **A>** prompt is displayed on your screen. The drive is designated as "Drive A:" throughout this operation.

**The Screen Displays:**

**A>**

**You Respond and/or Enter:**

Type:

**diskcopy**

Press ENTER.

Continued

*Continued*

**The Screen Displays:**

**You Respond and/or Enter:**

This loads the external program for copying diskettes into memory.

**Insert source diskette in drive A:  
Strike any key when ready**

Remove the DOS diskette from the drive. Using a felt tipped pen, note on the label of the diskette you want to copy that it is the source diskette. Then insert it into the drive, and press any key.

While the computer is copying, the screen displays:

**Copying 2 side (s)  
Insert target diskette in drive A:  
Strike any key when ready**

Note on the label of the diskette you want the copy recorded on that it is the target diskette. Now remove the source diskette from the drive, insert the target diskette, and press any key.

**Insert source diskette in drive A:  
Strike any key when ready**

Exchange diskettes, and press any key.

**The Screen Displays:**

Insert target diskette in drive A:  
Strike any key when ready

**You Respond and/or Enter:**

Exchange diskettes and  
press any key.

Insert source diskette in drive A:  
Strike any key when ready

Exchange diskettes and  
press any key.

Insert target diskette in drive A:  
Strike any key when ready

Exchange diskettes and  
press any key.

The computer requests that  
you insert the source diskette  
as many times as it takes  
for the system to read and  
copy all the information  
there.

Copy complete  
Copy another? (Y/N)

Type:

n

Remove the target diskette  
from Drive A:, and temporarily  
replace it with the DOS  
diskette.

*Continued*

*Continued*

**The Screen Displays:**

**You Respond and/or Enter:**

Now use the DISKCOMP command to compare the two diskettes. Type:

**diskcomp**

Press ENTER.

This loads the external program for comparing diskettes into memory.

**Insert first diskette in drive A:**

**Strike any key when ready**

Remove the DOS diskette, and replace it with the diskette you made the copy from (the source diskette). In the prompts for the DISKCOMP program, this diskette is designated as the first diskette. Write the word "first" on the label with a felt-tipped pen, and insert it into the drive. Now press any key.

While the computer is comparing, the screen displays:

**Comparing 2 side (s)**

**Insert second diskette in drive A:**

**Strike any key when ready**

Remove the first diskette from the drive. You will replace it with the diskette

**The Screen Displays:****You Respond and/or Enter:**

now labeled as the target diskette. Re-label this diskette with the word "second", and insert it into the drive. Now press any key.

Insert first diskette in drive A:  
Strike any key when ready

Exchange diskettes and  
press any key.

Insert second diskette in drive A:  
Strike any key when ready

Exchange diskettes and  
press any key.

Insert first diskette in drive A:  
Strike any key when ready

Exchange diskettes and  
press any key.

Diskettes compare ok  
Compare more diskettes? (Y/N)

Type:

n

The procedure is now concluded. Label the new (second/target) diskette as a duplicate with a felt-tipped pen. Begin using the new diskette, or store it, whichever you prefer.

Note that in this procedure, you have used two programs in succession, DISKCOPY and DISKCOMP. The names of the programs were entered as commands.

The DISKCOMP program compared the contents of the newly-recorded and the original diskettes to make sure the copying operation had worked perfectly. This checking step is not necessary, but is a good procedure to follow, especially when you copy a diskette as essential as the DOS diskette.

## How to Copy One File: The COPY Command

The COPY command is used to record a copy of just one file. The copy can be made on the same diskette as the original, or it can be made on a different diskette. If you make it on the same diskette, you need to change the file's name to maintain a distinction between the original file and its copy. In fact, the command to copy a file to the same diskette cannot be carried out unless a new name is specified.

There are several reasons to copy a file onto the same diskette. You can make the copy to use as a back-up of your original file. You can also reserve the original file and set up a copy of it for scratchpad work or for revision.

For example, suppose you have written a business letter and decide to send it to more than one person. You can copy the file where the letter was written, and then alter the contents of the copied files as appropriate to personalize each version of the letter.

Another possibility is a file that contains a blank but fairly elaborate form, for example, a tax record, a tabular statistical format, or an expense account form. You can make a copy of it before filling in the blanks with new information.

For similar reasons, you might want to copy a file onto a second diskette. This gives you the convenience and extra security of physically separate files. You can then store the diskette containing the original file to have in reserve if the copy is accidentally lost, altered, or erased.

You can also copy a file to a second diskette if the original diskette has become full. Check the contents of the diskette with the DIR command to determine the number of bytes in each file. As the number of bytes used on the diskette approaches the capacity (320 Kbytes), you can copy one of the files to a new diskette, and continue adding to it there. Or, you can copy several of the less essential files to a new diskette, and then erase them from the original to make room for expanding the file you are working in. You can also copy a file to a second diskette in order to send it to an associate or friend.

As you can see, there are many reasons to copy files and shift them around. The COPY command is an essential tool in carrying out these file management operations.

#### **How to Copy a File From One Diskette to Another.**

For this task, you will need a target diskette. This is the diskette onto which the copy will be written. If your target diskette is brand new, and has not yet been formatted, refer to the FORMAT Command section, pg. 2-84, and format a diskette now.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted in the drive, and the A> prompt is displayed on your screen. COPY is an internal command, so it is not necessary to load the DOS diskette.

Continued

Continued

**The Screen Displays:****A>****You Respond and/or Enter:**

Insert the diskette that contains the file you want to copy into the drive.

If you are a new user use the DOS diskette. It contains a file named WORDS. You will use that file in this example. Type:

**copy words b:words.a**

Now press ENTER.

Insert diskette for drive B:  
and strike any key when ready

Remove the DOS diskette from the drive and insert the target diskette. Note that the computer has assigned the drive the temporary identity of "Drive B".

Press any key.

1 File (s) copied

The computer has copied the file, WORDS, from the DOS diskette to the target diskette, and renamed it WORDS.A.

**A>**

The general form of this COPY command is as follows:

Command Word.



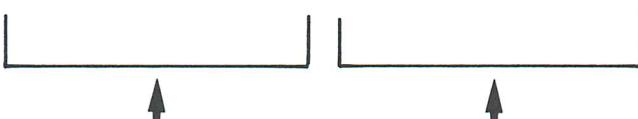
copy

Drive Specifier.

This specifies Drive B:, the identity the computer temporarily assigns to the disk drive when it copies the file onto the target diskette.



b:



File Name of the File to be Copied.  
That is, the file on the diskette  
in the default drive, which is Drive A:



New Name Assigned to the Copied File.  
This is optional.



The command works if you leave off a new file name. In this example, you might have typed the command as simply COPY WORDS B:, and entered it. When this form is used, the new file retains the original's name, WORDS. Since the files are located on separate diskettes, the computer has no difficulty distinguishing between them, but you might confuse the original and its copy.

The distinction becomes important if either version is altered. Even if the file is an exact duplicate, it is sometimes helpful to rename it with a number designation. For example, a file named LETTER might be renamed in the copying operation as LETTER.001, and following copies might be designated as LETTER.002, LETTER.003, and so on.

### How to Copy a File to Available Space on the Same Diskette

When you copy a file onto the same diskette, you must assign a new name to the copy. Otherwise, the computer has no way to distinguish between the original file and its copy.

**Summary of Commands and Displayed Responses:** To begin, make sure the A> prompt is displayed on your screen. COPY is an internal command, so it is not necessary to load the DOS diskette.

**The Screen Displays:**

A>

**You Respond and/or Enter:**

Insert the diskette that contains the file you want to copy into the drive.

If you are a new user, use the diskette from the previous exercise that contains the file named WORDS.A. You will use that file in this example. Type:

**copy words.a words.b**

Press ENTER.

1 File(s) copied

A>

Now check the contents of the diskette to make sure the copy was made. Type:

**dir**

Press ENTER.

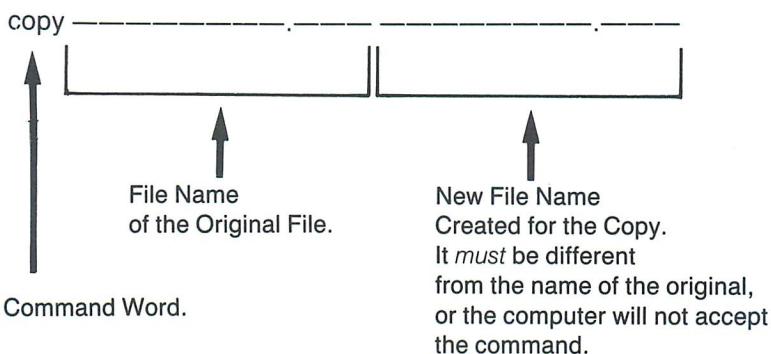
WORDS A 1462 3-02-82 9:00p  
WORDS B 1462 3-02-82 9:00p  
2 File(s)

The numbers you see on your screen may vary from these.

**The Screen Displays:****You Respond and/or Enter:**

Both the original and the copy are now on the diskette. Note that if it were not for the different file name extensions (A versus B), the computer would have no way to distinguish between the two files.

The general form of this COPY command is:



## How to Compare Individual Files: The COMP Command

The COMP command is similar to the DISKCOMP command, but it is used to compare individual files, rather than entire diskettes. You can use COMP to compare the contents of two files on a single diskette, or on two different diskettes. It confirms that a copying operation was successful. It can also be used to determine if two seemingly identical files are really identical, or if one of them has been altered since the copy was made.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted in the drive, and the A> prompt is displayed on your screen. Because COMP is an external command, it must be read into memory from the DOS diskette before it can be executed.

**The Screen Displays:**

A>

Enter primary file name

**You Respond and/or Enter:**

Type:

**comp**

Press ENTER.

Enter the name of the file you want to compare.

If you are a new user, you have on one diskette the files WORDS.A and WORDS.B, from the preceding exercises on copying. You copied one to make the other, so they should be identical. The original file, named WORDS, is on the DOS diskette. It is a third identical file.

First, compare the two files that are on the same diskette. In response to the request for the name of the primary file, type:

**words.a**

The Screen Displays:

Enter 2nd file name or drive id

Insert diskette(s) with files to compare  
and strike any key when ready

Eof mark not found  
Files compare ok  
Compare more files? (Y/N)

You Respond and/or  
Enter:

and press ENTER.

The name you assigned  
to the copied version of  
this file was  
WORDS.B. Type:

**words.b**

Press ENTER.

Remove the DOS diskette from the drive and  
replace it with the diskette containing the two  
files, WORDS.A and  
WORDS.B.

Now press any key.

The “EOF” means  
“end-of-file”, It is dis-  
cussed in the DOS Ref-  
erence Guide supplied  
with your computer.

Continued

Continued

**The Screen Displays:**

**You Respond and/or Enter:**

Enter primary file name

To make the next comparison, type:

**y**

Enter 2nd file name or drive id

You can now make a comparison between files on two separate diskettes. You will use the DOS diskette and the diskette containing the two copied files, WORDS.A and WORDS.B.

The diskette containing the two files is in the drive, from the previous exercise. Remove it and mark it as the diskette for "Drive B:". Now insert the DOS diskette. Type:

**words**

Press ENTER.

Now type:

**b:words.a**

Press ENTER.

Insert diskette for drive A:  
and strike any key when ready.

Insert the DOS diskette, and press any key.

The Screen Displays:

Insert diskette for drive B:  
and strike any key when ready.

You Respond and/or Enter:

Remove the DOS diskette.  
Insert the diskette marked  
“Drive B.”, and press any key.

Eof mark not found  
Files compare ok  
Compare more files? (Y/N)

Type:

n

A>

Here is the general form of the COMP command.

Command Word.



comp

Drive Specifier.

This indicates the drive will assume the identity “Drive B:” to read the secondary file.



b:

File Name  
of the Primary File.

File Name  
of the Secondary File.

Here is a quick way to use the COMP command. Insert the DOS diskette, type in a complete command, such as: COMP WORDS.A WORDS.B, and press ENTER. The program makes the comparison without pausing to prompt for individual file names, although it does pause to request that you insert a diskette into the drive (the diskette on which both files are recorded).

If you are comparing files on separate diskettes, you can insert the DOS diskette, and enter a complete command, for example: COMP WORDS B:WORDS.A. In this case, you need to leave the DOS diskette in the drive as the primary file diskette. If you are comparing a file that is not on the DOS diskette, you need to remove the DOS diskette and replace it with the primary file diskette. Later it will be necessary to remove this primary file diskette, and replace it with the secondary, or "Drive B:" diskette.

## How to Compare While Copying: The /V Option

You can compare two files while they are being copied by using the COPY command with the /V option. Use the regular COPY command format for your particular task, but type /V before pressing ENTER. For example, type:

```
copy filespec b:/V
```

"Filespec" indicates that you type the filename plus the extension, if there is one. It is short for "file specification".

Using the /V option provides a shortcut so that you can combine the COPY and COMP procedures into one command.

## The RENAME Command

Suppose you have two files on one diskette named WORDS.A and WORDS.B. If you decide the two names are too similar for you to distinguish between them at a glance, you can rename the files using the RENAME command.

**Summary of Commands and Displayed Responses:** To begin, make sure the A> prompt is displayed on your screen. RENAME is an internal command, so it is not necessary to load the DOS diskette.

If you are a new user, insert the diskette that contains the files named WORDS.A and WORDS.B into the drive.

**The Screen Displays:**

A>

**You Respond and/or Enter:**

WORDS.A was recorded as a back-up file to the original file, WORDS, which is still on the DOS diskette. The file named WORDS.B was copied from WORDS.A. All three files are exactly alike. For this exercise, you will rename the two back-up files as WORDS.1 and WORDS.2.

Begin by renaming WORDS.A. Remove the DOS diskette and insert the diskette containing the two files.

*Continued*

Continued

**The Screen Displays:**

**You Respond and/or Enter:**

Type:

**rename words.a words.1**

and press ENTER.

A>

The file is automatically renamed. Now rename WORDS.B. Type:

**rename words.b words.2**

and press ENTER.

A>

Both files are now renamed. To confirm this, Type:

**dir**

and press ENTER.

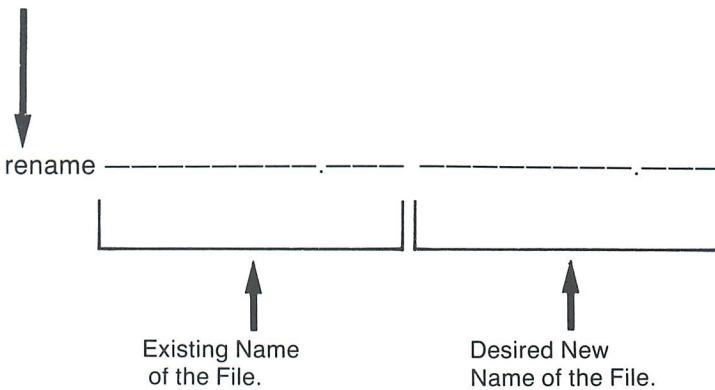
WORDS 1 1649 5-07-82 9:00p  
WORDS 2 1649 5-07-82 9:01p  
2 File(s)

The numbers you see on your screen may vary from these.

A>

This is the typical form of the RENAME command:

Command Word.



## The ERASE Command

This is a useful command, but it must be entered carefully. Anything you erase is eliminated from the diskette. If you are concerned that you might lose data by accidentally erasing it, protect yourself by making a back-up diskette before using the ERASE command.

Use ERASE after COPY when you want to move a file from one diskette to another. The COPY command transfers the contents of a file to a new diskette, but the original file is left intact and is not erased. Use the ERASE command to erase the original file.

Typically, a file is moved to make more file space available on the diskette where it was created. It is also useful if the file has grown large and you expect to continue adding to it. By moving the file to a new diskette, you are giving it plenty of room to grow.

Files are also moved to maintain good organization. You might want to keep all current tax records on a particular diskette, for example, and this might involve collecting files from several different diskettes.

**NOTE:** Use ERASE to eliminate an individual file. Use FORMAT to erase and reformat an entire diskette.

**Summary of Commands and Displayed Responses:** To begin, make sure the A> prompt is displayed on your screen. Because ERASE is an internal command, it is not necessary to load the DOS diskette.

If you are a new user, for this exercise, continue using the diskette where the files now named WORDS.1 and WORDS.2 are recorded. This diskette was in the drive at the conclusion of the COMP and RENAME procedures. Insert it into the drive, if it is not already there. You will erase the file named WORDS.2 in this procedure.

**The Screen Displays:**

A>

**You Respond and/or Enter:**

First, make sure you know the exact name of the file to be erased. It is a good procedure to confirm your spelling of the file's name by using the DIR command to examine the file's name as displayed in the directory.  
Type:

dir

Press ENTER.

**The Screen Displays:**

WORDS 1 1649 5-07-82 9:00p  
WORDS 2 1649 5-07-82 9:01p  
2 File(s)

**You Respond and/or Enter:**

Remember that the directory display omits the period separating the filename from the extension. When you enter the command, you must include this period. In every other respect, you must reproduce the file's name exactly as it appears in the directory. Now type this command:

**erase words.2**

Press ENTER.

A>

To make sure the file was erased, type:

**dir**

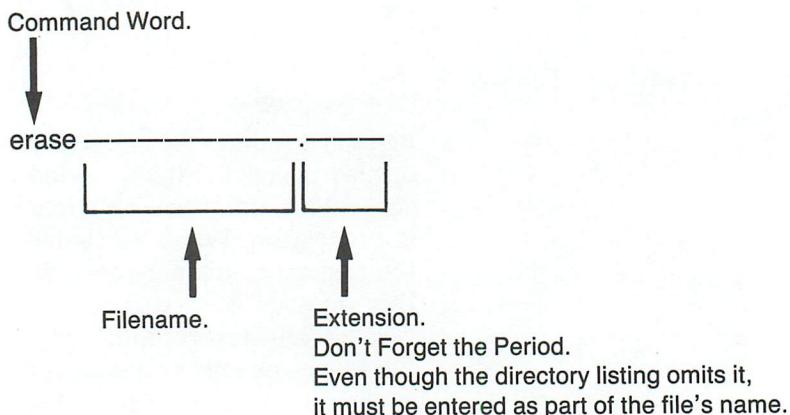
Press ENTER.

WORDS 1 1649 5-07-82 9:00p  
1 File(s)

A>

The file is no longer listed in the directory.

Here is the general form of the ERASE command.



The ERASE command can also be used with global file names to erase many files at once. This ability to erase many files at once is why it is so essential to enter the names of the files with exactly the right spelling. The procedure for using ERASE as a global command is discussed under the heading Global Commands at the conclusion of this section. Familiarize yourself with that material before using ERASE in actual practice. An unintentional global erase command could eliminate the product of many days of work. Back-up files are a good way to protect your files from this hazard, and they are particularly important if more than one person uses your COMPAQ Computer.

## The CHKDSK Command

This command word is a contraction of “check disk”, but it checks the computer’s memory as well as the diskette. Use CHKDSK to produce a status report on the space available both on the diskette and in the computer’s memory.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted in Drive A:, and the **A>** prompt is displayed on your screen. This is an external command, so it must be read into memory from the DOS diskette.

**The Screen Displays:**

**A>**

**You Respond and/or Enter:**

If you are a new user, you can use the DOS diskette as the diskette to be checked in this exercise. Type:

**chkdsk**

Press ENTER.

160256 bytes total disk space  
8192 bytes in 2 hidden files  
123392 bytes in 13 user files  
28672 bytes available on disk

131072 bytes total memory  
118096 bytes free

Continued

Continued

**The Screen Displays:****You Respond and/or Enter:****A>**

The numbers you see on your screen may vary from these.

The two hidden files are components of the system. They are hidden only in the sense that they are excluded from lists of files displayed in response to the DIR command.

**A Glimpse Behind the Scenes:  
The TYPE Command**

You can display the contents of a file by using the TYPE command. Using TYPE to open and look into a file is not the same as opening a file, however. It is similar to the difference between opening a pocket watch to look at the time, and opening a pocket watch to look at the gears. The TYPE command shows you the gears.

**Summary of Commands and Displayed Responses:** To begin, make sure the **A>** prompt is displayed on your screen. TYPE is an internal command, so it is not necessary to load the DOS diskette.

If you are a new user, insert the diskette containing the file named WORDS.1 into the drive. .

**The Screen Displays:****You Respond and/or Enter****A>**

Type:

**type words.1**

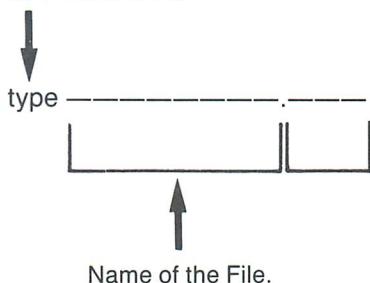
Press ENTER.

The Screen Displays: You Respond and/or Enter

The computer responds by displaying the contents of the file, WORDS.1.

The general form of the TYPE command is:

Command Word.



The file, WORDS.1, contains a piece of text entitled "A Few Words About Diskettes and Disk Drives". The words and symbols you see are recognizable. However, sometimes when you use the TYPE command to open a file, you may see some strange symbols. These symbols indicate to the computer the details of things such as spacing, font style, and justification.

The TYPE command shows you the exact contents of a file. What you usually see on the screen has been translated from the computer language, or symbols, into a form that is easier to understand and work with.

## The TIME and DATE Commands

When you turn your COMPAQ Computer on, or perform a system reset with the DOS diskette in the drive, the computer displays a date and time prompt. If you respond by entering the current date and time, the computer uses this information in constructing directories. When you use the DIR command, the date and time a file was created or last accessed is displayed.

**Summary of Commands and Displayed Responses:** To begin, make sure the DOS diskette is inserted in the drive, and either turn the computer on, or perform a system reset (CTRL + ALT + DEL).

**The Screen Displays:**

**You Respond and/or Enter:**

Current date is Tue 1-01-1980

Enter new date:

Enter today's date. The day, month, and year are separated by hyphens. Do not enter the day of the week. For example, type:

**8-23-82**

and press ENTER.

Current date is Tue 1-01-1980

Enter new date: 8-23-82

Current time is 0:00:15.37

Enter new time:

Under new time, enter the current time in the following familiar form. For example, type:

**12:35**

and press ENTER.

**The Screen Displays:****You Respond and/or Enter:**

Current date is Tue 1-01-1980

Enter new date: 8-23-82

Current time is 0:00:15.37

Enter new time: 12:35

The COMPAQ Personal Computer DOS  
Version 1.10

(C) Copyright COMPAQ Computer Corp. 1982

(C) Copyright Microsoft, Inc. 1981,82

A>

You can recover the time prompt and change the time entered into the system. Type:

**time**

and press ENTER.

