



Macintosh PowerBook User's Guide

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Includes setup, troubleshooting, and important health-related information for Macintosh PowerBook 190 series computers

 Apple Computer, Inc.

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Communications regulation information

FCC statement

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. See instructions if interference to radio or television reception is suspected.

Radio and television interference

The equipment described in this manual generates, uses, and can radiate radio-frequency energy. If it is not installed and used properly—that is, in strict accordance with Apple’s instructions—it may cause interference with radio and television reception.

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

You can determine whether your computer system is causing interference by turning it off. If the interference stops, it was probably caused by the computer or one of the peripheral devices.

If your computer system does cause interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the computer to one side or the other of the television or radio.
- Move the computer farther away from the television or radio.
- Plug the computer into an outlet that is on a different circuit from the television or radio. (That is, make certain the computer and the television or radio are on circuits controlled by different circuit breakers or fuses.)

If necessary, consult an Apple-authorized service provider or Apple. See the service and support information that came with your Apple product. Or, consult an experienced radio/television technician for additional suggestions. You may find the following booklet helpful: *Interference Handbook* (stock number 004-000-00493-1). This booklet, prepared by the Federal Communications Commission, is available from the U.S. Government Printing Office, Washington, DC 20402.

IMPORTANT Changes or modifications to this product not authorized by Apple Computer, Inc., could void the FCC certification and negate your authority to operate the product.

This product was tested for FCC compliance under conditions that included the use of Apple peripheral devices and Apple shielded cables and connectors between system components. It is important that you use Apple peripheral devices and shielded cables and connectors between system components to reduce the possibility of causing interference to radios, television sets, and other electronic devices. You can obtain Apple peripheral devices and the proper shielded cables and connectors through an Apple-authorized dealer. For non-Apple peripheral devices, contact the manufacturer or dealer for assistance.

DOC statement

DOC Class B Compliance This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled “Digital Apparatus,” ICES-003 of the Department of Communications.

Observation des normes—Classe B Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur : “Appareils Numériques”, NMB-003 édictée par le ministre des Communications.

VCCI statement

情報処理装置等電波障害自主規制について

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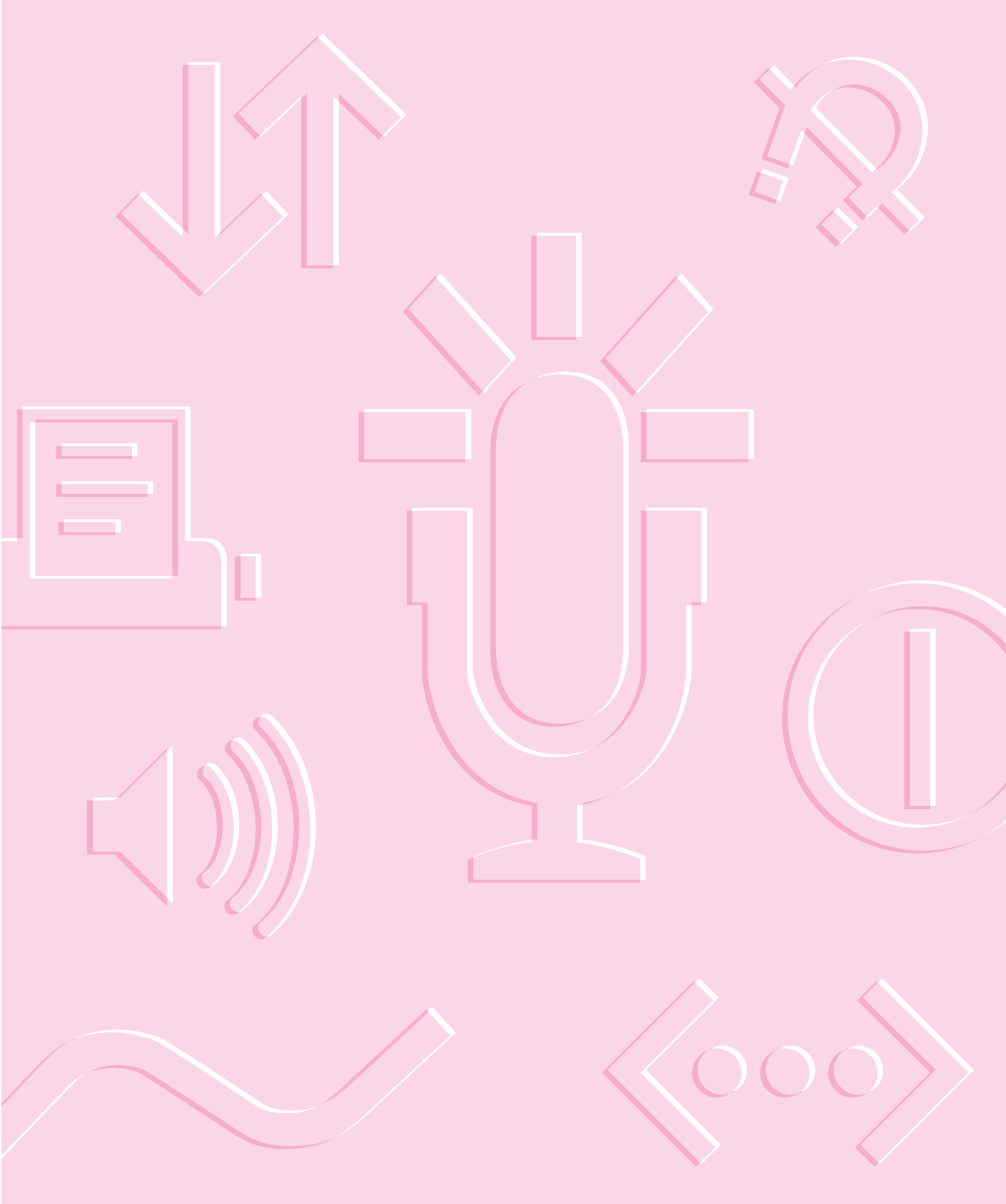
取扱説明書に従って正しい取り扱いをしてください。