Current time is 12:37:29.11

Enter new time:

The first four digits of the current time statement represent the hours and minutes (12:37). The 29.11 means 29 seconds and 11 hundredths of a second. The computer generates these numbers by counting from the instant of original entry.

Type in the correct time and press ENTER.

Continued

Continued

**The Screen Displays:**

**You Respond and/or Enter:**

A>

You can also modify the date. Type:

**date**

and press ENTER.

Current date is Mon 8-23-82

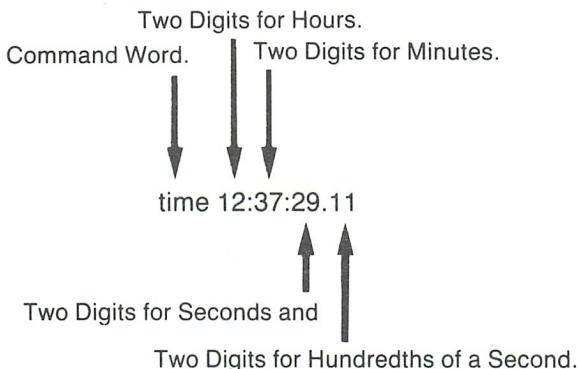
Enter new date:

If you wish to enter a new date, do not enter the day of the week, as previously noted. The computer supplies and displays this information when you recover the date prompt. Do enter the month, the day of the month, and the year. Type in the correct date, and press ENTER.

A>

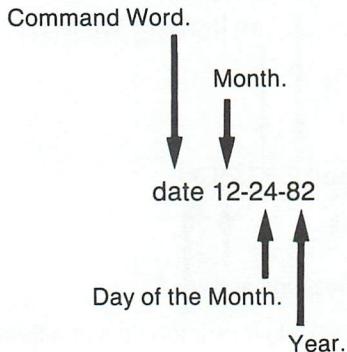
When using the TIME and DATE commands, it is not necessary to work through the prompts. Instead, the commands and the information can be entered at the same time by using the following command formats.

Here is the format for the TIME command:



You must enter the time using a 24-hour system. For example, enter 2:30 p.m. as 14:30. The COMPAQ Computer displays the familiar 2:30p when the time is redisplayed. You can enter seconds if you want to, but most operators rely on the computer to generate the numbers for both seconds and hundredths of a second. Hundredths of seconds matter in operations involving other computers or systems, but you do not need to be concerned about entering them.

Here is the format for the DATE command:



You are not restricted to using hyphens or two-digit entries. For example, DATE 2/22/1982 is a valid entry. The computer does not, however, accept dates that are illogical. For example, 4/31/82 does not work, because there is no 31st day in April.

## The Global Commands

Global commands are carried out on all files of a particular type specified by you. The type is specified by creating an appropriate global file name. A typical global file name is WORDS.?

If this global file name is used with the ERASE command, all files of the following type would be erased:

WORDS.1  
WORDS.2  
WORDS.3

The ? character means, to the computer, that *any* character may occupy the position indicated by the question mark. The global ERASE command eliminates all numbered back-up files of the original file. Here is another example of a global command using the ? character:

ERASE ACCTSREC.7?

Consider the effect of the global ERASE command on the following group of accounts receivable files:

ACCTSREC.71  
ACCTSREC.72  
ACCTSREC.73  
ACCTSREC.74  
ACCTSREC.75  
ACCTSREC.80  
ACCTSREC.81  
ACCTSREC.82

In response to the global ERASE command, all files dating from 1971 through 1975 are erased. You might use the same file name with the COPY command to copy those files onto a different diskette before erasing them from the present diskette. This is a good way to make space on the diskette for additional files from the 1980s.

The \* (asterisk) character can also be used in global file names. When the \* character is used in a global file name, it means that the character position it occupies, and all following positions in the name up to the extension, can be occupied by any character. Suppose, for example, you used a global command like this:

**DIR ACCTS\*.82**

This command selectively displays a directory of the files on the diskette in the drive that have names beginning with the term ACCTS. The list displayed might include files of both accounts receivable (ACCTSREC) and accounts payable (ACCTSPAY).

Another example using the \* character is in a global command of this type:

**DIR \*.BAS**

This command displays a directory of all files on the diskette in the drive that have file names with the extension .BAS. This command is often used to identify all those files that contain programs written in the BASIC programming language.

Global file names and commands can be powerful aids in organizing your work. Because of their sweeping effects, however, they must always be used with care. Define names with precision, and know beforehand just what files on the diskette will be affected. Always check the directory before you write global file names. Work out the consequences before you enter a global command.

### **Summary of Strategies for DOS Operations**

In working through commands and operations, there are three basic items to consider:

- 1) The computer must be brought up on the system. It must have access to it from either a diskette that has been formatted with the system, or from the DOS diskette.

- 2) The computer must load a command program in order to carry out the command. If the command is internal, like the COPY command, the computer loads it as a part of the system, and can carry it out at any time. If it is an external command, like FORMAT or DISKCOPY, you must give the computer access to the program by inserting the DOS diskette.

In practice, the computer is usually brought up once on the system from some source (a file diskette, an applications program diskette, or the DOS diskette) and it stays up. At the conclusion of most operations, the DOS prompt, A>, is displayed, and you can then proceed to enter any internal command. External commands require the temporary insertion of the DOS diskette for program loading. Once the command program has been loaded, the DOS diskette can be removed to make the drive available for another diskette.

- 3) Only one diskette is accessible to the computer at any given moment. If the command to be executed requires access to more than one diskette, the computer sets up the conceptual Drives A: and B:, and alternately assigns one of these two identities to the drive. In operations that involve multiple switches in drive identity, you may find it helpful to label the diskettes as "A:" and "B:" to make sure the diskette that corresponds to each drive identity is inserted as appropriate to the displayed commands.

## For More Information About DOS

We have presented the most prominent features of the most commonly used DOS commands. You can learn more about these commands, other commands, and other programs in the DOS package by consulting the Disk Operating System Reference Guide supplied with your COMPAQ Portable Computer.



## **3-1. INTRODUCTION**

---

This chapter is intended as an introduction to programming in the BASIC language. If you are an experienced programmer, you will probably prefer to skip this section and go directly to Appendix A, QUICK REFERENCE, for a summary of the BASIC keyboard. You can also consult the BASIC Reference Guide supplied with your COMPAQ Computer.

If you have not done any programming before, you are invited to work through the procedures in this chapter. If you would like to further develop your skills in programming, you can find many helpful books on the subject at your dealer, the library, or a bookstore.

You will learn two concepts here. The first is how to make your computer do simple arithmetic. The second is how to break an arithmetic problem into a sequence of instructions that constitutes a simple computer program.

## **3-2. HOW TO ADD, SUBTRACT, MULTIPLY, AND DIVIDE**

---

### **How to Load BASIC**

Insert your DOS diskette into Drive A:, turn the computer on, and wait for the DOS prompt, **A>**. To load the BASIC program language, type:

**basica**

Now press ENTER. The BASIC prompt, **Ok**, is displayed. While you are using BASIC, this prompt is displayed instead of the now-familiar DOS prompt. As a prompt, **Ok** can mean: 1) "I have finished", 2) "It's your turn now", 3) "It's okay to proceed", 4) "What next?", 5) "Do something about this", and 6) "Did you understand?". It rarely means, "I agree."

### **How to Get Back to the DOS Prompt**

While the system is operating under BASIC, it will not respond to DOS commands such as DIR, ERASE, or DISKCOMP. To recover the DOS prompt, respond to the BASIC prompt, **Ok**, by typing:

**system**

Then press ENTER. The DOS prompt, **A>**, appears, and you can enter DOS commands.

To get back to the BASIC program, type:

**basica**

and press ENTER.

## How to Perform Calculations in BASIC

You can use your COMPAQ Computer to perform fundamental arithmetic operations. Here are the symbols corresponding to each type of operation, first in conventional form, then in BASIC.

|                | <b>Conventional</b> | <b>BASIC</b> |
|----------------|---------------------|--------------|
| Addition       | +                   | +            |
| Subtraction    | -                   | -            |
| Multiplication | X                   | *            |
| Division       | ÷                   | /            |

To enter a problem, respond to the BASIC prompt with a question mark followed by the statement of the problem to be solved. Press ENTER, and the answer will be displayed. Here are several examples you can follow:

|                             |                                  |
|-----------------------------|----------------------------------|
| <b>The Screen Displays:</b> | <b>You Respond and/or Enter:</b> |
|-----------------------------|----------------------------------|

Ok

Type:

?2 + 2

Now press ENTER.

4

Ok

Type:

?2 \* 3

Now press ENTER.

*Continued*

Continued

**The Screen Displays:**      **You Respond and/or Enter:**6  
Ok

Type:

**?6/3**

Now press ENTER.

2  
Ok

Type:

**?9-3**

Now press ENTER.

6  
Ok

The ? is an abbreviation of the BASIC command word PRINT. All of the above operations could have been carried out by typing the word PRINT, followed by the arithmetic expression. For example, the command PRINT  $2 + 2$  is a more formal way of entering  $?2 + 2$ .

The BASIC language is not restricted to only arithmetic functions. You can also enter complex algebraic and trigonometric functions. The formats for using these functions are provided in the BASIC Reference Guide.

## What Is a BASIC Program?

Using your COMPAQ Computer to make simple calculations is not quite the same as programming the computer. To begin programming, you need to create what is called a statement. Do this by entering a number before you enter the PRINT command. For example, type:

**10 print 2 + 3**

All numbered lines like this are called statements. Now press ENTER. Notice that the cursor jumps to the next line, but nothing else happens. To make the computer do the calculation, type:

**run**

and press ENTER. The screen displays:

5  
Ok

This time, the computer performs the addition and displays the answer. It has run a program instructing it to add 2 and 3. The difference between a calculation and a program is the postponed response. The computer reserves its calculation until specifically commanded to continue, so that you have an opportunity to enter more lines of instructions. The following is a program with two lines of instructions. Type:

**10 x = 3  
20 print 2 + x**

Then press ENTER. To command the computer to run the program and calculate an answer, type:

**run**

and press ENTER. The screen displays:

```
5  
Ok
```

Again, the two features that distinguish a program from a calculation are: 1) the formality of numbering the statements, and 2) the use of the command RUN to let the computer know that all the statements are in place, and that the computation can now be carried out from beginning to end. It is the numbering of the statements that first alerts the computer to the fact that it is being programmed, and that it must not do the actual computation until the RUN command is entered. The significance of the ENTER key is therefore changed from "calculate" to "next line".

If you would like to see the program displayed once again, type:

**list**

and press ENTER. The screen displays:

```
10 X=3  
20 PRINT 2+X  
Ok
```

A subtle change has been made on the screen. These two statements were entered and displayed in lower-case characters. On redisplay, however, the lower-case letters you entered are converted into upper-case letters. Upper-case commands and responses are characteristic of the BASIC language, although it is indifferent to the case in which you enter them.

## Function Key Commands

There are ten numbered command words displayed along the bottom of the screen. These command words are used frequently and have been assigned function keys to save the time required to type each word letter-by-letter. For example, you can use function key F1 to enter the LIST command. Press this key. The screen displays:

LIST

Now press ENTER. The screen displays:

10 X=3  
20 PRINT 2+X  
Ok

You can run the program again by simply pressing the F2 key. It is not necessary to use ENTER with this command. It is executed immediately, and the screen displays the answer:

```
RUN  
5  
Ok
```

A program that can only add 2 and 3 has very few uses. You can generalize this program, however, to make it add 2 to any given X. To do this, you must modify the statements.

## How to Change the Statements

There are two basic ways to change statements. The existing statement can be deleted, and a new one typed in its place, or the EDIT command can be used to open the existing statement to alteration.

To delete a statement, type the statement number and then press ENTER.

To use the EDIT command, type the command word, EDIT, followed by the number of the statement you wish to revise. For example, type this:

**edit 10**

and press ENTER.

The statement appears on the screen. You can use the cursor controls to shift the cursor back and forth within the statement. You can use the BACKSPACE key to delete letters. You can even insert letters. To insert characters, press the key marked INS (adjacent to the DEL key). Any letter you type is inserted into the space immediately to the left of the cursor position. The SPACEBAR can be used to insert spaces. Turn the insert mode off by pressing the INS key again.

Try some of these editing features to modify the statement from:

**10 x = 3**

to:

**10 x = 4**

The simplest way to modify this statement is to use the cursor-right control to move the cursor to the end of the statement under the 3, and then type 4. The number 4 is inserted in place of the 3.

When you have finished, press ENTER, and run the program (F2). If the program works, the number 6 displays.

## **Generalizing and Humanizing the Program**

You can, by altering statement 10, enter any number you wish for the variable X. But this requires a programming operation to accommodate each new number. It would be more convenient if the computer could be made to ask for a number corresponding to the X. You could then respond and run the program without editing any statements.

The command to help you do these things is called INPUT. Here is how it works.

First, type:

**10**

and press ENTER. This erases the existing statement 10. To replace it, type:

**10 INPUT "x=?", X**

and press ENTER.

Now press F1, and then ENTER. The program looks like this:

```
LIST  
10 INPUT "x=?", X  
20 PRINT 2+X  
Ok
```

Make sure that the commands appear exactly as shown, with the comma in statement 10 and the spacing in both commands correctly positioned. Note that anything you type between the quotation marks appears exactly as you typed it. The information you enter between the quotation marks is strictly for your convenience. The computer does not act on it. The computer simply redisplays the information you typed, and then waits for the variable.

Use the EDIT command to correct any errors. Then press F2 to run the program. Here is what the computer displays:

```
RUN  
x=?
```

Answer this question with the number 3. Type:

3

then press ENTER. The computer immediately proceeds with the calculation and prints the answer, 5. The screen now displays:

```
x=?3  
5  
Ok
```

Type:

20

and press ENTER to erase this statement. Now type this in its place:

**20 print "Then the correct answer to  $2 + x = ?$  is:",  $2 + x$**

Enter this, and press F2 to run the program. At the appearance of the prompt, **x=?**, type:

**3**

Then press ENTER. The prompt, the entry, and the response look like this:

RUN

x=?3

Then the correct answer to  $2+x=?$  is:

**5**

To save this program in a file on the DOS diskette, press F4. The "SAVE" command appears on the screen. Type in a file name, like this:

**SAVE"2plus3**

Press ENTER to save the file. You can recover it any time by entering the "LOAD" command (F3), followed by the file name, like this:

**LOAD"2plus3**

## **How to Make a Program Appear to Defy Your Commands.**

The program we have filed under the file name 2PLUS3 is generalized. You can enter any number for the variable X. It is also humanized in that it prompts and responds in English and in the symbolism of conventional algebra. It does not examine or comprehend the prompt queries, or response and sentences. It simply reproduces

whatever falls between the quotation marks in the INPUT and PRINT statements. The rest of the statement, which comes after the closing quotation marks, is what the computer actually notes and responds to. To demonstrate this indifference to the message in quotes, load the program, then edit statement 10 to read as follows:

**10 input "Do not add the following value of x to 2. x=?",x**

Enter this statement, run the program, and enter 3 at the prompt for input. The display looks like this:

RUN

Do not add the following value of x to 2. x=3

But the computer persistently responds:

Then the correct answer to  $2+x=?$  is:

5

As you can see, the computer appears to defy the instruction in quotes, which it can not read. Its own program instructions, which lie outside the quotation marks, are followed faithfully.

The phrases and numerical expressions in quotes do not affect the functioning of the program. If they are carefully written, however, they can aid you in tasks that would otherwise be much more difficult.

### **3-3. THE EVOLUTION OF A PRACTICAL PROGRAM**

---

Let's examine the evolutionary process of developing a program to compute the value of principal accumulated using compound interest. First, display the finished program. Bring the computer up on DOS, and load BASIC. In response to the **Ok** prompt, press F3 and type:

**interest.bas**

Then press ENTER. Press F2 to run the program. The screen displays three prompts in succession:

PRINCIPAL?  
ANNUAL INTEREST RATE (%)?  
NUMBER OF MONTHS?

Answer the prompts with the values: 10000, 10, and 6. Press ENTER after typing each number. You have now answered these input prompts with data appropriate to a six-month deposit of \$10,000, at an interest rate of 10%, compounded monthly. This is a teaching example. At the conclusion of this section, there is an exercise that you can use to alter the program to make it a bit more realistic.

**Note:** Do not use commas in the numbers you enter into the computer.

When the final input prompt has been entered, the screen displays:

```
THE COMPOUNDING FACTOR IS 1.00833  
AFTER MONTH 1 THE NEW PRINCIPAL IS $ 10083.33  
AFTER MONTH 2 THE NEW PRINCIPAL IS $ 10167.36  
AFTER MONTH 3 THE NEW PRINCIPAL IS $ 10252.09  
AFTER MONTH 4 THE NEW PRINCIPAL IS 4 10337.52  
AFTER MONTH 5 THE NEW PRINCIPAL IS $ 10423.67  
AFTER MONTH 6 THE NEW PRINCIPAL IS $ 10510.53  
Ok
```

Now you know what the program does. Take a look at the statements that make it work. Press F1 and ENTER. The screen displays the list of statements as follows:

```
10 INPUT "PRINCIPAL? ", PRINCIPAL  
20 INPUT "ANNUAL INTEREST RATE (%)? ", ANNUALRATE  
30 INPUT "NUMBER OF MONTHS ? ", MONTHS  
40 MONTHRATE = ANNUALRATE/12  
50 FACTOR = (MONTHRATE/100)+1  
60 PRINT "THE COMPOUNDING FACTOR IS "FACTOR  
70 FOR N = 1 TO MONTHS  
80 PRINCIPAL = PRINCIPAL * FACTOR  
90 PRINT "AFTER MONTH "N"THE NEW PRINCIPAL IS $"  
    PRINCIPAL  
100 NEXT N  
Ok
```

The list shows us what is going on behind the scenes; that is, the internal processing behind the displayed prompts for input and the results of the calculations.

There are ten statements. The first three, which are numbered 10, 20, and 30, use the INPUT command. These statements specify what prompts-for-input should be displayed to you. The prompts are the words which appear between quotation marks. The statements assign variable names to the responses of the prompts.

The variable names in this example happen to be words, but the programmer could have used symbolic names like X, Y, and Z, or P, A, and M. The variable names appear after the closing quotation marks for each prompt. Your answer to the prompt, in effect, fills in a numerical value for the variable. The variable MONTHS, for example, assumes a value of 6 in the sample program you are working with. You can think of it as the expression, MONTHS = 6. If the variable name had been a symbolic one, like Z, then, to the computer, the program statement would read, Z=6.

The next three statements, numbered 40, 50, and 60, instruct the computer to calculate a compounding factor. This factor will be used in subsequent calculations.

The last four statements, numbered 70, 80, 90, and 100, instruct the computer to repeatedly perform the calculation of monthly interest, beginning each calculation using the value obtained as an answer to the previous calculation. This process of feeding the answer to a problem back into the formula used to obtain that answer is called “looping.” It is a very versatile and powerful technique, and something computers do uniquely well.

### **The First Steps**

Having previewed the solution, approach the problem with a blank sheet of paper, or actually, a blank screen. To do this, enter the word, NEW, in response to the **Ok** prompt.

Here is a formula for calculating the new value of principal at the end of a deposit period of one month:

$$\text{PRINCIPAL1} = \text{PRINCIPALZ}(\text{MONTHLY RATE}/100) + \text{PRINCIPALZ}$$

Here, PRINCIPALZ means “principal at time zero,” which is the initial value of the deposit. PRINCIPAL1 is the new principal value obtained at the end of one month. MONTHLY RATE is the stated annual interest rate, divided by 12. We must divide it by 100 to convert it to decimal form. The equation can be simplified to the following form:

$$\text{PRINCIPAL1} = \text{PRINCIPALZ}(\text{FACTOR})$$

if you define FACTOR in the following way:

$$\text{FACTOR} = 1 + \text{MONTHLY RATE}/100$$

The programming problem can now be previewed. Assume the initial value of PRINCIPAL is \$10,000. The annual rate of interest is 10%, and the principal is to be deposited for a period of 6 months. To find the value of the principal at the end of six months, the program will need to accomplish the following tasks:

- 1) It must acquire the numbers.
- 2) The numbers must be equated with appropriate variable names.  
For example, the program must state, MONTHS = 6.
- 3) These same variable names must be used in forming an equation that the computer can use to calculate FACTOR.
- 4) FACTOR, and the initial value of the principal, PRINCIPALZ, must be used to calculate a new value for the principal at the end of the first month. This new value of principal, which you have called PRINCIPAL1, must then be used to calculate the new value of the

principal at the close of the second month, which you can call PRINCIPAL2. PRINCIPAL2 is used in calculating PRINCIPAL3; PRINCIPAL3 in calculating PRINCIPAL4; and so on until the final calculation, that of PRINCIPAL6, is obtained.

Steps 1 and 2 can be covered with the following numbered statements.

10 PRINCIPALZ = 10000

20 ANNUAL RATE = 10

30 MONTHS = 6

Note that the names established as variables are written as single words. The annual interest rate is called ANNUALRATE, for example.

Continue to Step 4 in the development of the program by entering statements that direct the calculation of FACTOR. This requires three arithmetic operations. First, the monthly interest rate must be determined by dividing the ANNUALRATE by 12. Second, the resulting percentage value must be converted to decimal form. Finally, the result must be added to the number 1. Here is how these operations can be indicated by program statements:

40 MONTHRATE = ANNUALRATE/12

50 FACTOR = (1 + MONTHRATE/100)

If you want to check your progress so far, type this statement:

**60 PRINT FACTOR**

Press ENTER, then press F2 to run this program. The computer makes the calculations and prints the compounding factor:

```
RUN  
1.008333  
Ok
```

This number, multiplied by PRINCIPALZ (\$10,000), yields a new value for the principal, PRINCIPAL1, and is the first of the series of “new principal” calculations. These calculations are Step 4 in developing the program. Here are the programming statements required to carry out these “new principal” calculations:

```
70 PRINCIPAL1 = PRINCIPALZ * FACTOR  
80 PRINCIPAL2 = PRINCIPAL1 * FACTOR  
90 PRINCIPAL3 = PRINCIPAL2 * FACTOR  
100 PRINCIPAL4 = PRINCIPAL3 * FACTOR  
110 PRINCIPAL5 = PRINCIPAL4 * FACTOR  
120 PRINCIPAL6 = PRINCIPAL5 * FACTOR
```

Having worked through these successive calculations, the computer holds the result of the equation in statement 120 in memory, and this is the answer. You can end this first version of your program by typing:

**130 PRINT PRINCIPAL6**

Then press ENTER. To test the program, enter the RUN command by pressing F2. The screen displays:

```
RUN  
1.008333  
10510.53  
Ok
```

The first number is the compounding factor. The second number is the new value of the principal at the end of a six-month deposit period. You have written a program to answer the specific question: "What will \$10,000 be worth in six months if it is deposited at an annual interest rate of 10%, and compounded monthly?".

To refine this program, you need to generalize it. Rewrite the three initial statements using the INPUT command to create prompts-for-data. As before, the contents of the prompt messages appear within quotation marks. The variable names follow a comma, after closing quotation marks. To change the first statement, type:

### EDIT 10

Press ENTER. Statement 10 appears on the screen. Use the cursor keys, INS and DEL keys, or BACKSPACE key to reword the statement so that it reads like this:

```
10 INPUT "PRINCIPAL?"           $"",PRINCIPAL
```

Press ENTER. Now edit statements 20 and 30 to look like these:

```
20 INPUT "ANNUAL INTEREST RATE (%)? ",ANNUALRATE  
30 INPUT "NUMBER OF MONTHS? ",MONTHS
```

Press ENTER when you have finished changing the statements. The intervening spaces are used to align all the commas, so that when the responses to the prompts-for-input are entered, they fall into a columnar format. In the prompt messages, you have used familiar terms (such as ANNUAL INTEREST RATE), rather than their computerized equivalent variable names, of which ANNUALRATE is typical. Beyond the commas, however, you have retained the variable names used in the original versions of these statements. The rest of the program will continue to operate upon them. The variable name, PRINCIPALZ, is changed for reasons which are discussed in the following paragraphs.

To run the program, press F2. The screen displays:

```
PRINCIPAL? $
```

Enter whatever values you like after this and the following prompts. You have now accomplished two things. First, you have generalized the program. It now accepts any value for principal, rate, and time, not just the specific values of 10000, 10, and 6. Second, you have "hidden your hand." The program is no longer displayed to you. To take another look at it, press F1 or enter the command, LIST. The screen displays:

```
Ok
LIST
10 INPUT "PRINCIPAL?           $", PRINCIPAL
20 INPUT "ANNUAL INTEREST RATE (%)? ", ANNUALRATE
30 INPUT "NUMBER OF MONTHS?      ", MONTHS
40 MONTHRATE = ANNUALRATE/12
50 FACTOR = (1+MONTHRATE/100)
60 PRINT FACTOR
70 PRINCIPAL1 = PRINCIPAL * FACTOR
80 PRINCIPAL2 = PRINCIPAL1 * FACTOR
90 PRINCIPAL3 = PRINCIPAL2 * FACTOR
100 PRINCIPAL4 = PRINCIPAL3 * FACTOR
110 PRINCIPAL5 = PRINCIPAL4 * FACTOR
120 PRINCIPAL6 = PRINCIPAL5 * FACTOR
130 PRINT PRINCIPAL6
Ok
```

As it stands, the program does not work through all the statements. It can solve the problem of creating FACTOR, but it does not proceed beyond that point. This is because the name of the variable, PRINCIPALZ, has changed to simply, PRINCIPAL. The computer looks for PRINCIPALZ, and forces PRINCIPALZ to equal zero.

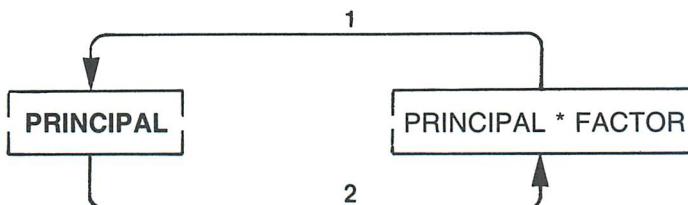
You have changed the name to PRINCIPAL in order to take advantage of a special BASIC command format which will replace the step-by-step calculation and recalculation of principal within a single loop.

First, erase the step-by-step program, which consists of statements 70 through 130. Type each statement number and then press ENTER. This erases the statements. The basis of the loop operation is the following statement. Enter it as statement 80.

### **80 PRINCIPAL = PRINCIPAL \* FACTOR**

At first glance, this appears to be a false equation, since the term PRINCIPAL cannot equal the term PRINCIPAL multiplied by FACTOR, except in the unlikely event that the FACTOR happens to be 1. As it turns out, however, the computer “understands” that the PRINCIPAL on the left-hand side of the equation is really **new** PRINCIPAL, whereas that on the right is the old value for principal; that is, the principal at the close of the month to which accumulated interest must now be added.

The computer distinguishes the new value for PRINCIPAL (the value to be calculated) from the old value (the value used to make the calculation) only by their position in the equation. The new value for PRINCIPAL is distinguished by bold faced type in the illustration below. The loop is formed like this:



The equals sign in statement 80 does not signal equality. It has a meaning closer to that conveyed by arrows 1 and 2. Arrow 1 means “multiply these two numbers together to get the answer I am pointing at”. Arrow 2 means, “take the answer and plug it back into the original problem, right here”.

The first value for PRINCIPAL which will be operated upon by statement 80 is the initial value (10000, in the example) that you entered in response to the prompt-for-input. The loop would go on indefinitely, accumulating a PRINCIPAL approaching infinity, unless you supply additional instructions to tell it when to stop. In the given example, you had to stop the loop after six calculations to obtain the value of PRINCIPAL at the end of six months.

In BASIC, the special loop meaning of the equals sign and the instruction describing the number of times the loop is to be circled are established using a format called the FOR-NEXT commands. These commands fall before and after the specific loop equation. In this case, enter the FOR command as statement 70, like this:

### **70 FOR N = 1 TO MONTHS**

The content of the command statement can be expanded this way: "For the following loop, do the calculation and feed the answer back into the equation N times. Start counting off Ns by 1 when the first calculation is complete, and keep counting as N equals 2, 3, 4, 5, and so on, until you reach the number of months entered in response to the prompt-for-input."

In this example, the number of months the principal is left on deposit is 6. The loop calculation is done six times, or until the ultimate N specified in statement 70 equals 6. To the computer, statement 70 means, "Start the loop and count off the calculations from 1 to 6".

The second part of this command follows the loop statement. Enter it as statement 100, like this:

### **100 NEXT N**

Now see how the program looks. Press F1, for LIST.

```
10 INPUT "PRINCIPAL?          $", PRINCIPAL
20 INPUT "ANNUAL INTEREST RATE (%)? ", ANNUALRATE
30 INPUT "NUMBER OF MONTHS ? ", MONTHS
40 MONTHRATE = ANNUALRATE/12
50 FACTOR = (1+MONTHRATE/100)
60 PRINT FACTOR
70 FOR N = 1 TO MONTHS
80 PRINCIPAL = PRINCIPAL * FACTOR
100 NEXT N
Ok
```

The "NEXT N" is an integral part of the FOR-NEXT format. It means that at the completion of each calculation specified in the loop described by statement 80, the computer is to proceed to the next turn of the loop. When it reaches the final N specified in the FOR statement, the process is halted.

The program is now generalized to a point where it can handle very long deposit periods, simply by running the loop calculation many times. To see the improvement over the original program, consider that a loopless program of that type would require 48 command statements to compute principal for a four-year deposit. With the loop program, you can handle 48 months without any additional steps. This becomes even more important if you wish to convert the program to do daily compounding. Here again, a 120-day deposit requires 120 programming statements, if you do not use the loop.

At this point, the only thing left to do is to make the program display the answers it obtains.

Edit statement 60 to read as follows:

**60 PRINT "THE COMPOUNDING FACTOR IS", FACTOR**

Now add this statement:

**90 PRINT "AFTER MONTH" N“, THE NEW PRINCIPAL IS \$",  
PRINCIPAL**

Press F2 to run the program, and enter the example numbers after the prompts. The screen displays:

```
PRINCIPAL? 10000
ANNUAL INTEREST RATE (%)? 10
NUMBER OF MONTHS? 6
THE COMPOUNDING FACTOR IS 1.00833
AFTER MONTH 1, THE NEW PRINCIPAL IS $10083.33
AFTER MONTH 2, THE NEW PRINCIPAL IS $10167.36
AFTER MONTH 3, THE NEW PRINCIPAL IS $10252.09
AFTER MONTH 4, THE NEW PRINCIPAL IS $10337.52
AFTER MONTH 5, THE NEW PRINCIPAL IS $10423.67
AFTER MONTH 6, THE NEW PRINCIPAL IS $10510.53
Ok
```

As an exercise, convert the program to handle daily compounding. A good place to start this is with statements 30 and 40.

## 4-1. TURNING YOUR COMPUTER OFF

---

**Don't** turn off your COMPAQ Portable Computer without saving the file or files you have been working on. If you neglect to do a file save, you will lose all the work you have done since entering the file, because it has not been transferred from memory to a diskette. Remember that the memory contents are lost when the power is turned off.

**If you are a new user** following the procedures presented in the GETTING ACQUAINTED section of this book, you can turn off your COMPAQ Computer at any time, because you have not yet begun to use files. As a rule, however, it is a good procedure to allow the system to complete any operation of the disk drives before you switch off the power.

**To halt the printer** if the paper jams, or to abort a long run, press the CTRL and NUM LOCK keys simultaneously. If this does not stop the printer, turn the printer off. If you used the CTRL and NUM LOCK keys, press any key to resume printing. If you turned off the printer, you cannot pick up where you left off. To resume printing, you must use the PRINT command again.

**If the power fails**, you lose everything in memory. You will have a copy of the programs on your diskette, so they will not be lost. But any open data file loses all the newly-entered information. This is why it is wise to do frequent file saves. In this way, you can transfer vulnerable new information from memory to diskette storage, where it is safe.

**If you are in BASIC** and turn the computer off, it comes back on in DOS. You must reload BASIC to resume working.

**In general**, you can turn off your COMPAQ Computer at any time without damaging it. The only thing to remember is that you need to save any information you may have in memory first. Store it on a diskette (perform a file save) before you turn the computer off.

## 4-2. PREPARING FOR TRAVEL

After you have done a file save, and have turned the power off, you can quickly and easily reassemble your COMPAQ Computer into a portable unit.

First, make sure there are no diskettes in the disk drive(s). Leaving a diskette in the drive unit during transport could damage the diskette, and you could lose valuable information. Insert the cardboard disk drive protector(s) that you removed from the drive(s) when you unpacked your computer. These cardboard inserts help protect the drive(s) from damage while traveling. Now close the disk drive doors.

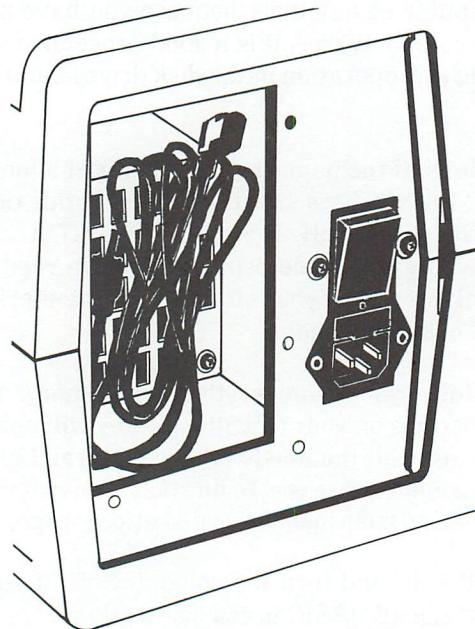


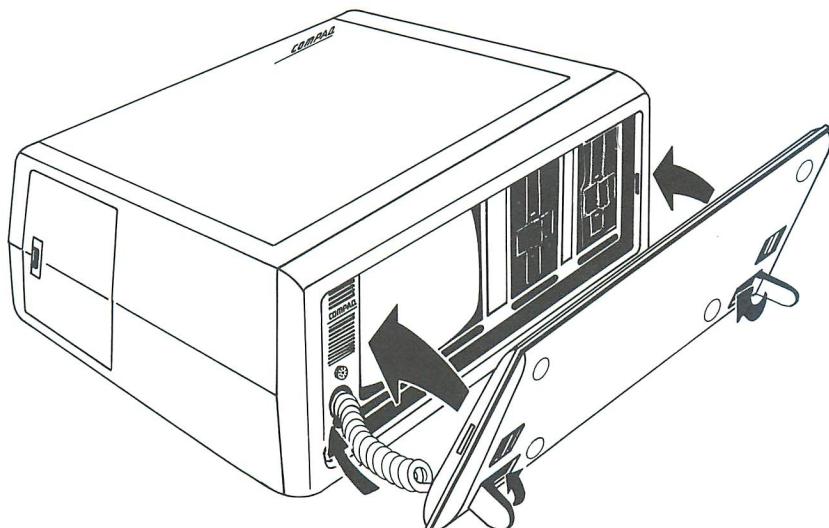
Figure 4-1. Power Cord Storage.

Disconnect all peripheral devices, such as a printer. Unplug the power cord and wind it back into the recessed compartment on the side of the unit (see Figure 4-1). Slide the doors closed until they click into place.

\*\*\*CAUTION\*\*\*

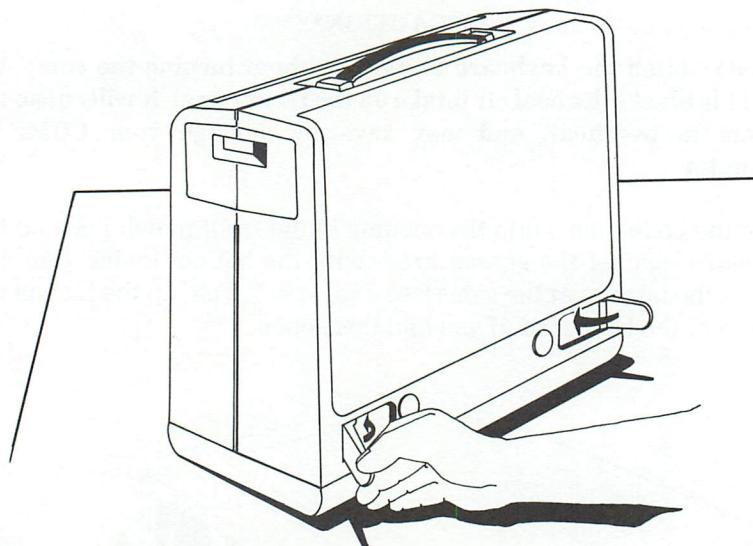
**DO NOT** latch the keyboard in place without turning the computer off. This blocks the cool air intake on the front panel. It will cause the system to overheat, and may severely damage your COMPAQ Computer.

Slide the coiled cord into the opening in the front panel. Position the keyboard against the screen area, with the bottom facing you, and secure the latches at the sides (see Figure 4-2). Fold up the feet on the bottom of the keyboard, if you had them open.



**Figure 4-2.** Putting the Keyboard Up.

Lift your COMPAQ Computer by the handle located at the rear of the unit, and set it up on your working surface as if it were a suitcase. Now fold in the feet on the side of the unit (see Figure 4-3).



**Figure 4-3.** Folding In the Feet on the Base of the Unit.

Your COMPAQ Computer is now secured and ready to travel with you.

**NOTE:** Although your COMPAQ Computer is designed to travel, you should avoid rough handling. For example, it should not be checked as baggage, or thrown into a storage compartment.

## 5-1. WHAT ARE USER DIAGNOSTICS?

---

User Diagnostics are a series of test programs designed to determine where a problem might be in the computer system. These programs are in a special file named TEST. This file is on your DOS diskette. If you have a problem with your computer, running these tests can help to get your system repaired as quickly and as efficiently as possible.

If you get an error message while running the diagnostic programs, it is a good idea to call your dealer before taking your COMPAQ Computer in to be repaired. Your dealer can probably interpret the error message for you over the phone, and you may find that your system does not need to be serviced after all. The problem may be simply that a cable is loose or a switch is not on.

## **5-2. STARTING THE DIAGNOSTIC PROCEDURES**

---

First, determine if you have ac power coming into your computer. Detach all optional peripheral equipment (disconnect your printer, for example).

**NOTE:** When you turn your computer on, special error code messages sometimes appear on the screen. These error codes are the computer's way of indicating what is wrong. They may say, for example, "Error — system unit 601", or "Error — parity check". Error code messages can appear and disappear from the screen very quickly, so pay close attention.

Insert the DOS diskette into Drive A:, and turn the computer on.

These three things should happen:

- The cursor appears on the screen about five seconds after you set the ON/OFF switch to the on position.
- After the memory is tested, you will hear one short beep.
- The date prompt (see below) appears on the screen.

**Current date is Tue 1-01-1980**

**Enter new date:**

If you see the date prompt on your screen, proceed to **Section 5-3**.

If you see an error message on your screen, make a note of both what you did and what you saw, and take this note and your computer to a COMPAQ Computer dealer for service.

If you do not see the date prompt, first make sure that you have adjusted the BRIGHTNESS control knob so the prompt appears clearly on the screen.

Then listen very closely to the left rear side of your computer. Can you hear the fan running? If you do not hear the fan, this means that ac power is not getting into your system. This may be the result of a faulty wall outlet or power cord.

\*\*\* WARNING \*\*\*

**Be sure that you set the ON/OFF switch to the off position, and unplug the power cord from the wall outlet before you adjust any cables or connectors. Otherwise, you are exposing yourself to dangerous voltages.**

Make sure that your wall outlet is working properly. Unplug the power cord to the COMPAQ Computer, and plug in an electrical appliance that you know works, such as a radio, TV, or lamp.

If your wall outlet is working, disconnect and reconnect the power cord at the power connection on the left side of your computer. Now plug the power cord back into the wall outlet, and try to turn the system on again.

If your computer is still not receiving ac power, you may need to replace the fuse. The fuse is located just above the power connection (see Figure 5-1). Use the following procedure to replace the fuse:

1. Disconnect the power cord from the wall outlet. Then disconnect it from the power cord connection on the left side of the computer (see Figure 5-1).
2. Insert a flat-bladed screwdriver along the bottom edge of the fuse box (see Figure 5-1). Pry outward with enough pressure to force the fuse box out of the casing (see Figure 5-2).

3. Once the fuse box is out, you will see a spare fuse provided in a holding area in the fuse box (see Figure 5-2). Lift out the faulty fuse, and replace it with the spare one.
4. Slide the fuse box back into the case. With your thumb, press in on the cover until you feel it snap into place. Reconnect the power cord to the computer. Now plug the power cord back into the wall outlet, and try to turn the system on.

If you still get no response from your computer, make a note of both what you did and what you saw, and take the note and the computer to a COMPAQ Computer dealer for service.

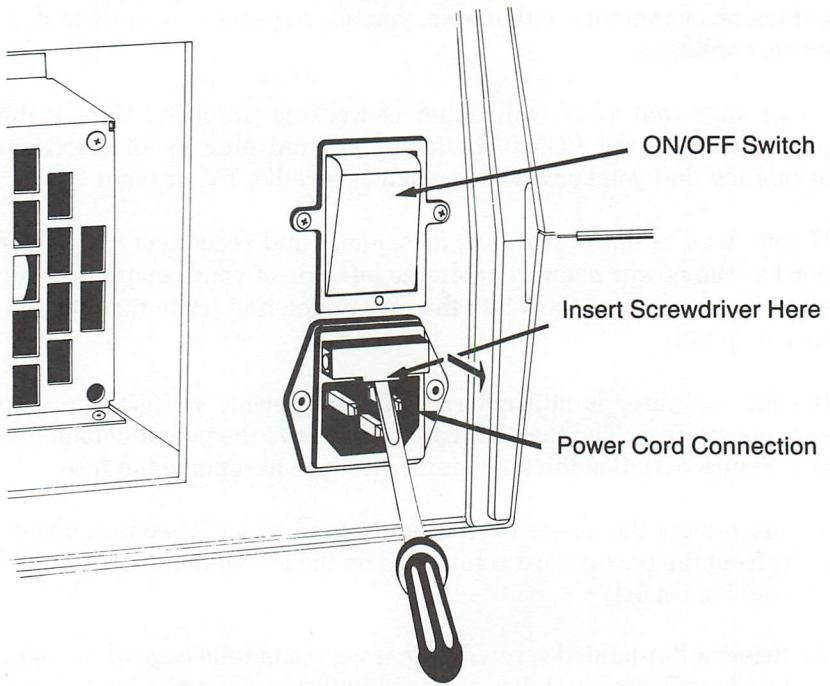
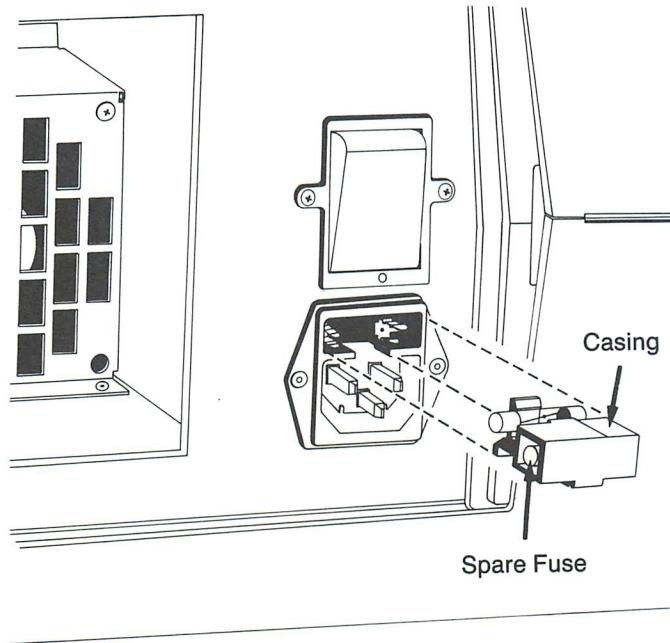


Figure 5-1



**Figure 5-2**

## **5-3. USING THE USER DIAGNOSTICS DISKETTE**

---

If you are able to turn your computer on without seeing any error indications, you can now use the User Diagnostics test programs to help isolate your computer's problem.

### **Step 1**

- a. Make sure the DOS diskette is inserted, and the A> prompt is displayed. Type:

**test**

and press ENTER.

- b. Do you see the following menu on your screen?

THE COMPAQ PERSONAL COMPUTER DIAGNOSTICS MENU

VERSION 1.00

(C) COPYRIGHT COMPAQ COMPUTER CORP. 1982

YOUR CHOICES ARE:

0 - RUN THE DIAGNOSTIC TESTS

1 - FORMAT A DISKETTE

2 - COPY A DISKETTE

9 - RETURN TO DOS

Select the number that corresponds to your choice

(0, 1, 2, or 9)

? \_\_

Input your choice, then press ENTER.