- Chapter 1** **Getting Started**
- Chapter 2** **Getting Help**
- Chapter 3** **Using Expansion Bay Modules and PC Cards**
- Chapter 4** **Connecting Additional Equipment**
- Chapter 5** **Installing and Using Application Programs**
- Chapter 6** **Power Management**



part



Follow the instructions in this chapter to set up your computer and learn the basics.

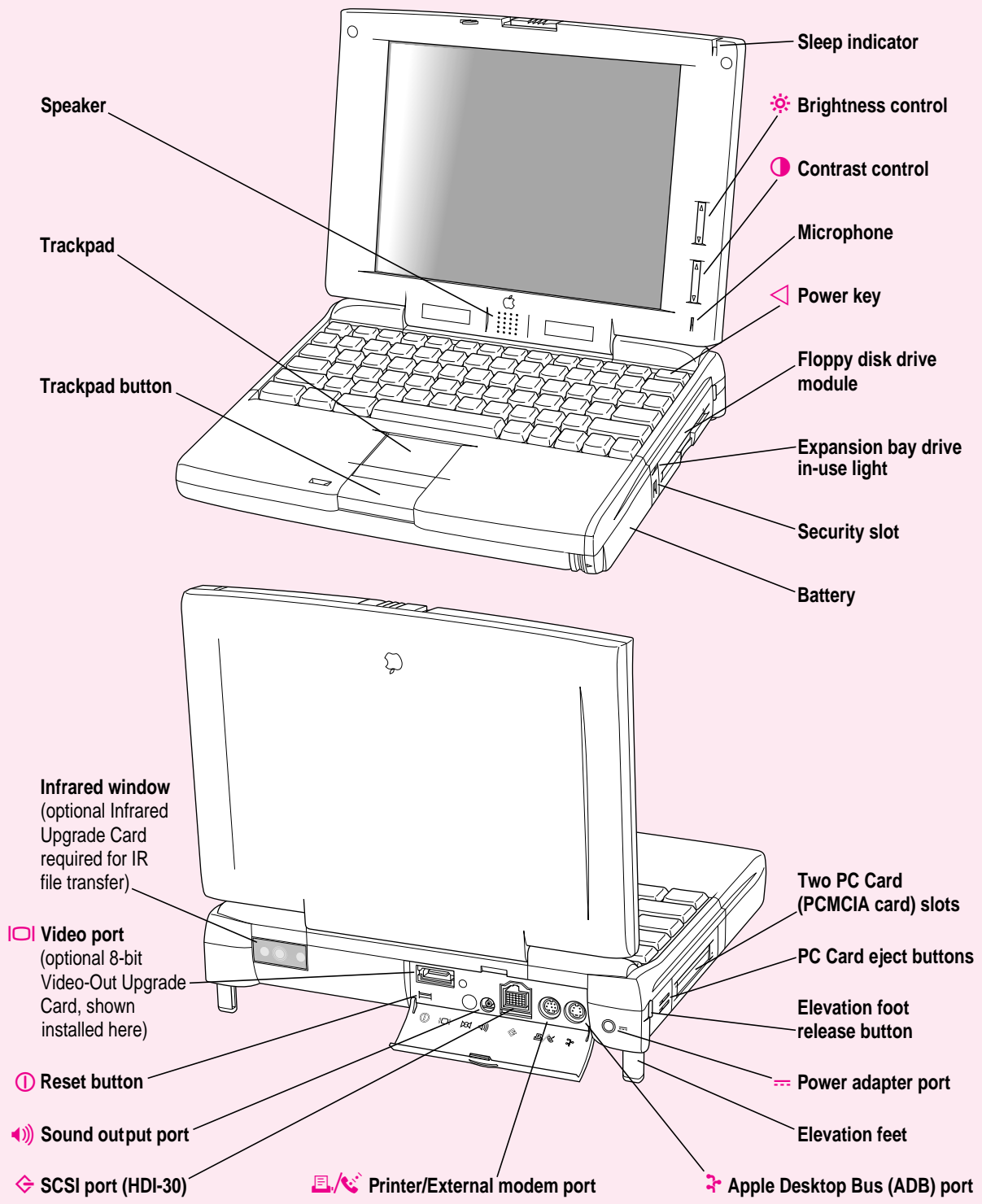
1

Getting Started



The illustration on the following page provides an overview of your Macintosh PowerBook computer. To set up your computer for the first time, you need the power adapter and the power cord that came with it.

When setting up your computer, place your computer on a sturdy, flat surface near a grounded electrical outlet. Before following the setup instructions in this chapter, you may want to read “Arranging Your Work Area and Equipment” in Appendix A for tips on adjusting your work furniture and computer so that you’re comfortable when using the computer.



Speaker

Trackpad

Trackpad button

Sleep indicator

Brightness control

Contrast control

Microphone

Power key

Floppy disk drive module

Expansion bay drive in-use light