**Figure 5-3**

- f. If the answer is YES, proceed to **Step 2**.

g. If the answer is **NO**, remove the DOS diskette and check for the following:

- Did you use the correct diskette?
- Did you load the diskette properly?

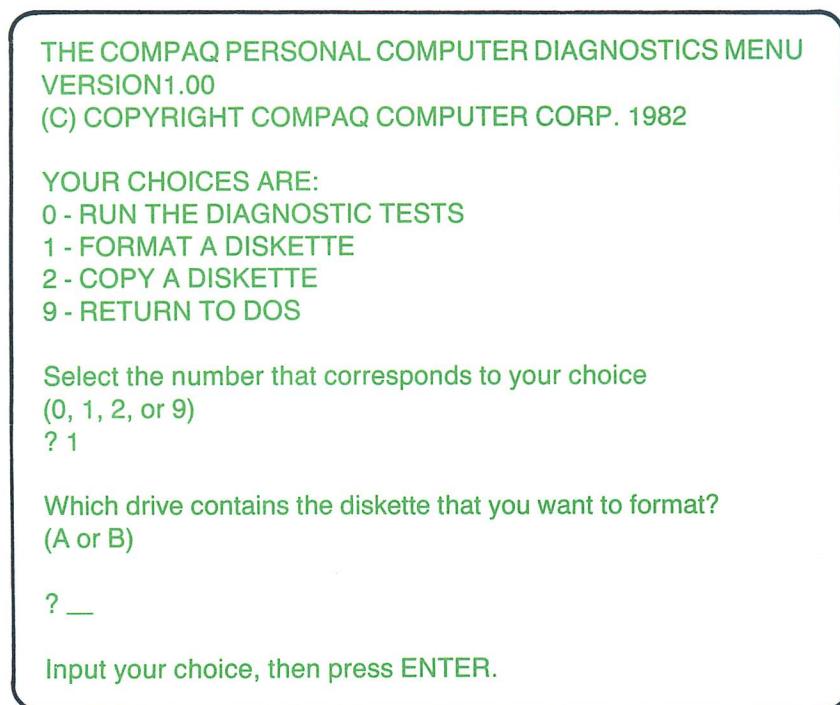
If you still do not get the correct menu on your screen, make a note of both what you did and what you saw, and take the note and your computer to a COMPAQ Computer dealer for service.

## Step 2

Before you begin testing the computer, you need to format a blank diskette. This diskette will be used as the **scratch diskette** later during the disk drive test.

- a. Select **FORMAT A DISKETTE**. Press 1, and then **ENTER**.

- b. Does your screen look like this?



**Figure 5-4**

- c. If the answer is YES, proceed to **Step 3**.
- d. If the answer is NO, make a note of both what you did and what you saw, and take the note and your computer to a COMPAQ Computer dealer for service.

## Step 3

- a. Remove the DOS diskette from Drive A:, and insert a blank diskette.
- b. Press A, and then ENTER.
- c. Your display looks like this:

THE COMPAQ PERSONAL COMPUTER DIAGNOSTICS MENU  
VERSION 1.00  
(C) COPYRIGHT COMPAQ COMPUTER CORP. 1982

YOUR CHOICES ARE:

- 0 - RUN THE DIAGNOSTIC TESTS
- 1 - FORMAT A DISKETTE
- 2 - COPY A DISKETTE
- 9 - RETURN TO DOS

Select the number that corresponds to your choice  
(0, 1, 2, or 9)  
? 1

Which drive contains the diskette that you want to format?  
(A or B)  
A

Input your choice, then press ENTER

**Figure 5-5**

- d. The IN USE indicator for Drive A: stays on while the blank diskette is being formatted.
- e. When the indicator goes off, does your screen display look like this?

YOUR CHOICES ARE:

0 - RUN THE DIAGNOSTIC TESTS  
1 - FORMAT A DISKETTE  
2 - COPY A DISKETTE  
9 - RETURN TO DOS

Select the number that corresponds to your choice  
(0, 1, 2, or 9)

? \_\_

Input your choice, then press ENTER

**Figure 5-6**

- f. If the answer is YES, proceed to **Step 4**.
- g. If the answer is NO, check for the following:
  - Was the diskette inserted properly?
  - Did you try a different blank diskette?

- h. If you still do not get the correct display, make a note of both what you did and what you saw, and take the note and your computer to a COMPAQ Computer dealer for service.

## **Step 4**

Now you are ready to begin testing the computer.

- a. Reconnect any peripheral devices (see CONNECTING YOUR OPTIONS for reference).
- b. Remove the newly-formatted diskette, and load the DOS diskette into Drive A:.
- c. Select RUN THE DIAGNOSTIC TESTS. Press 0, and then ENTER. A display similar to the following appears on your screen:

**THE FOLLOWING DEVICES ARE DETECTED:**

128KB MEMORY  
PROCESSOR BOARD  
VIDEO DISPLAY UNIT  
KEYBOARD  
2 DISK DRIVES  
PRINTER

**ARE ALL YOUR INSTALLED DEVICES LISTED? (Y/N)**

?\_\_

**Figure 5-7**

- d. If the answer is YES, press Y, and then ENTER. Proceed to Step 5.
- e. If the answer is NO, make sure all of the devices are properly connected to the computer.
- f. If all the devices are properly connected, and the screen display still does not appear, make a note of both what you did and what you saw, and take the note and your computer to a COMPAQ Computer dealer for service.

## Step 5

- a. Your display looks like this:

### SYSTEM TESTS

- 0 - RUN THE TESTS ONCE
- 1 - RUN THE TESTS SEVERAL TIMES
- 2 - ERROR LOGGING UTILITY
- 9 - RETURN TO DOS

Select the number that corresponds to your choice  
(0, 1, 2, or 9)

?\_\_

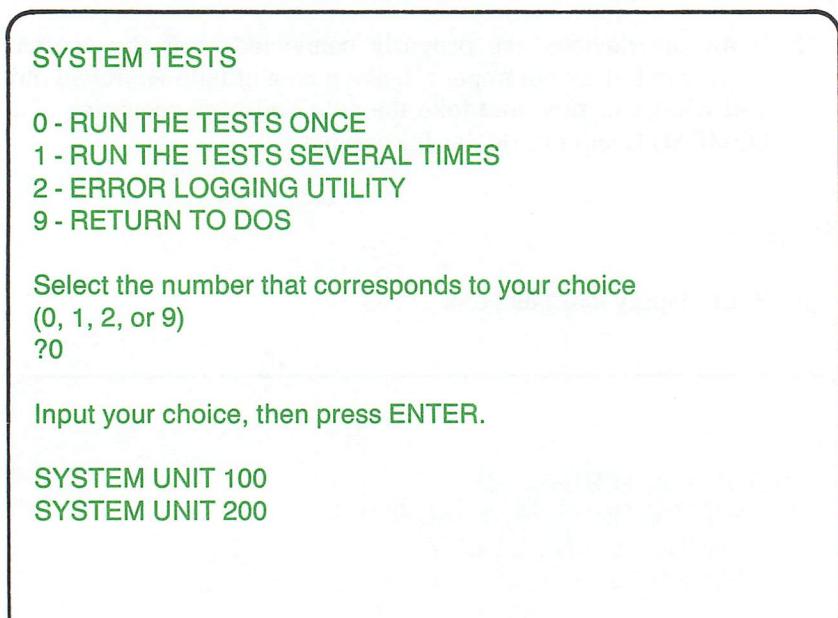
Input your choice, then press ENTER

Figure 5-8.

- b. Select RUN THE TESTS ONCE. Press 0, and then ENTER.

## **Step 6**

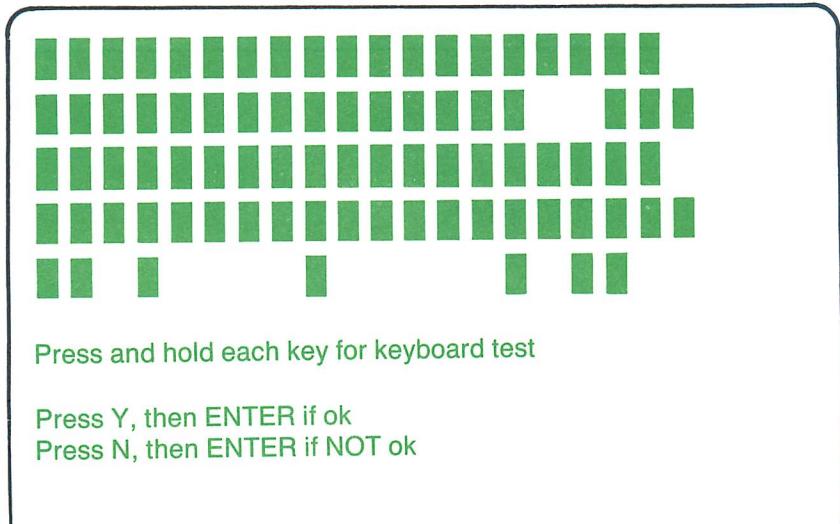
- a. Your display now looks like this:



**Figure 5-9.**

**NOTE:** There is a several-second delay while the system performs a memory test.

- b. Without further action from you, the screen changes to this:



**Figure 5-10**

- c. Does your display match the one just shown?
- d. If the answer is **YES**, press each key once, then proceed to **Step 7**.
- e. If the answer is **NO**, press N, then ENTER.
- f. Make a note of both what you did and what you saw and take the note and your computer to a COMPAQ Computer dealer for service.

## STEP 7

- a. Does your screen display look like this?

```
1 2 ← 1 2 3 4 5 6 7 8 9 0 - =↔ NS
3 4 L Q W E R T Y U I O P [ ] 7 8 9 -
5 6 C A S D F G H J K L ; ' ' R 4 5 6
7 8 S / Z X C V B N M , . / S * 1 2 3 +
9 0 A S C 0 .
```

Press and hold each key for keyboard test

Press Y, then ENTER if ok

Press N, then ENTER if NOT ok

KEYBOARD 300

Figure 5-11

- b. If the answer is **YES**, press any key and hold it for several seconds. The corresponding key in the screen display will flash. The flashing key indicates that the repeat function is operating properly. This test is called the Keyboard Test. Now, Press Y, and then ENTER. Proceed to **Step 8**.
- c. If any of the blocks on the screen failed to change to a character when the corresponding key was pressed or held down, the answer is **NO**. Press N, and then ENTER.
- d. Make a note of both what you did and what you saw, and take the note and your computer to a COMPAQ Computer dealer for service.

## STEP 8

- a. Does your screen look like this?

### DISPLAY CHARACTERISTICS

THIS LINE IS INTENSE

THIS LINE BLINKS

THIS LINE HAS NORMAL INTENSITY

THIS LINE HAS INVERTED VIDEO

THIS LINE IS underscored

Is the screen ok? (Y or N)

?\_\_

**Figure 5-12**

- b. If your answer is YES, press Y, and then ENTER. Proceed to Step 9.
- c. If your answer is NO, press N, and then ENTER.
- d. Make a note of both what you did and what you saw, and take the note and your computer to a COMPAQ Computer dealer for service.

## **STEP 9**

- a. Does your display look like this?

## CHARACTER SET

Is the screen Ok (Y or N)?

?

**Figure 5-13.**

- b. If the answer is YES, press Y, and then ENTER. Proceed to **Step 10**.
  - c. If the answer is NO, press N, and then ENTER.
  - d. Make a note of both what you did and what you saw, and take the note and your computer to a COMPAQ Computer dealer for service.

## STEP 10

- a. Does your display look like this?

```
%*? ()**+, -. /0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijk
&? ()**+, -. /0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijkkl
()**+, -. /0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnm
()**+, -. /0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmr
**+, -. /0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmoc
+, -. /0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopd
-, -. /0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqr
-, -. /0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqr's
-/0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqrst
'0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqrstu
0123456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqrstuv
.23456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqrstuvwxyz
:23456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqrstuvwxyz
:456789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqrstuvwxyz
:56789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqrstuvwxyz
:6789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqrstuvwxyz
:789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqrstuvwxyz
:1,789:; <=) ?@ABCDEFGBHIJKLMLN0PQRSTUVWXYZ[\]^_`abcdefg hijklnmopqrstuvwxyz
:1,789:;
```

**Figure 5-14**

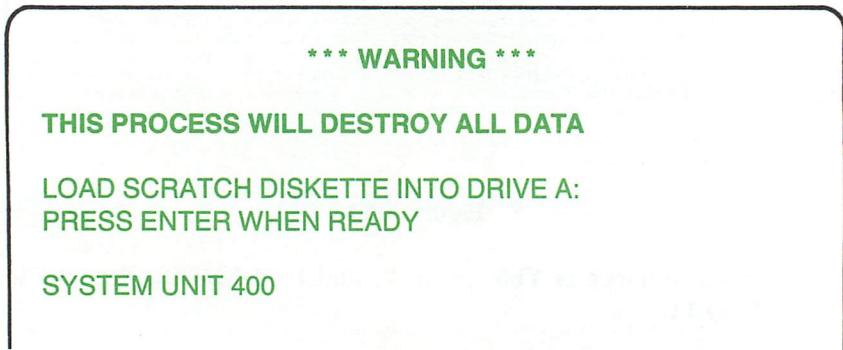
- b. If the answer is **YES**, press Y, and then ENTER. Proceed to **Step 11**.
- c. If the answer is **NO**, press N, and then ENTER.
- d. Make a note of both what you did and what you saw, and take the note and your computer to a COMPAQ Computer dealer for service.

## **STEP 11**

### **\*\*\* CAUTION \*\*\***

**At this point, you *must* remove the DOS diskette and replace it with the scratch (newly-formatted) diskette. Failure to do this will result in permanent damage to the DOS diskette.**

- a. The display looks like this:



**Figure 5-15**

- b. Remove the DOS diskette, and insert the scratch diskette into Drive A:. Then press ENTER, and proceed to **Step 12**.

**NOTE:** If your COMPAQ Portable Computer has a second drive, a prompt will instruct you to load the scratch diskette into Drive B: when testing is completed on Drive A:.

## **STEP 12**

- a. The next test is a printer test. If you have a printer connected, it prints this:

**Figure 5-17**

- b. Does your printout look like this?
  - c. If the answer is YES, proceed to Step 13.
  - d. If the answer is NO, make a note of both what you did and what you saw, and take the note and your computer to a COMPAQ Computer dealer for service.

## STEP 13

- a. When prompted, press ENTER to continue.
- b. Does the following menu appear?

### SYSTEM TESTS

- 0 - RUN THE TESTS ONCE
- 1 - RUN THE TESTS SEVERAL TIMES
- 2 - ERROR LOGGING UTILITY
- 9 - RETURN TO DOS

Select the number that corresponds to your choice  
(0, 1, 2, or 9)

?\_\_

Figure 5-17

- c. If the answer is YES, the testing has been successfully completed.
- d. If the answer is NO, make a note of both what you did and what you saw, and take the note and your computer to a COMPAQ Computer dealer for service.

This concludes the User Diagnostics procedures. You can return to the DOS prompt by selecting RETURN TO DOS. Press 9, and then ENTER. The familiar A> prompt appears on your screen.

Should you encounter any problems, take your COMPAQ Computer back to the place it was purchased, or to any COMPAQ Computer dealer, and they will be happy to assist you.



## 6-1. AVAILABLE OPTIONS FOR YOUR COMPAQ PORTABLE COMPUTER

Listed here are some of the options available from your dealer for your COMPAQ Computer, along with a brief description of each. Most things designed for the IBM®Personal Computer™ will work with your COMPAQ Portable Computer (see NOTES ON COMPATIBILITY for more information about this). Most optional circuitry can be added simply by having the additional printed circuit boards (PCBs) installed.

As you purchase options for your COMPAQ Computer, place the accompanying instructions in this section of the book.

**Printer:** You can easily connect a printer to your COMPAQ Computer. It supports the connection of a wide range of parallel-output printers.

**External Monitors:** Your COMPAQ Computer has three connections that allow you to use several types of external monitors.

- **Adding an RF modulator** allows you to connect your computer to any conventional television set to use as a display.
- **The composite video jack** allows you to connect an external composite color monitor to your computer.
- **The RGB port** allows you to connect a medium- or high-resolution RGB color monitor to your computer.

**Memory Expansion:** The standard COMPAQ Computer has 128 Kbytes of RAM. You can expand it up to 256 Kbytes by having the appropriate number of integrated circuits added to the existing processor board. This eliminates the need to add a circuit board to increase memory, and leaves an extra slot open for other options.

**Asynchronous Communications:** An asynchronous communications board (current loop or EIA serial interface) can be installed in one of the available option slots to allow your COMPAQ Computer to communicate with serial-output devices.

**Second Disk Drive:** You may want to have an additional disk drive installed, if your COMPAQ Computer is set up with only one. A second disk drive generally makes the computer faster and easier to use.

**Carrying Case:** A specially-designed, padded carrying case is available to protect your computer from external damage during transport.

\* \* \* CAUTION \* \* \*

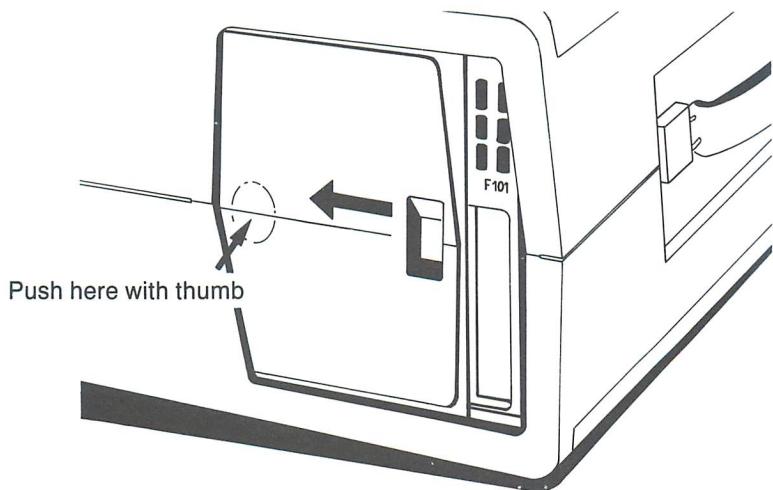
**Before purchasing and installing any option, consult your dealer. He can direct you to peripheral devices that are compatible with your COMPAQ Portable Computer.**

The peripheral devices in this book that are not manufactured by COMPAQ Computer Corporation are used only as illustrations. Their mention does not constitute a recommendation or endorsement of those products. The purchase, connection, and use of any such device is the sole responsibility of the user.

## 6-2. CONNECTING YOUR OPTIONS

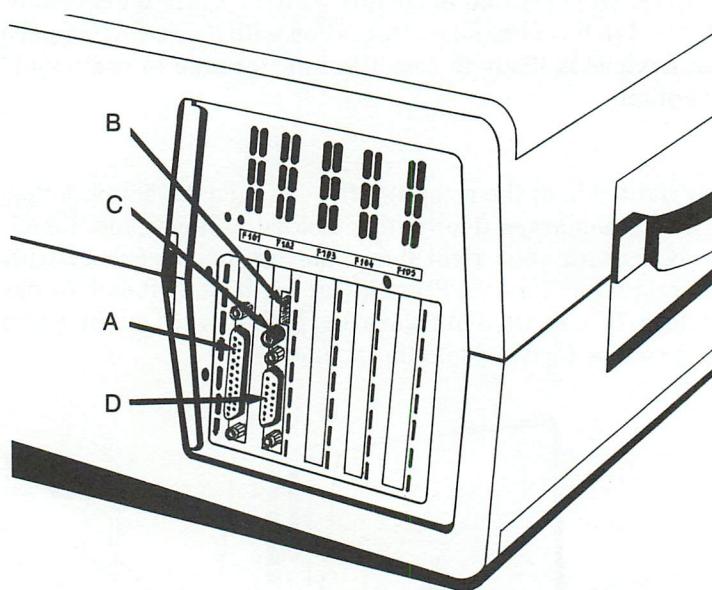
The COMPAQ Portable Computer has been certified to comply with the FCC limits set for a Class B computing device. Only peripheral devices (computer input/output devices, terminals, printers, etc) certified to comply with the Class B limits may be attached to this computer. Operation with non-certified peripheral devices is likely to result in interference to radio and TV reception.

On the right side of the computer (as you face the screen), there is a flush-fitted, unmarked door with a molded-in fingerhold. Reach back to the door with your right hand. Locate the fingerhold with your index and middle fingers. Press inward with your thumb at the front of the door, as indicated in Figure 6-1. Pull forward on the fingerhold. The door slides forward into the casing.



**Figure 6-1.** The Input/Output (I/O) Compartment.

Inside this door is the computer's input/output (I/O) compartment. Five I/O slots are inside (see Figure 6-2.). Connections to devices outside the computer, such as a printer or monitor, are made here. The first two slots contain connectors that are standard on your COMPAQ Computer. The other three are provided for installing optional circuitry.



**Figure 6-2.** Connections For Your Options.

Figure 6-2 indicates the standard options connections located in the I/O compartment. They are as follows:

- A. Printer Connection. Note that the plug goes into the socket in only one position.

\* \* \* CAUTION \* \* \*

This connector is a Centronics-type parallel printer interface. Using any other type of printer interface may severely damage your COMPAQ Computer.

- B. RF Modulator Slot.
- C. Composite Video Jack.
- D. RGB Port.

\* \* \* CAUTION \* \* \*

Before purchasing and installing any option, consult your dealer. He can direct you to peripheral devices that are compatible with your COMPAQ Portable Computer.

**NOTE:** In some cases when using an external monitor, you will not get an 80 x 25 character display on the external monitor. If this happens, use the following procedure to get the correct display:

- 1) Press the ALT key, and hold it down.
- 2) Press the < (less than symbol) key.
- 3) Release both keys.

This will make the text appear on the external monitor. It also causes the characters on your COMPAQ screen to appear slightly different.

When you are finished displaying on your external monitor, use the following procedure:

- 1) Press the ALT key, and hold it down.
- 2) Press the > (less than symbol) key.
- 3) Release both keys.

This will return your COMPAQ screen display to normal.





*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
*COMPAQ*  
**COMPAQ™**

---

**320-KBYTE DISK DRIVE**

## **NOTICE**

The information contained in this manual is subject to change without notice.

COMPAQ Computer Corporation shall not be liable for technical or editorial errors or omissions contained herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this material.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this document may be photocopied or reproduced in any form without prior written consent from COMPAQ Computer Corporation.

Copyright © 1983  
by  
COMPAQ Computer Corporation

### **OPTION GUIDE 320-KBYTE DISK DRIVE**

Third Edition (June 1983)  
Part Number 100400-001

## **COMPAQ COMPUTER CORPORATION 90-DAY LIMITED WARRANTY**

COMPAQ Computer Corporation ("COMPAQ") warrants the products which it manufactures to be free from defects in materials and workmanship for a period of 90 days from the date of purchase from COMPAQ or an Authorized COMPAQ Computer Dealer. This warranty is limited to the original purchaser ("Purchaser") of the product and is not transferable.

During the 90-day (ninety-day) warranty period, COMPAQ will repair or replace, at its option, any defective products or parts at no additional charge, provided that the product is returned, shipping prepaid, to COMPAQ or an Authorized COMPAQ Computer Dealer. The Purchaser is responsible for insuring any product so returned and assumes the risk of loss during shipping. All replaced parts and products become the property of COMPAQ.

Dated proof of purchase must be provided by the Purchaser when requesting that warranty work be performed. The Purchaser may request information on how to obtain warranty service by contacting an Authorized COMPAQ Computer Dealer or writing to COMPAQ Computer Corporation, 20333 FM149, Houston, Texas 77070, for further information.

**THIS LIMITED WARRANTY DOES NOT EXTEND TO ANY PRODUCTS WHICH HAVE BEEN DAMAGED AS A RESULT OF ACCIDENT, MISUSE, ABUSE, OR AS A RESULT OF SERVICE OR MODIFICATION BY ANYONE OTHER THAN COMPAQ OR AN AUTHORIZED COMPAQ COMPUTER DEALER.**

EXCEPT AS EXPRESSLY SET FORTH ABOVE, NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND COMPAQ EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED HEREIN. ALL IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTIES FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE DURATION OF THIS WARRANTY.

IN THE EVENT THE PRODUCT IS NOT FREE FROM DEFECTS AS WARRANTED ABOVE, THE PURCHASER'S SOLE REMEDY SHALL BE REPAIR OR REPLACEMENT AS PROVIDED ABOVE. UNDER NO CIRCUMSTANCES WILL COMPAQ BE LIABLE TO THE PURCHASER OR ANY USER FOR ANY DAMAGES, INCLUDING ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, LOST PROFITS, LOST SAVINGS, OR OTHER DAMAGES ARISING OUT OF THE USE OF OR INABILITY TO USE THE PRODUCT.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS AND SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

\* \* \* **WARNING** \* \* \*

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

## **CONTENTS**

---

|  |          |
|--|----------|
| <b>1. INTRODUCTION . . . . .</b>       | <b>1</b> |
| <b>2. TOOL REQUIREMENTS . . . . .</b>  | <b>2</b> |
| <b>3. INITIAL STEPS . . . . .</b>      | <b>3</b> |
| <b>4. INSTALLATION STEPS . . . . .</b> | <b>5</b> |

## **1. INTRODUCTION**

---

Although the COMPAQ Portable Computer is designed for easy access to upgradable areas, it is strongly recommended that only Authorized COMPAQ Computer Service Representatives perform any upgrades. An Authorized COMPAQ Computer Representative has received factory training in performing upgrades, and will ensure the accurate installation of the option.

This book provides the step-by-step procedure to install the COMPAQ Portable Computer optional 320-Kbyte floppy disk drive.

No additional printed circuit board (PCB) or cable is required to add the optional 320-Kbyte floppy disk drive.

When you add the optional 320-Kbyte floppy disk drive, the switch settings on the processor board must be changed. This procedure is described in this booklet.

## **2. TOOL REQUIREMENTS**

---

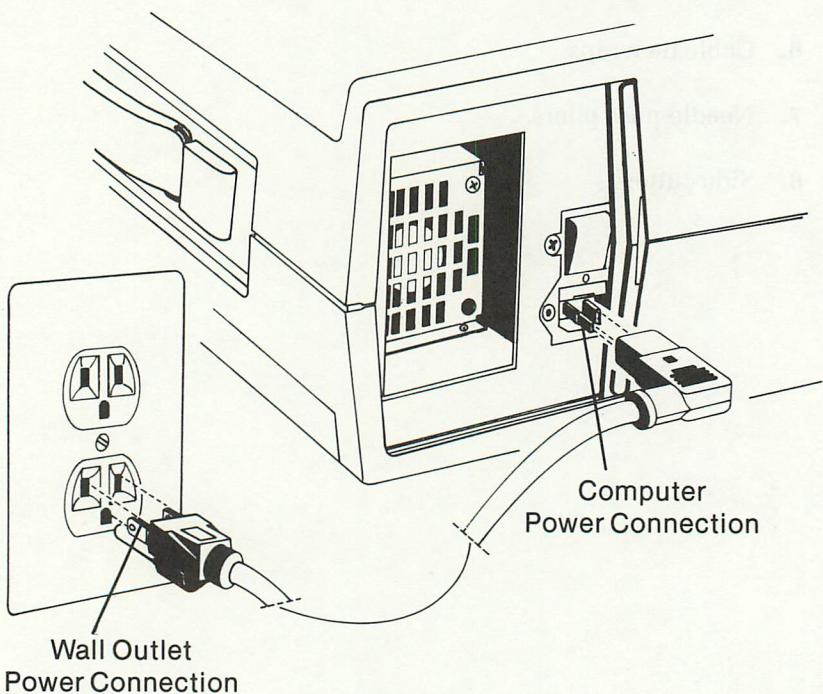
- 1.** Plastic card.
- 2.** Small, flat-bladed screwdriver.
- 3.** Small (#1) Phillips screwdriver or 3/16" nut driver.
- 4.** Medium (#2) Phillips screwdriver.
- 5.** A 1/4" hex nutdriver.
- 6.** Cable tie wraps.
- 7.** Needle-nose pliers.
- 8.** Side cutters.

### 3. INITIAL STEPS

---

#### \* \* \* WARNING \* \* \*

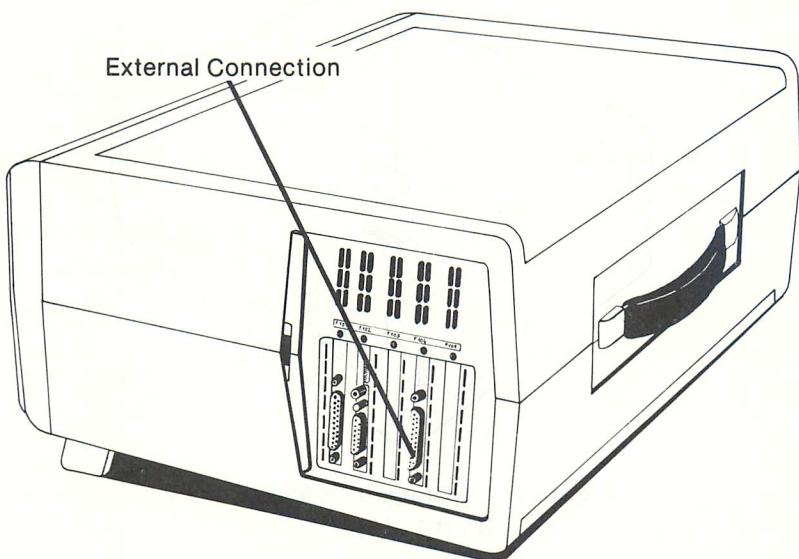
Before you remove the case from the COMPAQ Computer, set the ON/OFF switch to the off position and disconnect the power cord from the computer (see Figure 1).



**Figure 1.** Disconnecting the Power Cord From the Computer.

Failure to disconnect the computer from all ac voltage sources can cause dangerous voltages to be present in the power supply and CRT. Even when the ON/OFF switch is set to the off position, any electrically conductive material in this area can cause a severe electrical shock.

1. Set the computer's ON/OFF switch to the off position.
2. Turn off the power to any external options (monitors, printers, and so on).
3. Unplug the computer and any options from their power sources (previously shown in Figure 1).
4. Disconnect any external options attached to the computer (see Figure 2).



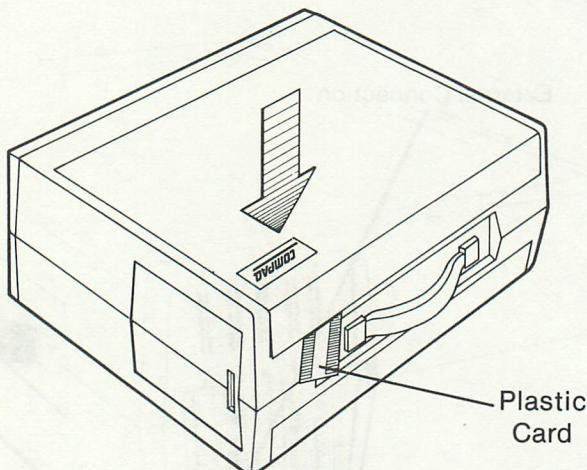
**Figure 2.** Connections for External Options.

**NOTE:** The components which you removed during the installation procedure are very fragile; therefore, you must be extremely careful when replacing these components. Also remember, printed circuit boards (PCBs) must be protected from electrostatic discharge. Failure to protect these boards can result in degradation or failure.

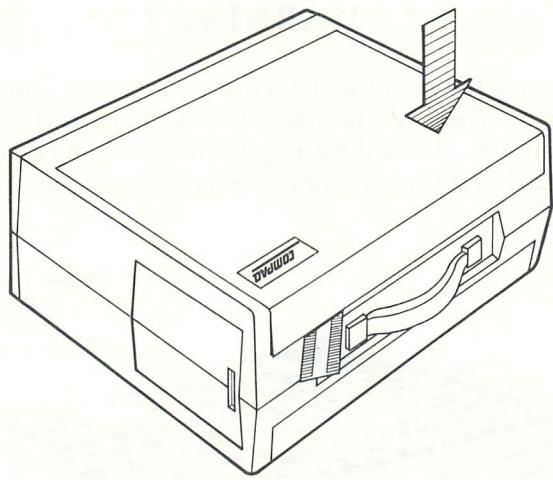
## 4. INSTALLATION STEPS

---

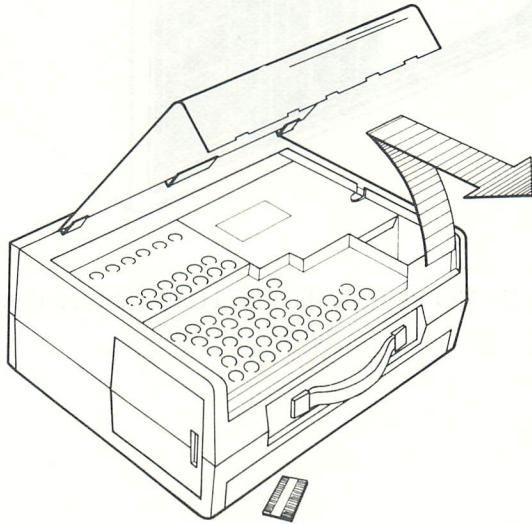
1. Open the access cover by pressing down the plastic cover of the unit with one hand next to the COMPAQ logo (see Figure 3). As pressure is applied, the plastic cover will bulge at the connecting seam which runs directly above the handle. Partially insert a plastic card under the cover at the bulge, and release the pressure applied. At the opposite end of the plastic cover (see Figure 4), apply pressure with your hand in the same manner as previously done. When the plastic cover bulges, reach under the cover and pull upwards and outwards, then slide cover out (see Figure 5). The plastic cover will be completely removed, and the unit's metal access plate will be exposed.



**Figure 3.** Opening the Access Cover.  
(Part 1 of 3)



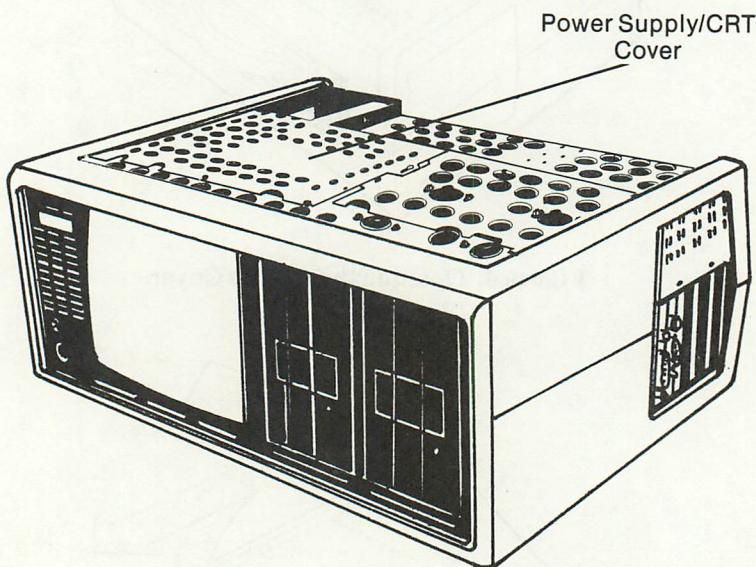
**Figure 4.** Opening the Access Cover.  
(Part 2 of 3)



**Figure 5.** Opening the Access Cover.  
(Part 3 of 3)

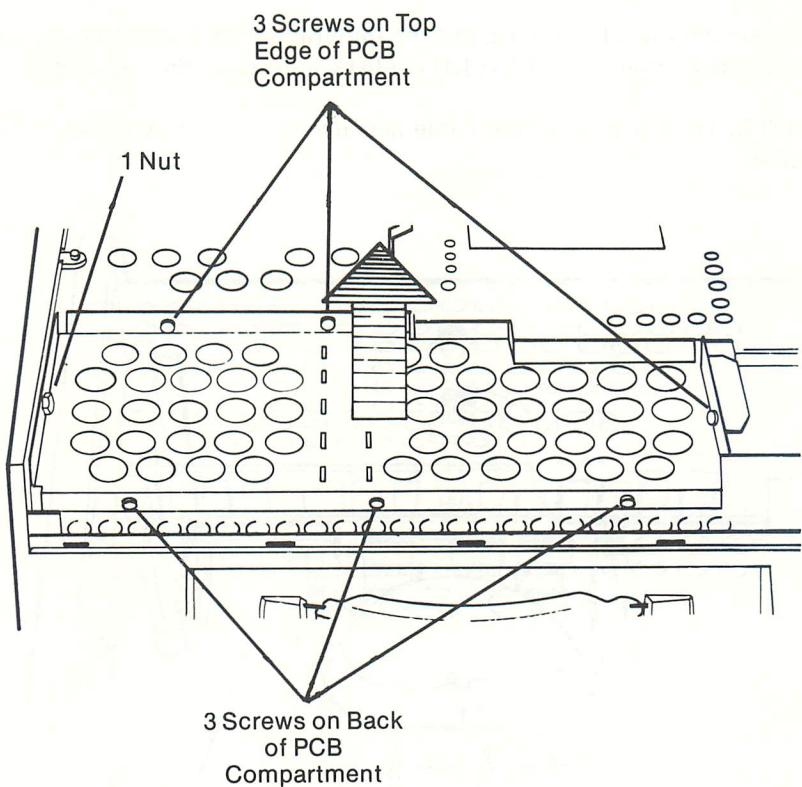
\* \* \* **WARNING** \* \* \*

Do not remove the panel which covers the power supply and CRT (see Figure 6). There are no user-serviceable parts or options to be added in this area. The CRT is fragile and should be handled only by an Authorized COMPAQ Computer Service Representative.



**Figure 6.** Do Not Remove the Panel Cover Which Covers the Power Supply and CRT.

2. Loosen (DO NOT REMOVE) the three screws on the back of the PCB compartment cover (see Figure 7).

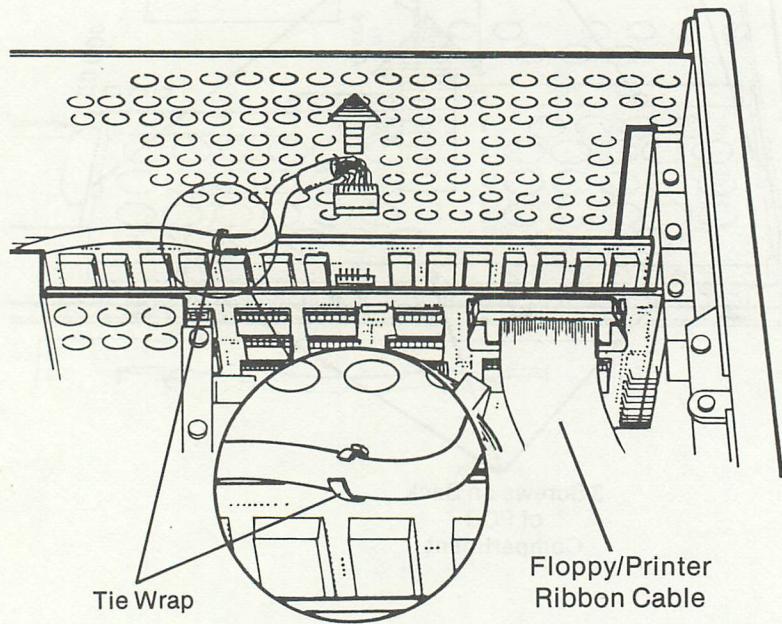


**Figure 7.** Removing the Cover of the PCB Compartment.

3. There are two standard boards: the VDU board and the floppy/printer board. There are three additional slots for optional PCBs. Be sure to disconnect any external connectors from the boards. Remove the PCBs from their slots by performing these steps.

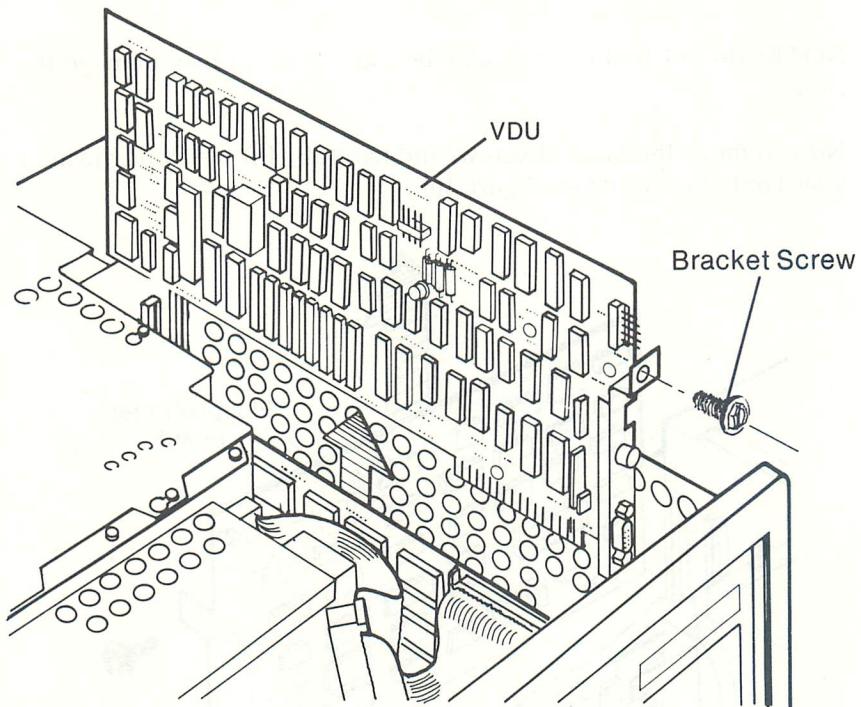
To remove the VDU board, cut the tie wrap at the board (see Figure 8) and disconnect the CRT/VDU cable by pulling on the connector.

**NOTE:** Do not pull on the cable because to do so may damage the cable.



**Figure 8.** Cutting the Tie Wrap

Now, remove the bracket screw, then carefully pull upward (see Figure 9).

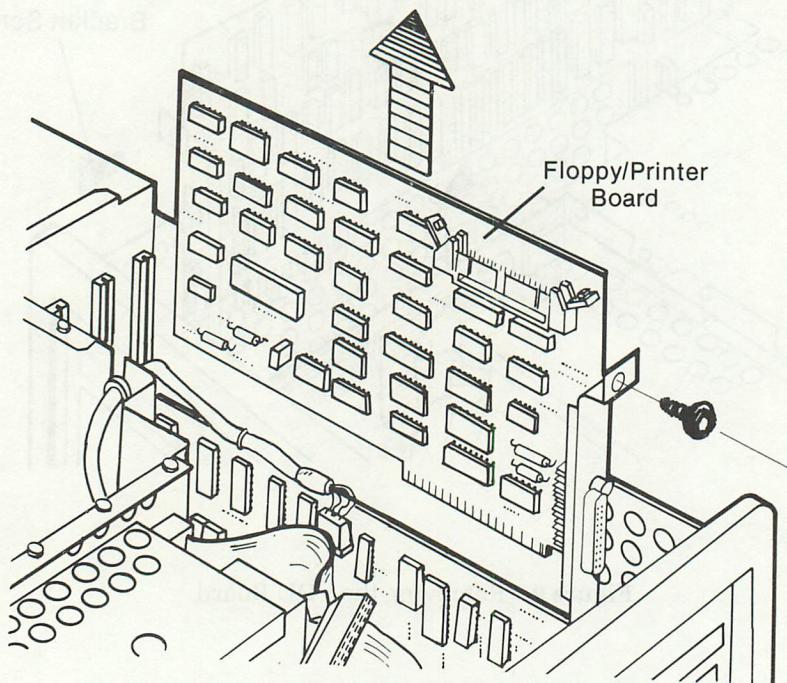


**Figure 9.** Removing the VDU Board.

4. Remove the floppy/printer board by disconnecting the ribbon cable attached at the top of the board. Push down on the two ejector levers on the edge of the board. These levers lift the ribbon cable up for easy access.

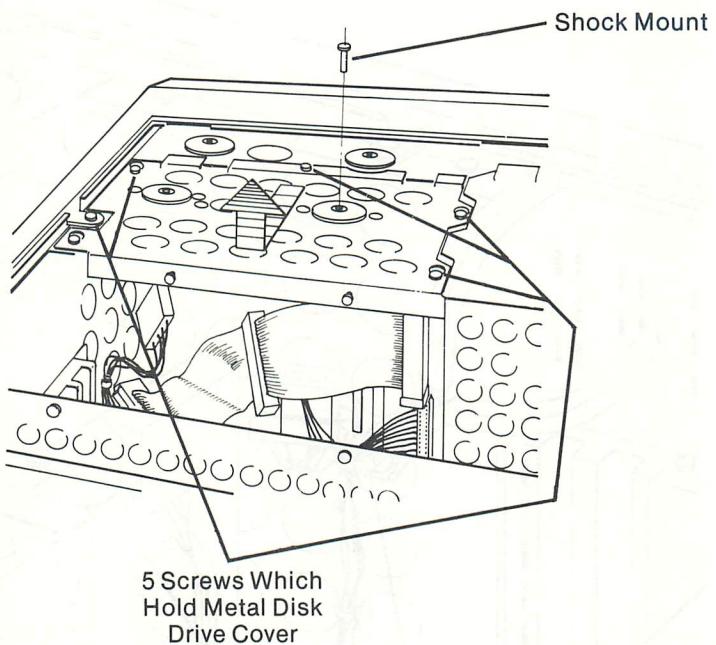
**NOTE:** Do not pull on the cable because to do so may damage the cable.

Now, remove the bracket screw, and carefully lift the floppy/printer board out of the unit (see Figure 10).



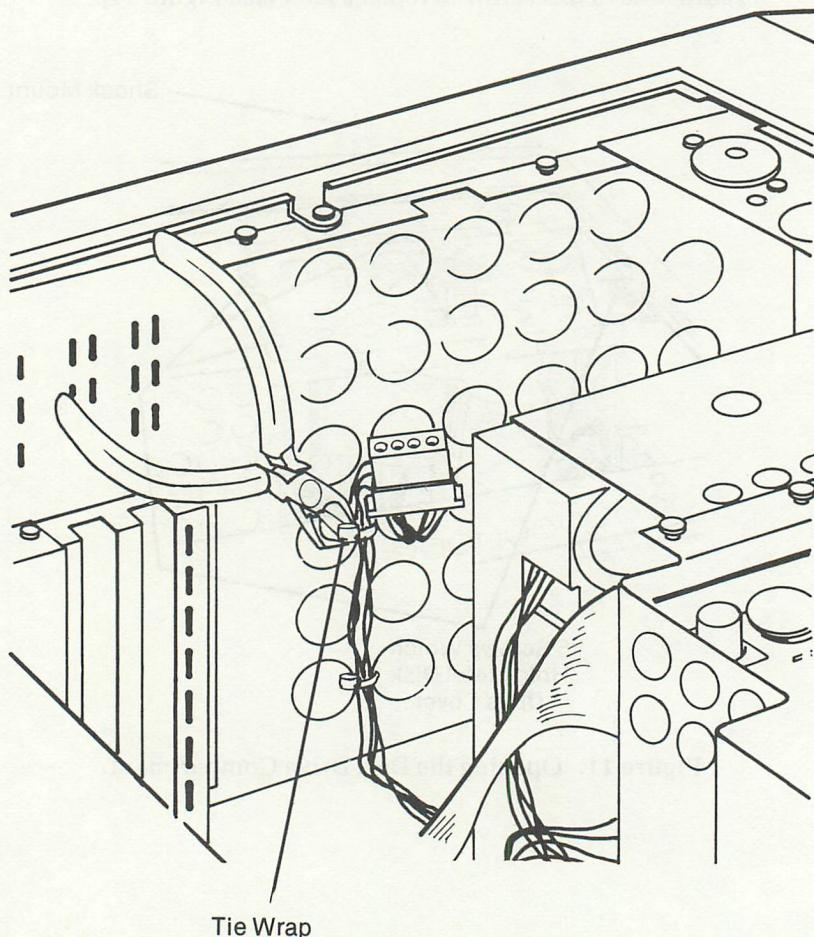
**Figure 10.** Removing the Floppy/Printer Board.

5. Loosen (DO NOT REMOVE) the five screws that hold the metal cover over the disk drive compartment. Remove the one shock-mount screw that holds the top plate over the disk drive in place. Be sure to save this screw to replace later (see Figure 11).



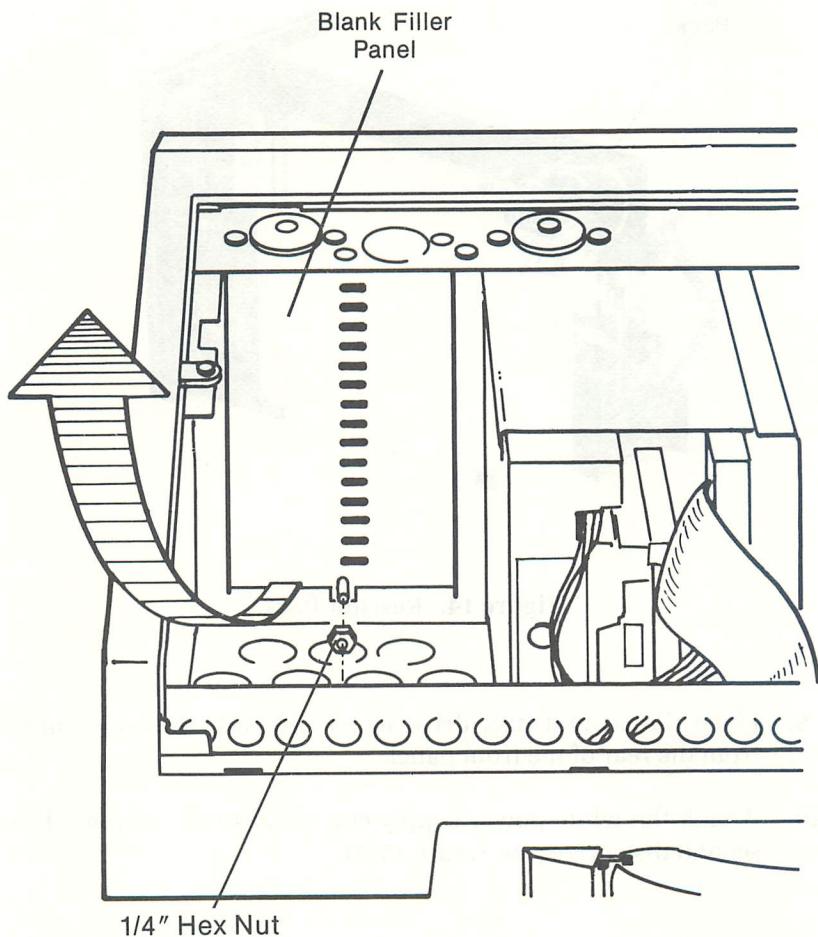
**Figure 11.** Opening the Disk Drive Compartment.

6. The power supply cable for the second disk drive is strapped to the case with tie wraps. Cut the tie wraps with side cutters. Do not accidentally cut any wires (see Figure 12).



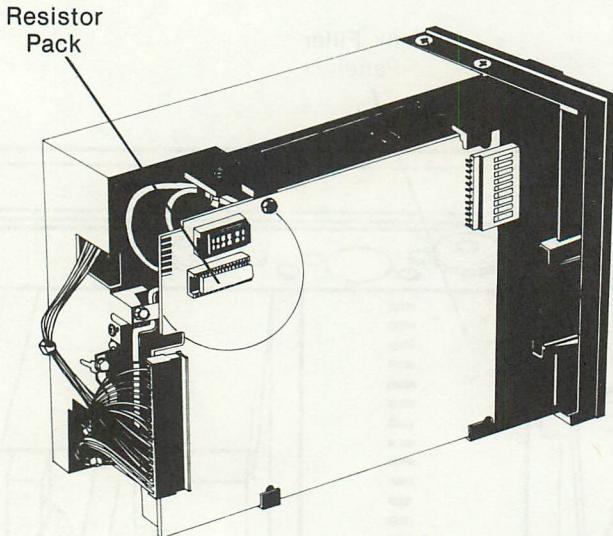
**Figure 12.** Cutting Tie Wrap.

7. Remove the blank filler panel from the second disk drive position by loosening the  $\frac{1}{4}$ " nut holding it in from the back side (see Figure 13).



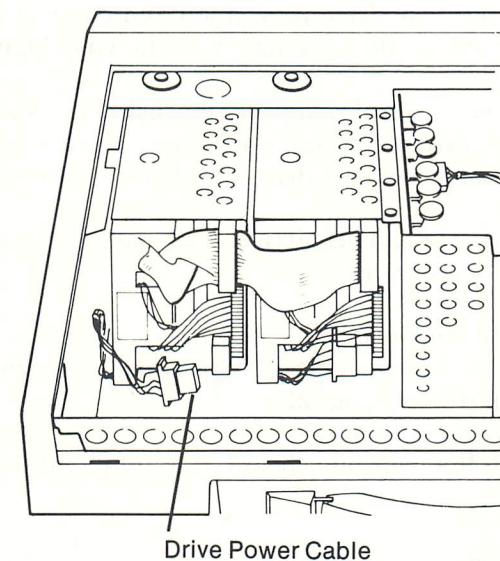
**Figure 13.** Removing the Blank Filler Panel.

8. Unplug and remove the resistor pack located on the floppy disk drive PCB (see Figure 14).

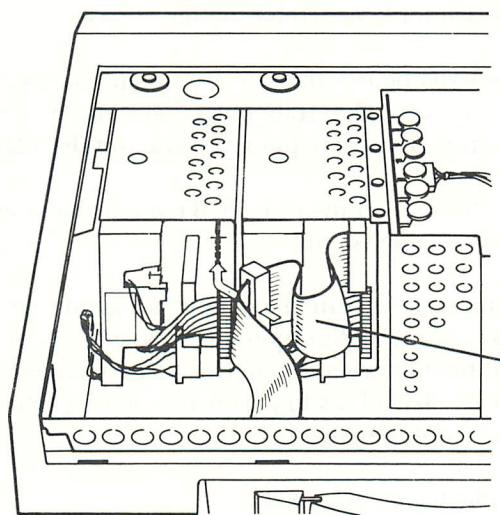


**Figure 14.** Resistor Pack.

9. Place the second disk drive in its compartment, inserting it from the rear of the front panel.
10. Attach the white power supply connector to the bottom of the second disk drive (see Figure 15-A).



A.



B.

**Figure 15.** Connecting the Drive Power Cable and Ribbon Cable.

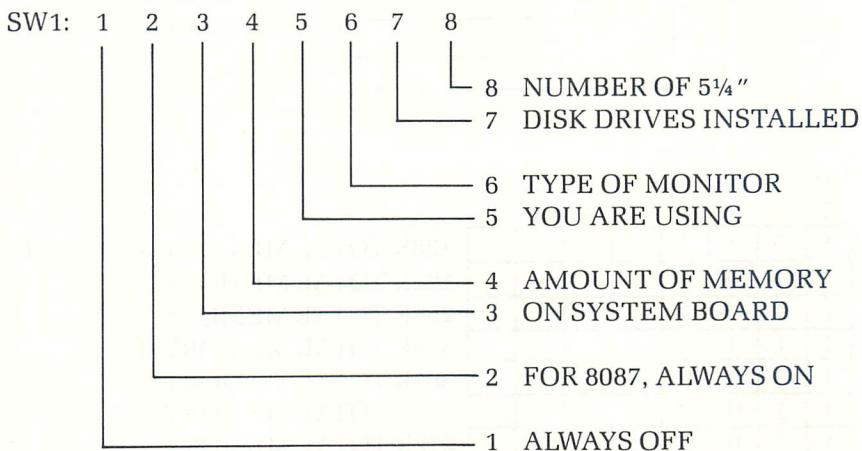
11. Set the second disk drive in position and connect the ribbon cable connector on the top of the drive (shown in Figure 15-B).
12. Replace the sheet metal cover over the disk drive compartment. Install the shock-mount screw you removed earlier, and the two supplied with the new disk drive. Tighten all the screws.
13. Turn the unit over and install two shock-mount screws supplied with the new disk drive.
14. Turn the unit back over. The switches on the processor board must be set to be compatible with the added disk drive, and for other options (refer to page 22).
15. Reinstall the floppy/printer board. Carefully seat the board in its socket.
16. Reconnect the ribbon cable connector from the disk drive cable to the floppy/printer board (refer to Figure 15-B).
17. Reinstall the VDU board, then any optional boards, by placing them in their sockets. Carefully push them into place until they are firmly seated. **Be sure to put a tie wrap on the VDU cable.**
18. Replace the metal cover over the PCB compartment and tighten all six screws and one  $\frac{1}{4}$ " nut.
19. With all the metal covers in place, now is a good time to test the system to determine if the upgrade was successful. The disk drive is set at the factory and requires no adjustment for proper operation. If the drive fails to perform properly, return it to the factory for warranty repair.
20. Replace the plastic access cover.
21. If you have just purchased this option, include the booklet in your Operations Guide, Chapter 6.

## Processor Board Switch Settings

The switch settings on the processor board are determined by whether additional memory and/or other options are installed.

### COMPAQ SYSTEM SWITCHES

(0 = OFF, 1 = ON)

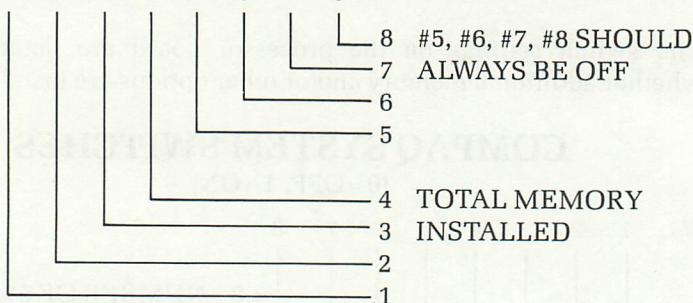


SW1: 1    2    3    4    5    6    7    8

|   |   |   |   |   |   |   |  |
|---|---|---|---|---|---|---|--|
| 0 |   |   |   |   |   |   |  |
|   |   |   |   |   | 1 | 1 |  |
|   |   |   |   |   | 0 | 1 |  |
|   |   |   |   |   | 1 | 0 |  |
|   |   |   |   |   | 0 | 0 |  |
| 1 |   |   |   |   |   |   |  |
|   | 0 | 0 |   |   |   |   |  |
|   |   |   | 1 | 0 |   |   |  |
|   |   |   |   | 0 | 0 |   |  |

ALWAYS OFF (DEFAULT)  
1 DISK DRIVE (DEFAULT)  
2 DISK DRIVES  
3 DISK DRIVES  
4 DISK DRIVES  
ALWAYS ON FOR 8087 (DEFAULT)  
COMPAQ VIDEO BOARD (DEFAULT)  
COMPAQ VIDEO & IBM MONOCHROME BOARDS

SW2: 1 2 3 4 5 6 7 8



SW2:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 1 |   |   |   |   |
| 1 | 1 | 0 | 1 |   |   |   |   |
| 1 | 0 | 0 | 1 |   |   |   |   |
| 1 | 1 | 1 | 0 |   |   |   |   |
| 1 | 0 | 1 | 0 |   |   |   |   |
| 1 | 1 | 0 | 0 |   |   |   |   |
| 1 | 0 | 0 | 0 |   |   |   |   |
| 0 | 0 | 0 | 0 |   |   |   |   |
|   |   |   |   | 0 | 0 | 0 | 0 |

128K TOTAL MEMORY (DEFAULT)

192K TOTAL MEMORY

256K TOTAL MEMORY

320K TOTAL MEMORY

384K TOTAL MEMORY

448K TOTAL MEMORY

512K TOTAL MEMORY

544K - 640K TOTAL MEMORY

ALWAYS OFF (DEFAULT)

## **COMPAQ SWITCH SETTING EXAMPLES**

(0 = OFF, 1 = ON)

128K, 1-DISK (DEFAULT)

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |              |
|------|---|---|---|---|---|---|---|---|--------------|
| SW1: | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 2,5,7,8 = ON |
| SW2: | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1,3,4 = ON   |

128K, 2-DISKS

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |            |
|------|---|---|---|---|---|---|---|---|------------|
| SW1: | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 2,5,8 = ON |
| SW2: | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1,3,4 = ON |

192K, 1-DISK

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |              |
|------|---|---|---|---|---|---|---|---|--------------|
| SW1: | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 2,5,7,8 = ON |
| SW2: | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1,2,4 = ON   |

192K, 2-DISKS

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |            |
|------|---|---|---|---|---|---|---|---|------------|
| SW1: | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 2,5,8 = ON |
| SW2: | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1,2,4 = ON |

256K, 1-DISK

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |              |
|------|---|---|---|---|---|---|---|---|--------------|
| SW1: | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 2,5,7,8 = ON |
| SW2: | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1,4 = ON     |

## 256K, 2-DISKS

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |            |
|------|---|---|---|---|---|---|---|---|------------|
| SW1: | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 2,5,8 = ON |
| SW2: | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1,4 = ON   |

## 320K, 2-DISKS

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |            |
|------|---|---|---|---|---|---|---|---|------------|
| SW1: | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 2,5,8 = ON |
| SW2: | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1,2,3 = ON |

## 384K, 2-DISKS

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |            |
|------|---|---|---|---|---|---|---|---|------------|
| SW1: | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 2,5,8 = ON |
| SW2: | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1,3 = ON   |

## 448K, 2-DISKS

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |            |
|------|---|---|---|---|---|---|---|---|------------|
| SW1: | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 2,5,8 = ON |
| SW2: | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1,2 = ON   |

## 512K, 2-DISKS

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |            |
|------|---|---|---|---|---|---|---|---|------------|
| SW1: | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 2,5,8 = ON |
| SW2: | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 = ON     |

# OPTION GUIDE

## 320-KBYTE DISK DRIVE

### COMMENTS FORM

Please take a moment to answer a few questions and offer your comments on this guide. Your responses offer us valuable insight into our documentation development efforts and enable us to provide COMPAQ Portable Computer users with the best possible product.

- |   | YES                      | NO                       |
|---|--------------------------|--------------------------|
| • Is this document easy to read?  | <input type="checkbox"/> | <input type="checkbox"/> |
| • Does the text flow in a logical manner?   | <input type="checkbox"/> | <input type="checkbox"/> |
| • Are the directions easy to follow?  | <input type="checkbox"/> | <input type="checkbox"/> |
| • Are the illustrations clearly defined (are the callouts and captions clear)?                      | <input type="checkbox"/> | <input type="checkbox"/> |
| • Are the technical terms clearly defined?  | <input type="checkbox"/> | <input type="checkbox"/> |
| • Did you find any inconsistencies or errors in the manual?   | <input type="checkbox"/> | <input type="checkbox"/> |
| • Do you feel that this document provides all the information that you need to install your option? | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Thank you for taking the time to assist us.

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY/STATE: \_\_\_\_\_

PHONE NO.: \_\_\_\_\_



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

# BUSINESS REPLY MAIL

FIRST CLASS

PERMIT NO. 400

HOUSTON, TEXAS USA

POSTAGE WILL BE PAID BY ADDRESSEE

**COMPAQ Computer Corporation  
Consumer Information Center  
20333 FM149  
Houston, Texas 77070**

Fold here

Tape

Please do not staple

Tape

[pcjs.org](http://pcjs.org)

## SUMMARY OF DOS COMMANDS

COMMAND: CHKDSK  
PURPOSE: Checks the diskette and memory, and reports the current status.  
FORMAT: CHKDSK [d]:  
TYPE: External

COMMAND: COMP  
PURPOSE: Compares files on the same diskette, or on two different diskettes.  
FORMAT: COMP filespec [d:] filespec.  
TYPE: External

COMMAND: COPY  
PURPOSE: Copies a specified file either from one diskette to another, or onto the same diskette.  
FORMAT: COPY filespec [d:] [filespec] [/V]  
TYPE: Internal

COMMAND: DATE  
PURPOSE: Displays and sets the date.  
FORMAT: DATE [MM-DD-YY]  
TYPE: Internal

COMMAND: DEL  
PURPOSE: Deletes a specified file name from the directory.  
FORMAT: DEL filespec  
TYPE: Internal

**COMMAND:** DIR  
**PURPOSE:** Lists the files on a diskette.  
**FORMAT:** DIR [/P] [/W]  
**TYPE:** Internal

**COMMAND:** DISKCOMP  
**PURPOSE:** Compares two diskettes.  
**FORMAT:** DISKCOMP [d:]  
**TYPE:** External

**COMMAND:** DISKCOPY  
**PURPOSE:** Copies the contents of one diskette to another.  
**FORMAT:** DISKCOPY [d:]  
**TYPE:** External

**COMMAND:** ERASE  
**PURPOSE:** Deletes specified files.  
**FORMAT:** ERASE filespec  
**TYPE:** Internal

**COMMAND:** EXE2BIN  
**PURPOSE:** Converts an .EXE file to a .COM file.  
**FORMAT:** EXE2BIN filespec [d:] [filespec]  
**TYPE:** External

**COMMAND:** FORMAT  
**PURPOSE:** Prepares a diskette for filing operations.  
**FORMAT:** FORMAT [d:] [/S]  
**TYPE:** External

COMMAND: MODE  
PURPOSE: Sets the printer/display mode.  
FORMAT: MODE /LPT#/N//,μ//,T/  
TYPE: External

COMMAND: PAUSE  
PURPOSE: Temporarily suspends the current operation.  
FORMAT: PAUSE [remark]  
TYPE: Internal

COMMAND: REM  
PURPOSE: Displays a remark in a batch file.  
FORMAT: REM [remark]  
TYPE: Internal

COMMAND: REN  
PURPOSE: Renames a file.  
FORMAT: REN filespec [d:] filespec  
TYPE: Internal

COMMAND: SYS  
PURPOSE: Transfers DOS system files to a new diskette.  
FORMAT: SYS d:  
TYPE: External

COMMAND: TIME  
PURPOSE: Displays and sets the time.  
FORMAT: TIME [HH:MM:SS]  
TYPE: Internal

**A-4 Appendix A**

**COMMAND:** TYPE  
**PURPOSE:** Displays the contents of a specified file.  
**FORMAT:** TYPE filespec  
**TYPE:** Internal

## HOW TO COPY A FILE TO THE SAME DISKETTE

---

1. Make sure the **A>** prompt is displayed.
2. Insert the original diskette into Drive A:.
3. Type: **copy [filespec] [newfilespec]**  
Press ENTER.
4. Type: **dir**  
Press ENTER (to verify that the copy was made).
5. Remove the diskette.

## HOW TO COPY A FILE TO ANOTHER DISKETTE

---

### With One Drive:

1. Make sure the **A>** prompt is displayed.
2. Insert the original diskette into the drive.
3. Type: **copy [filespec] [b:]**  
Press ENTER.
4. When the screen prompt appears, remove the original diskette, and insert the back-up diskette into the drive.
5. Press any key to copy the file to the back-up diskette.

**NOTE:** If the file is long, a prompt may appear telling you to reinsert the source diskette into the drive. If this message appears, insert the source diskette, press any key, and then return to Step 4.

6. When the copy is complete, remove the back-up diskette and label it with a felt-tipped pen.

## HOW TO COPY A FILE TO ANOTHER DISKETTE

---

### With Two Drives:

1. Make sure the **A>** prompt is displayed.
2. Insert the original diskette into Drive A:.
3. Insert the back-up diskette into Drive B:.
4. Type: **copy [filespec] [b:]**  
Press ENTER.
5. When the copy is complete, remove both diskettes, and label the back-up using a felt-tipped pen.

## DISKCOPY: MAKING A BACK-UP DISKETTE

---

### With One Drive:

1. Make sure the **A>** prompt is displayed.
2. Insert the DOS diskette into the drive.
3. Type: **diskcopy**  
Press ENTER.
4. When the prompt instructs you to, remove the DOS diskette from the drive, and insert your original (source) diskette.
5. Press any key.
6. When the prompt instructs you to, remove the source diskette from the drive and insert the target (back-up) diskette into the drive.
7. Press any key.
8. Repeat Steps 4-7 until the prompt tells you that the DISKCOPY procedure is complete.

## DISKCOPY: MAKING A BACK-UP DISKETTE

---

### With Two Drives:

1. Make sure the **A>** prompt is displayed.
2. Insert the DOS diskette into Drive A:.
3. Type: **diskcopy a: b:**  
Press ENTER.
4. When the prompt instructs you to, remove the DOS diskette from Drive A:, and insert your original (source) diskette. Insert your target (back-up) diskette into Drive B:.
5. Press any key.

## SUMMARY OF EDLIN COMMANDS

---

COMMAND: EDLIN filespec

PURPOSE: Creates a new file or edits an old file.

COMMAND: E

PURPOSE: Ends EDLIN and saves the file.

COMMAND: Q

PURPOSE: Quits EDLIN and does not save the file.

COMMAND: [line]

PURPOSE: Enters the number of the line to be edited.

COMMAND: [line] I

PURPOSE: Inserts before the line.

COMMAND: [line], [line] L

PURPOSE: Lists the line(s).

COMMAND: [line], [line] [?] Rstring [string]

PURPOSE: Replaces the first string with the second string.

COMMAND: [line], [line] [?] Sstring

PURPOSE: Searches for the string.

COMMAND: [n] W

PURPOSE: Writes **n** line(s) from the memory onto the diskette.

## HOW TO USE YOUR DOS KEYBOARD

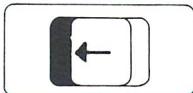
You use the keys on your COMPAQ Computer keyboard the same as you would use the keys on a typewriter keyboard.

**Remember** that the key functions are subject to change depending on which system program you are using, and whether you are in the editing mode.

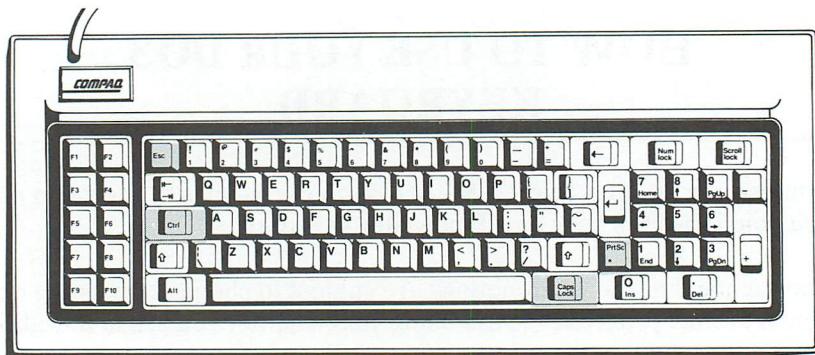
These are the keys that aid you when you are in DOS, without an applications program present.

**KEY:****DESCRIPTION:**

The ENTER key moves the cursor from the last character on a line to the first character of the next line. It also enters a command that has been typed.



The BACKSPACE key moves the cursor to the left, deleting one character per keystroke.



**KEY:**



**DESCRIPTION:**

The CAPS LOCK key, which is a toggle key, locks the keyboard into upper-case letters. To return to lower-case, press the key a second time.



The ESCAPE key cancels the line you are on, and moves the cursor down one line. It leaves a backslash (\) on the cancelled line.



When you press the SHIFT key and the PRINT SCREEN key at the same time, everything currently displayed on the screen prints out.



The CONTROL key, used with another key, performs commands or functions.

The following are examples of CONTROL functions:

**CTRL + PRTSC = ECHO**

This function causes the system to echo (print) what you type and what the system displays, until you enter CTRL + PRTSC a second time.

**CTRL + SCROLL LOCK/BREAK = BREAK**

This causes your command program to halt during execution.

**CTRL + NUM LOCK = SUSPEND**

This causes the system operations to halt. Press any key to resume the system operation.

**CTRL + ENTER = CONTINUE**

This function allows you to go to the next line on the screen display in order to continue typing the line you are on.

**CTRL + ALT + DEL = SYSTEM RESET**

This function reloads your system diskette. You must press all three keys at the same time.



The F3 key causes the system to redisplay the previously entered line in its entirety.

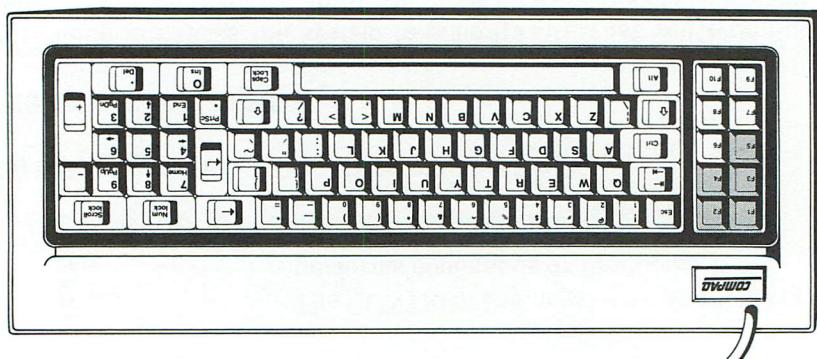


The F2 key, plus a character from any previous line, causes the system to redisplay all previously entered lines up to the first occurrence of the specified character.



The F1 key causes the system to redisplay the previously entered line, one character at a time.

#### KEY: DESCRIPTION:



**KEY:****DESCRIPTION:**

The F4 key, plus a character from the previously entered line, causes the system to display the specified character, and the remainder of the line. Everything before the specified character is omitted. Press F3 to redisplay the remainder of the line.



The F5 key moves the cursor one line down to allow you to edit or retype the currently displayed line.

## HOW TO USE YOUR BASIC KEYBOARD

You use the keys on your COMPAQ Computer keyboard the same as you would use the keys on a typewriter keyboard.



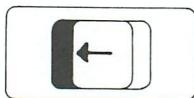
The following keys aid you when you are writing, updating, and running your program.

### KEY:

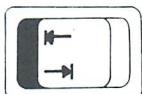


### DESCRIPTION:

The ENTER key moves the cursor from the last character on a line to the first character of the next line. It also shows the logical end of a line.



The BACKSPACE key moves the cursor to the left, deleting one character per key-stroke.

**KEY:****DESCRIPTION:**

The TAB key operates very much like the tab key on a typewriter. Tabs are set at eight-character intervals.



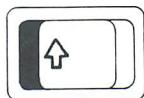
The CAPS LOCK key, which is a toggle key, locks the keyboard into upper-case letters. To return to lower-case letters, press the key a second time.



The ESCAPE key takes away the list line the cursor is positioned under, so that corrections can be made. The line is not deleted from memory, however.

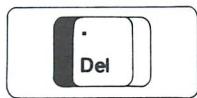


When you press the PRINT SCREEN key, a \* character is displayed. See the SHIFT and CONTROL keys for other functions.



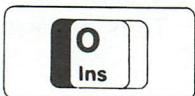
The SHIFT key is used to switch upper- and lower-case letters.

When you press SHIFT + PRTSC, everything currently displayed on the screen prints out.



The DELETE key deletes the character where the cursor is positioned.

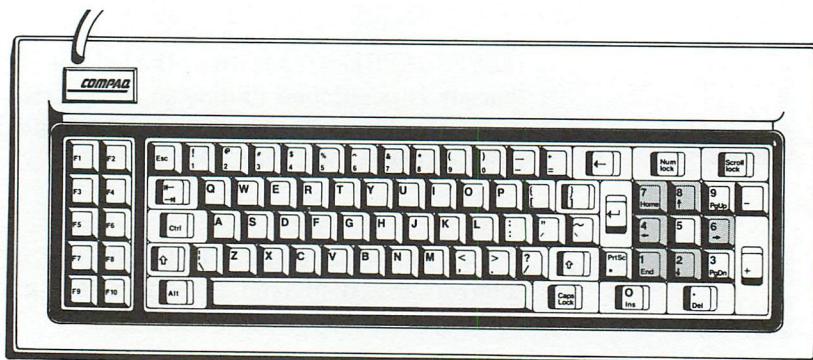
**KEY:**



**DESCRIPTION:**

When you press the INSERT key, characters are entered where the cursor is positioned, and all data is shifted to the right. To exit from the INSERT mode, press the key a second time.

The following keys control the movement of the cursor.



**KEY:**



**DESCRIPTION:**

The HOME key shifts the cursor to the top line of the screen and positions it beneath the first character.



This key causes the cursor to move up one line for each keystroke.

**KEY:****DESCRIPTION :**

This key causes the cursor to move one character to the left for each keystroke.



This key causes the cursor to move one character to the right for each keystroke.



This key moves the cursor down one line for each keystroke.

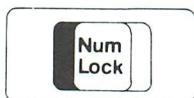


The END key shifts the cursor to the last character on that line.



**KEY:**

**DESCRIPTION:**

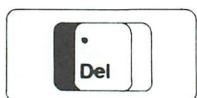


The NUMBER LOCK key is a toggle key. To activate the numeric key pad, press NUM LOCK once. Press the key a second time, and the numeric pad is deactivated.

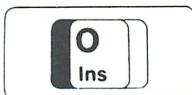
When NUM LOCK is activated, the following keys have these functions:

**KEY:**

**DESCRIPTION:**



The decimal point is operative.

**KEY:****DESCRIPTION:**

The zero is operative.



The minus is operative.



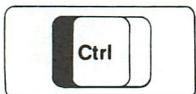
The plus is operative.

1 – 9

The numeric keys one through nine are operative. These keys are known as the number pad.

**KEY:**

**DESCRIPTION:**



The CONTROL key, used in conjunction with another key, performs commands or functions.

The following are examples of CONTROL functions:

**CTRL + SCROLL LOCK/BREAK = BREAK**

This function halts your program while it is running and identifies the line where it stops with a backslash (\ ).

**CTRL + NUM LOCK = PAUSE**

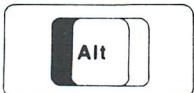
This function prevents the program from running. To continue the program, press any key.

**CTRL + HOME = CLEAR SCREEN**

This function clears all information from the screen and shifts the cursor to the upper-left corner.

**CTRL + ALT + DEL = SYSTEM RESET**

This function reloads your system diskette. You must press all three keys at the same time.

**KEY:****DESCRIPTION:**

The ALTERNATE key is used in conjunction with alpha typing keys to enter BASIC key words.

The following are examples of the ALTERNATE functions:

ALT + A = AUTO

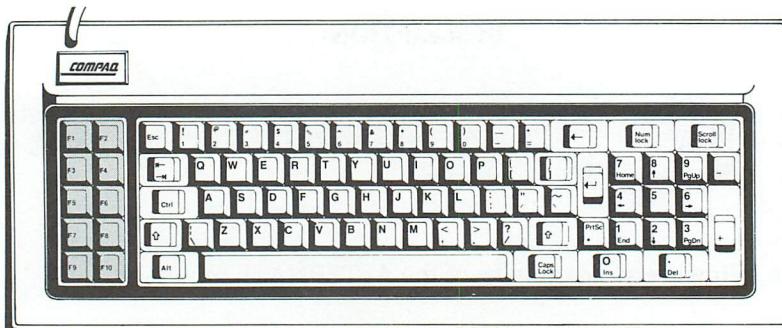
The word AUTO appears on the screen. The AUTO function automatically displays the next statement number, in increments of 10, when you press ENTER.

ALT + D = DELETE

The word DELETE appears on the screen. The DELETE function deletes a given statement when you enter the number of that statement.

ALT + I = INPUT

The word INPUT appears on the screen. This is a commonly used word in writing program statements.



These are PROGRAM FUNCTION keys. Use these keys to execute the commands listed below:

**KEY:**



**DESCRIPTION:**

This is the LIST key. It shows the lines of your program in the screen display.



This is the RUN key. This key instructs your program to execute starting at the beginning.



This is the LOAD key. It loads your program into the computer's memory.



This is the SAVE key. Use it to save a program file on a diskette.

**KEY:****DESCRIPTION:**

This is the CONTINUE key. After your program has been interrupted by a STOP or control break, this key restarts the program for you.



This key, LPT1:, refers to the line printer. It transfers data from the screen to the printer.



This is the TRON key, which means "trace on". It causes program line numbers to be displayed as the lines are executed.



This is the TROFF, or "trace off", key. It cancels the F7 command.



This key is referred to as KEY. It changes the operation of other function keys.



Not used.



## NOTES ON COMPATIBILITY

The COMPAQ Portable Computer is designed to be compatible with all hardware and software developed for use with the IBM® Personal Computer™. However, there are certain differences between the two systems. Some of these differences may become important to you when you install an option, or do advanced programming in BASIC. These differences are discussed in this section.

### BASIC

The BASIC programming language for your COMPAQ Computer is completely contained on the DOS diskette. BASIC for the IBM® Personal Computer™ is partly resident in read-only memory (ROM). This means that you can use either a COMPAQ or an IBM® DOS diskette to use DOS, but you must use only a COMPAQ DOS diskette to use BASIC. You cannot use an IBM® DOS diskette to access any COMPAQ BASIC files.

Consult the BASIC Reference Guide for a description of the details of the differences between the COMPAQ Computer's BASIC and IBM®'s BASIC.

### CASSETTE STORAGE

Your COMPAQ Computer does not need to support the connection of a cassette tape unit for information storage. Unlike the IBM® Personal Computer™, your COMPAQ Computer provides a floppy disk drive in the standard model.

## **DISK DRIVES**

The COMPAQ Computer can support two installed floppy disk drives, whereas the IBM® Personal Computer™ can support four.

## **LIGHT PEN**

Although the circuitry required to implement the light pen kit is built into your COMPAQ Computer, the light pen will not work with your built-in video display. To implement the light pen option, the COMPAQ Computer requires the addition of an external monitor, and a light pen kit.

## **GRAPHICS CAPABILITIES**

Unlike the IBM® Personal Computer™, the COMPAQ Computer's graphics capabilities are built into the system circuitry. No optional circuitry is required to implement black and white graphics functions.

# GLOSSARY AND MNEMONIC DICTIONARY

---

## acronym

A word formed from the initial letters of a long or difficult term. For example, **radar** is the acronym for radio detecting and ranging.

## alphanumeric

A contraction of the words **alphabetic** and **numeric**; characters that are either letters of the alphabet or numerals.

## applications program

A computer program designed to meet specific user needs, such as a program that controls inventory, or monitors a manufacturing process.

## ASCII

Mnemonic for American Standard Code for Information Interchange. ASCII is a standardized 8-bit code used by most computers to process data.

## asynchronous communication

A way of transmitting data from one device to another in which each transmitted character is preceded by a START bit and followed by a STOP bit. It is also called start/stop transmission.

**back-up**

- (1) A second copy of a diskette or other medium which protects against accidental loss or destruction of the original data.
- (2) On-site or remote equipment which is available to complete an operation in the event of primary equipment failure.

**BASIC**

Acronym for Beginner's All-purpose Symbolic Instruction Code. It is an easy-to-use computer language that is widely used by beginning users of personal computers.

**batch processing**

A technique for automatically executing a series of similar programs or instructions during the same machine run.

**baud**

A unit of measurement of data processing speed, approximately equivalent to bits per second. Typical baud rates are 110, 300, 1200, 2400, 4800, and 9600.

**binary**

- (1) A system of numbers that uses two as its base, instead of ten. The binary system uses only two digits, 0 and 1, in its written form.

- (2) A device whose design uses only two possible states or levels to perform its functions. A computer executes programs in binary form.

### **bit**

A contraction of **binary digit**. A bit is the smallest unit of information recognizable by a computer. All information processed by a computer is written in bit form.

### **boot**

A machine routine whose first few instructions are sufficient to bring the rest of itself into the computer from an input device. This usually involves either the manual entering of a few instructions, or the use of a special key on the keyboard.

### **buffer**

A temporary storage area for data that can be transferred to or from various devices.

### **bus**

An electronic circuit that transmits data or power. A bus is often used as a common connection for many locations in the circuitry.

**byte**

A term that signifies the number of bits that represent a character to the computer. Usually, a byte comprises either 8 or 16 bits.

**calculation**

A series of numbers and mathematical signs that, when entered into a computer, are executed according to a series of instructions.

**cathode-ray tube**

An electronic vacuum tube that can translate electronic signals into images on its screen. The picture tube on a television set is an example of a cathode-ray tube. Cathode-ray tube is usually abbreviated to CRT.

**character**

Any single letter of the alphabet, numeral, punctuation mark, or other symbol that a computer can read, write, and store.

**chip**

A slang term for an integrated circuit (IC).

**circuit**

A group of related electronic components and pathways through which electronic signals pass to perform a specific function.

**COBOL**

Acronym for **C**ommon **B**usiness-**O**riented **L**anguage. It is a computer language suitable for writing complicated business applications programs.

**command**

A pulse or signal that causes a computer to start, stop, or continue a specific operation. Command is often used incorrectly as a synonym for instruction, which is a program step that tells the computer what to do next.

**compatible**

- (1) A term referring to a device having characteristics that make it usable with another device with similar characteristics. The COMPAQ Computer is compatible with the IBM® Personal Computer™ and with the hardware and software that has been designed for the IBM® system.
- (2) Computers that can work together with other computers that are not alike in capability or design.

**configuration**

A group of inter-related devices that constitute a system.

**CRT**

Mnemonic term for cathode-ray tube.

**cursor**

A blinking line or box on a CRT screen that indicates the next location for data entry.

**data**

A general term used to signify all the basic elements that can be produced or processed by a computer.

**default**

- (1) To instruct a device to fail to finish an assigned task.
- (2) Describes an action that occurs automatically, unless different instructions are given.

**device**

A piece of hardware that can perform a specific function. A printer is an example of a device.

**diagnostic programs**

Special programs that are used to isolate equipment malfunctions and errors.

**DIN**

Mnemonic term for Deutsche Industrie Norme, an organization that provides standards for manufacturing industries.

**DIP**

Acronym for dual-inline package, a standard way of packaging semiconductor components.

**diskette**

A flat, flexible Mylar platter coated with magnetic material, enclosed in a protective envelope, and used for storage of software and data.

**Disk Operating System**

A collection of procedures and techniques that enable the computer to operate using a floppy disk drive system for data entry and storage. Disk Operating System is usually abbreviated to DOS.

**display**

Visible representation of data on a screen, usually on a cathode-ray tube. Also see cathode-ray tube.

**DOS**

Mnemonic term for Disk Operating System. DOS is pronounced to rhyme with “boss”.

**dot-matrix printer**

A printer that produces characters from a two-dimensional array of dot patterns.

**double-density**

A type of diskette that has twice the storage capacity of standard single-density diskettes.

**double-sided**

A diskette that can record on both of its sides.

**down time**

The time period during which a device cannot be used because of equipment failure.

**drive**

A device that holds and manipulates a diskette or magnetic tape so that the computer can read data from or write data to that diskette or tape.

**EIA**

Mnemonic term for Electronic Industries Association.

**Electronic Industries Association**

An organization that standardizes electrical and functional characteristics of interface devices.

**error message**

An audible or visual indication of hardware or software malfunction or of an illegal data-entry attempt.

**extension**

With the COMPAQ Computer, a three-character set that follows a filename. The extension further defines or clarifies the filename. It is separated from the filename by a period(.)

**field-replaceable unit**

Specific hardware modules in a system that are quickly and easily replaced. Field-replaceable unit can be abbreviated to FRU.

**file**

A collection of related data or programs that is treated as a unit by the computer.

**file name**

The set of alphabetic and numeric characters which identify a particular file. A COMPAQ file name can have a maximum of eight characters, followed by a period (.) and an optional three-letter extension. For example: FILENAME.EXT is a valid COMPAQ file name.

**floppy/printer PCB**

The circuit board containing the circuitry that controls the disk drives and printer.

**FRU**

Mnemonic term for field-replaceable unit.

**function keys**

Specific keys on the keyboard that, when pressed, instruct the computer to perform a particular operation.

**global**

Used in reference to a variable (character or command), it causes the computer to locate all occurrences of that variable.

**graphics**

A technique of using lines and symbols to display information, rather than using alphanumeric characters.

**hard copy**

Information that is output from the computer to the printer, which is then produced on paper in a readable form.

**hardware**

The physical equipment that comprises a system.

**head**

A component of a drive that reads, writes, or erases a diskette, tape, or other magnetic-storage medium.

**hertz**

A unit of measuring frequency, equal to cycles per second. The abbreviation for hertz is Hz.

**Hz**

An abbreviation for Hertz.

**IC**

Mnemonic term for integrated circuit.

### **input/output**

A general term for devices that communicate with a computer. Input/output is usually abbreviated to I/O.

### **instruction**

A program step that tells the computer what to do next. Instruction is often used incorrectly as a synonym for command, which is a pulse or signal that causes a computer to start, stop, or continue a specific operation.

### **integrated circuit**

A complete electronic circuit contained in a small semiconductor component.

### **interactive**

Capable of conducting a dialogue, through a keyboard, with a user; rather than simply responding to commands.

### **interface**

An electronic circuit that serves as a common boundary between different circuits or devices.

### **I/O**

Mnemonic term for input/output.

**job**

A collection of tasks viewed by the computer as a unit.

**K**

The symbol signifying the quantity  $2^{10}$ , which is equal to 1024. K is sometimes confused with the abbreviation k, which is equal to 1000.

**k**

The symbol signifying the quantity  $10^3$ , which is equal to 1000. The symbol k is often confused with K, which is equal to 1024.

**KByte**

1024 bytes.

**keyboard**

◦  
◦

A device that transmits encoded alphanumeric character information when it senses that a key has been pressed.

**MByte**

1,048,576 ( $2^{20}$ ) bytes.

**media**

The plural of medium.

**medium**

The physical material on which data is recorded and stored. Magnetic tape, punched cards, and diskettes are examples of media.

**memory**

The storage area in the computer where data can be copied, held, and retrieved.

**menu**

A list of choices from which an operator can select a task or operation to be performed by the computer.

**microprocessor**

A semiconductor central processing unit (CPU) in a computer.

**mnemonic**

A short, easy-to-remember abbreviation or acronym for a long or difficult term. For example, FRU is the mnemonic term for field-replaceable unit.

**modem**

Acronym for **modulator demodulator**. A modem converts data from the computer to high-frequency signals that can be transmitted through telephone lines.

**operating system**

An organized group of procedures and techniques that manage the overall operation of the computer.

**option module**

An add-on device that provides expanded capabilities to a system.

**parallel output**

Sending more than one bit at a time to and from interconnected devices.

**parity**

An extra-bit code that is used to detect data errors by making the sum of the 1 bits in a data unit either an odd or an even number.

**PCB**

Mnemonic term for **printed circuit board**.

**peripheral**

An input/output, or other, device not under direct computer control.

**pixel**

Mnemonic term for picture element. A pixel is a specific location on a CRT screen that can be accessed as a single bit.

**port**

The entry channel to and from the central computer for connection of a communications line or other peripheral device.

**power supply**

The functional area of a system that transforms external ac line voltage into internal dc supply voltage.

**printed circuit board**

A fiberglass board that contains all the electronic components and pathways that perform a specific function.

**printer**

A device that produces the printed paper copy of a document, file, or screen display.

**program**

A series of steps that tell a computer how to solve a problem or execute instructions.

**prompt**

A word or series of words which appear on the CRT screen that requests input from the user.

**RAM**

Acronym for **random-access memory**.

**random-access memory**

A type of memory that provides access to its storage locations by using a system of vertical and horizontal coordinates. The computer can write information into or read information from the random-access memory. Random-access memory is often called RAM.

**read-only memory**

A type of memory that contains permanent data or instructions. The computer can read from, but not write to, the read-only memory. Read-only memory is often called ROM.

**real time**

- (1) The actual time required to solve a problem.
- (2) The process of solving a problem during the actual time that a related physical process takes place so that results can be used to guide the physical process.

**remote**

A term used to refer to devices that are located at sites away from the central computer.

**reverse video**

A feature of a CRT that displays dark characters on a light background, opposite of the usual display.

**ROM**

Acronym for **read-only memory**.

**RS-232**

The communications interface between a modem and terminal devices that complies with EIA Standard RS-232.

**scratch diskette**

A blank, formatted diskette used during testing to prevent the disk drive from writing on and destroying the User Diagnostics diskette.

**screen**

The viewing surface of a CRT.

**self-test**

A circuit used by a device to check its own operation, usually when power is first applied.

**serial output**

Sending only one bit at a time to and from interconnected devices.

**single-density**

The standard recording density of a diskette. Single-density diskettes can store approximately 3400 bits per inch (bpi).

**single-sided**

A term used to describe a diskette that can record on one side only.

**software**

The programs that tell a computer how to perform its functions.

**statement**

An instruction to the computer to perform some sequence of operations.

**system**

A collection of hardware, software, and firmware that is interconnected to operate as a unit.

**system board**

The main control board of the computer.

**task**

A machine run; a program in execution.

**track**

A specific area on a moving-storage medium, such as a diskette or magnetic tape, that can be accessed by the drive heads.

**upgrade**

To expand a system by installing options or using revised software.

**User Diagnostics test programs**

A special series of programs that contain the diagnostic tests for detecting hardware malfunctions and errors.

**VDU**

Mnemonic term for video display unit.

**video display unit**

A circuit providing CRT control and graphics capabilities.

**word**

The set of bits comprised by the largest unit that the computer can handle in a single operation. A word is usually divided into bytes.

**word processing**

Processing text by performing functions such as formatting, paragraphing, justification, arrangement of pages, moving text, and printing.

**word-wrapping**

A feature that automatically shifts text from a line that is too long and places it on the line below. Word-wrapping eliminates the need for carriage returns in running text.

### **write-protect notch**

A cut-out opening in the sealed envelope of a diskette that, when covered, prevents the computer from writing to the diskette, but allows the computer to read from the diskette.

# INDEX

---

## A

- alphanumeric keys ..... 1-17, **2-12**  
ALT key ..... **2-27**, 2-28, 2-32, 6-5, A-13, A-23  
asynchronous communications ..... 6-2

## B

- BACKSPACE key ..... 1-18, **2-16**, A-11, A-16  
BASIC ..... 3-1  
    changing statements ..... 3-8  
    compatibility ..... B-1  
    function keys ..... 3-7, A-24  
    keyboard ..... A-16  
    loading ..... 3-2  
    performing calculations in ..... 3-3  
    programming in ..... 3-5, 3-14  
boot ..... 2-5  
BREAK key (see SCROLL LOCK/BREAK key)  
BRIGHTNESS control knob ..... **1-4**, 1-16, 5-3

**C**

|   |                  |
|---|------------------|
| GAPS LOCK key .....                     | 2-18, A-12, A-17 |
| carrying case.....                      | 6-2              |
| cassette storage .....                  | B-1              |
| CHECK DISK command (see CHKDSK command) |                  |
| CHKDSK command.....                     | A-1              |
| dual drives .....                       | 2-72             |
| single drive .....                      | 2-109            |
| commands (see individual command names) |                  |
| BASIC .....                             | 3-7              |
| dual drives                             |                  |
| DOS .....                               | 2-48, A-1        |
| external .....                          | 2-49             |
| internal.....                           | 2-48             |
| single drive                            |                  |
| DOS .....                               | 2-83, A-1        |
| external .....                          | 2-84             |
| internal.....                           | 2-83             |
| COMP command .....                      | A-1              |
| dual drives .....                       | 2-61             |
| single drive .....                      | 2-97             |
| COMPARE command (see COMP command)      |                  |
| comparing                               |                  |
| dual drives                             |                  |
| diskettes .....                         | 2-52             |
| files .....                             | 2-61             |
| while copying .....                     | 2-66             |
| single drive                            |                  |
| diskettes .....                         | 2-90             |
| files .....                             | 2-97             |
| while copying .....                     | 2-102            |
| compatibility .....                     | B-1              |
| composite video.....                    | 6-1              |
| CONTINUE key .....                      | A-24             |

|                                  |                              |
|----------------------------------|------------------------------|
| control break procedure .....    | 2-25                         |
| CONTROL key (see CTRL key)       |                              |
| control keys .....               | 2-12                         |
| cool air inlets, outlets .....   | 1-4, 1-15                    |
| COPY command .....               | A-1                          |
| dual drives .....                | 2-56                         |
| /V option .....                  | 2-66                         |
| single drive .....               | 2-92                         |
| /V option .....                  | 2-102                        |
| copying                          |                              |
| dual drives                      |                              |
| diskettes .....                  | 2-52, A-9                    |
| DOS diskette .....               | 1-22                         |
| files .....                      | 2-56                         |
| to a different diskette .....    | 2-57, A-7                    |
| to the same diskette .....       | 2-59, A-5                    |
| /V option .....                  | 2-66                         |
| single drive                     |                              |
| diskettes .....                  | 2-87                         |
| DOS diskette .....               | 1-26                         |
| files .....                      | 2-92                         |
| to a different diskette .....    | 2-93, A-6                    |
| to the same diskette .....       | 2-95, A-5                    |
| /V option .....                  | 2-102                        |
| CTRL key .....                   | 2-19, 2-20                   |
| functions .....                  | 2-25, 2-28, 2-29, A-13, A-22 |
| symbol .....                     | 2-20                         |
| cursor control keys, BASIC ..... | A-18                         |
| cursor/number pad keys .....     | 2-13, 2-20                   |

**D**

|   |                                    |
|---|------------------------------------|
| DATE command .....                          | A-1                                |
| dual drives .....                           | 2-75, 2-79                         |
| single drive .....                          | 2-112, 2-116                       |
| default .....                               |                                    |
| default drive .....                         | 2-42                               |
| defaulting past prompts .....               | 1-20                               |
| switching default drives .....              | 2-42                               |
| DEL key .....                               | 2-27, 2-38, A-13, A-18, A-20, A-22 |
| DELETE command .....                        | A-1                                |
| DELETE key (see DEL key)                    |                                    |
| demonstration programs .....                | 1-32                               |
| diagnostics .....                           |                                    |
| procedures .....                            | 5-2                                |
| start-up .....                              | 1-16                               |
| test programs, using .....                  | 5-6                                |
| User Diagnostics .....                      | 5-1                                |
| DIR command .....                           | 2-40, A-2                          |
| /P option .....                             | 2-41                               |
| /W option .....                             | 2-41                               |
| DIRECTORY command (see DIR command)         |                                    |
| DISK COMPARE command (see DISKCOMP command) |                                    |
| DISKCOMP command .....                      | A-2                                |
| dual drives .....                           | 2-55                               |
| single drive .....                          | 2-90                               |
| DISKCOPY command .....                      | A-2                                |
| dual drives .....                           | 2-52, A-9                          |
| single drive .....                          | 2-87, A-8                          |
| disk drives .....                           | 1-4, 1-11                          |
| compatibility .....                         | B-2                                |
| default drive .....                         | 2-41                               |
| dual-drive operations .....                 | 2-48                               |
| single-drive operations .....               | 2-83                               |
| Disk Operating System (see DOS)             |                                    |

|   |                  |
|---|------------------|
| diskettes                               |                  |
| buying .....                            | 1-34             |
| dual drives                             |                  |
| checking .....                          | 2-72             |
| comparing .....                         | 2-55             |
| copying .....                           | 2-52, A-9        |
| formatting .....                        | 2-48             |
| handling and care of .....              | 1-10, 1-34, 1-35 |
| inserting .....                         | 1-12, 1-13       |
| single drive                            |                  |
| checking .....                          | 2-109            |
| comparing .....                         | 2-90             |
| copying .....                           | 2-87, A-8        |
| formatting .....                        | 2-83             |
| DOS .....                               | 1-20, 2-2        |
| commands (see individual command names) |                  |
| summary of .....                        | A-1              |
| using with dual drives .....            | 2-48             |
| summary of operations .....             | 2-81             |
| using with single drive .....           | 2-83             |
| summary of operations .....             | 2-118            |
| definitions of .....                    | 2-44             |
| diskette .....                          | 1-10             |
| copying with dual drives .....          | 1-22             |
| copying with single drive .....         | 1-26             |
| inserting .....                         | 1-13             |
| keyboard .....                          | A-11             |
| prompt, recovery of .....               | 3-2, 5-23        |
| drive specifiers .....                  | 2-38             |

**E**

|                                  |                              |
|----------------------------------|------------------------------|
| EDIT command .....               | 3-8                          |
| EDLIN commands, summary of ..... | A-10                         |
| END key .....                    | 2-23, A-19                   |
| ENTER key .....                  | 1-18, 2-15, A-11, A-13, A-16 |
| ERASE command .....              | A-2                          |
| dual drives .....                | 2-68                         |
| single drive .....               | 2-105                        |
| ESC key .....                    | 2-31, A-12, A-17             |
| ESCAPE key (see ESC key)         |                              |
| EXE2BIN command .....            | A-2                          |
| extension .....                  | 2-36, 2-37                   |
| external commands .....          | 2-46                         |
| dual drives .....                | 2-49                         |
| single drive .....               | 2-84                         |

**F**

|                             |          |
|-----------------------------|----------|
| feet                        |          |
| keyboard .....              | 1-3, 1-9 |
| unit .....                  | 1-6      |
| file names .....            | 2-33     |
| acceptable characters ..... | 2-38     |
| drive specifier .....       | 2-38     |
| extension .....             | 2-36     |
| filename .....              | 2-36     |
| proper format .....         | 2-37     |
| use of period in .....      | 2-37     |
| when to name a file .....   | 2-33     |
| file save .....             | 2-7      |

|                                       |                 |
|---------------------------------------|-----------------|
| files                                 |                 |
| comparing                             |                 |
| dual drives .....                     | 2-61            |
| while copying .....                   | 2-66            |
| single drive .....                    | 2-97            |
| while copying .....                   | 2-102           |
| copying .....                         | 2-7             |
| dual drives .....                     | 2-56            |
| copying to a different diskette ..... | 2-57, A-7       |
| copying to the same diskette .....    | 2-59, A-5       |
| copying with /V option .....          | 2-66            |
| single drive .....                    | 2-92            |
| copying to a different diskette ..... | 2-93, A-7       |
| copying to the same diskette .....    | 2-95, A-5       |
| copying with /V option .....          | 2-102           |
| erasing                               |                 |
| dual drives .....                     | 2-68            |
| single drive .....                    | 2-105           |
| loading .....                         | 2-7             |
| naming .....                          | 2-33            |
| renaming                              |                 |
| dual drives .....                     | 2-66            |
| single drive .....                    | 2-103           |
| saving .....                          | 2-7, 2-9        |
| FORMAT command .....                  | A-2             |
| dual drives .....                     | 2-48            |
| single drive .....                    | 2-83            |
| User Diagnostics .....                | 5-8             |
| function keys .....                   | <b>2-14</b>     |
| BASIC .....                           | 3-7             |
| DOS .....                             | 2-24, A-14      |
| fuse, replacing .....                 | 5-3, <b>5-5</b> |

## G

|                               |       |
|-------------------------------|-------|
| global commands               |       |
| dual drives .....             | 2-79  |
| single drive .....            | 2-116 |
| graphics capabilities .....   | B-2   |
| greater than (>) symbol ..... | 6-5   |

## H

|                |                  |
|----------------|------------------|
| HOME key ..... | 2-23, A-18, A-22 |
|----------------|------------------|

## I

|  |                 |
|--|-----------------|
| IN USE indicator(s).....                       | 1-11, 1-13      |
| INPUT command .....                            | 3-10, 3-13      |
| INPUT/OUTPUT compartment (see I/O compartment) |                 |
| INS key .....                                  | 3-9, A-18, A-21 |
| INSERT key (see INS key)                       |                 |
| internal commands .....                        | 2-45            |
| dual drives .....                              | 2-48            |
| single drive .....                             | 2-83            |
| I/O compartment .....                          | 1-5, 6-4        |

**K**

|                                 |          |
|---------------------------------|----------|
| key click .....                 | 2-32     |
| keyboard .....                  | 2-10     |
| BASIC .....                     | A-16     |
| DOS .....                       | A-11     |
| latches .....                   | 1-7, 1-8 |
| test .....                      | 5-15     |
| unit .....                      | 1-3, 1-8 |
| keys (see individual key names) |          |

**L**

|                            |                |
|----------------------------|----------------|
| less than (<) symbol ..... | 6-5            |
| light pen .....            | B-2            |
| LIST command .....         | 3-6, 3-7, A-24 |
| LOAD command .....         | 3-12, A-24     |

**M**

|                      |            |
|----------------------|------------|
| memory .....         | 2-4        |
| description of ..... | 2-6        |
| expansion of .....   | 6-1        |
| test .....           | 5-14       |
| minus (-) sign ..... | 2-32, A-21 |
| MODE command .....   | A-3        |

## N

|                              |                              |
|------------------------------|------------------------------|
| NUM LOCK key .....           | 2-13, 2-22, A-13, A-20, A-22 |
| number pad keys, BASIC ..... | A-21                         |

## O

|                                    |                     |
|------------------------------------|---------------------|
| off, turning the computer .....    | 4-1                 |
| on, turning the computer .....     | 1-14                |
| ON/OFF switch .....                | 1-3, 1-15, 5-3, 5-4 |
| options .....                      | 6-1                 |
| asynchronous communications .....  | 6-2                 |
| carrying case .....                | 6-2                 |
| connections .....                  | 1-5, 6-4, 6-5       |
| external monitor connections ..... | 1-5, 6-4            |
| composite video jack .....         | 1-5, 6-5            |
| RF modulator slot .....            | 1-5, 6-5            |
| RGB port .....                     | 1-5, 6-5            |
| external monitors .....            | 6-1                 |
| composite video .....              | 6-1                 |
| RF modulator .....                 | 6-1                 |
| RGB color monitor .....            | 6-1                 |
| memory expansion .....             | 6-1                 |
| printer .....                      | 6-1                 |
| printer connection .....           | 1-5, 6-5            |
| second disk drive .....            | 6-2                 |

**P**

|  |                              |
|--|------------------------------|
| page down key (see PGDN key)                 |                              |
| page up key (see PGUP key)                   |                              |
| PAUSE command .....                          | A-3                          |
| PGDN key .....                               | 2-22                         |
| PGUP key .....                               | 2-22                         |
| plus (+) sign .....                          | 2-32, A-21                   |
| power  |                              |
| compartment .....                            | 1-3, 1-14                    |
| cord   |                              |
| connection .....                             | 1-15, 5-4                    |
| storage .....                                | 1-3, 1-15, 4-2               |
| switch (ON/OFF) .....                        | 1-15, 5-3                    |
| PRINT command .....                          | 3-5, 3-13                    |
| PRINT SCREEN key (see PRTSC key)             |                              |
| print screen procedure .....                 | 2-30                         |
| printer                                      |                              |
| connection .....                             | 1-5, 6-5                     |
| halting .....                                | 4-1                          |
| test .....                                   | 5-21                         |
| PRTSC key .....                              | 2-29, 2-30, A-12, A-13, A-17 |
| PRTSC procedure (see print screen procedure) |                              |

**R**

|                                |       |
|--------------------------------|-------|
| RAM .....                      | 2-6   |
| random-access memory (see RAM) |       |
| REM command .....              | A-3   |
| RENAME command .....           | A-3   |
| dual drives .....              | 2-66  |
| single drive .....             | 2-103 |

|                         |                |
|-------------------------|----------------|
| RF modulator .....      | 6-1            |
| RGB color monitor ..... | 6-1            |
| RUN command .....       | 3-6, 3-8, A-24 |

## S

|                              |                        |
|------------------------------|------------------------|
| SAVE command .....           | 3-12, A-24             |
| scratch diskette .....       | 5-8, 5-20              |
| SCROLL LOCK/BREAK key .....  | 2-25, 2-26, A-13, A-22 |
| scrolling .....              | 2-22                   |
| SHIFT keys .....             | 2-18, 2-30, A-13, A-17 |
| SPACEBAR .....               | 2-17                   |
| SYS command .....            | A-3                    |
| system .....                 | 2-6                    |
| system reset procedure ..... | 2-27                   |

## T

|                       |              |
|-----------------------|--------------|
| TAB key .....         | A-17         |
| TIME command .....    | A-3          |
| dual drives .....     | 2-75, 2-78   |
| single drive .....    | 2-112, 2-115 |
| TYPE command .....    | A-4          |
| dual drives .....     | 2-73         |
| single drive .....    | 2-110        |
| typewriter mode ..... | 2-29         |

**U**

|                            |     |
|----------------------------|-----|
| User Diagnostics .....     | 5-1 |
| procedures .....           | 5-2 |
| test programs, using ..... | 5-6 |

**V**

|                                 |            |
|---------------------------------|------------|
| variables, in programming ..... | 3-10, 3-16 |
| video display unit .....        | <b>1-4</b> |

**W**

|                           |                    |
|---------------------------|--------------------|
| write-protect notch ..... | <b>1-35</b> , 1-37 |
|---------------------------|--------------------|

## Notes:

## Notes:

## Notes:

# **OPERATOR'S GUIDE**

## **COMMENTS FORM**

---

Please assist us by answering the questions listed below. Then detach this prepaid comments form and drop it into a mailbox. This will help us to attain our goal, which is to provide you with documentation of the highest quality.

CHECK  THE APPROPRIATE ANSWER:

YES      NO

- Is this document easy to read?
- Does the text flow in a logical manner?
- Are the directions easy to follow?
- Are the illustrations clear (are the callouts and captions accurate)?
- Are the technical terms clearly defined?
- Did you find any inconsistencies or errors in the manual?
- Do you feel that this document provides all the information that you need to understand and to operate your COMPAQ Computer?

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Thank you for taking the time to assist us.

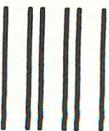
(Optional)

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY/STATE: \_\_\_\_\_

PHONE NO: \_\_\_\_\_



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

# BUSINESS REPLY MAIL

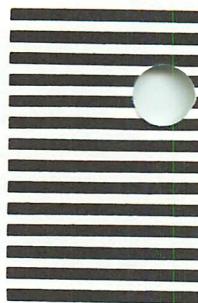
FIRST CLASS

PERMIT NO. 400

HOUSTON, TEXAS USA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPAQ Computer Corporation  
12330 Perry Road  
Houston, Texas 77070



Fold here

Tap

Please do not staple

pcjs.org Tap

# **OPERATOR'S GUIDE COMMENTS FORM**

---

Please assist us by answering the questions listed below. Then detach this prepaid comments form and drop it into a mailbox. This will help us to attain our goal, which is to provide you with documentation of the highest quality.

CHECK  THE APPROPRIATE ANSWER:

YES      NO

- Is this document easy to read?
- Does the text flow in a logical manner?
- Are the directions easy to follow?
- Are the illustrations clear (are the callouts and captions accurate)?
- Are the technical terms clearly defined?
- Did you find any inconsistencies or errors in the manual?
- Do you feel that this document provides all the information that you need to understand and to operate your COMPAQ Computer?

COMMENTS: \_\_\_\_\_

---

---

---

---

Thank you for taking the time to assist us.

(Optional)

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY/STATE: \_\_\_\_\_

PHONE NO: \_\_\_\_\_



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

# BUSINESS REPLY MAIL

FIRST CLASS

PERMIT NO. 400

HOUSTON, TEXAS USA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPAQ Computer Corporation  
12330 Perry Road  
Houston, Texas 77070

Fold here

Tapē

Please do not staple

pcjs.org

Tapē

# **OPERATOR'S GUIDE COMMENTS FORM**

---

Please assist us by answering the questions listed below. Then detach this prepaid comments form and drop it into a mailbox. This will help us to attain our goal, which is to provide you with documentation of the highest quality.

CHECK  THE APPROPRIATE ANSWER:

YES      NO

- Is this document easy to read?
- Does the text flow in a logical manner?
- Are the directions easy to follow?
- Are the illustrations clear (are the callouts and captions accurate)?
- Are the technical terms clearly defined?
- Did you find any inconsistencies or errors in the manual?
- Do you feel that this document provides all the information that you need to understand and to operate your COMPAQ Computer?

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Thank you for taking the time to assist us.

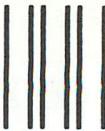
(Optional)

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY/STATE: \_\_\_\_\_

PHONE NO: \_\_\_\_\_



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

# BUSINESS REPLY MAIL

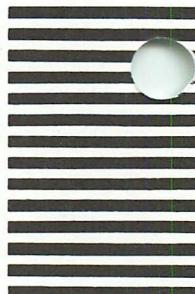
FIRST CLASS

PERMIT NO. 400

HOUSTON, TEXAS USA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPAQ Computer Corporation  
12330 Perry Road  
Houston, Texas 77070



Fold here

Tap

Please do not staple

pcjs.org

Tap