Security slot

Battery

Infrared window
(optional Infrared Upgrade Card required for IR file transfer)

Video port
(optional 8-bit Video-Out Upgrade Card, shown installed here)

Reset button

Sound output port

SCSI port (HDI-30)

Printer/External modem port

Two PC Card (PCMCIA card) slots

PC Card eject buttons

Elevation foot release button

Power adapter port

Elevation feet

Apple Desktop Bus (ADB) port

Plugging in the computer


Plugging in the power adapter recharges the computer's battery. You should plug in the power adapter in case the battery has drained during shipping or storage.

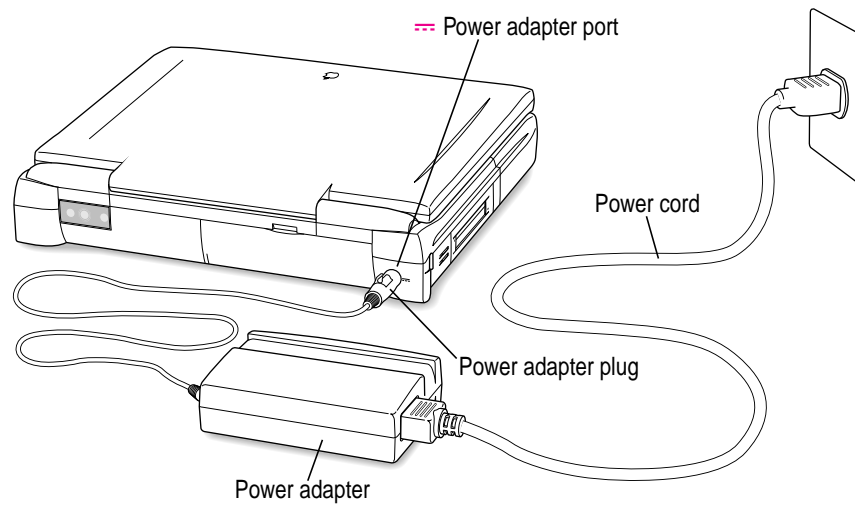
WARNING Use only the power adapter that came with your Macintosh PowerBook or with a Macintosh PowerBook 5300 series computer. Adapters for other electronic devices (including other Macintosh PowerBook models and other portable computers) may look similar, but they may damage your computer.

When you are ready to begin, follow these steps:

- 1 Plug one end of the power cord into the power adapter and the other end into a three-hole grounded outlet or power strip.**

WARNING This equipment is intended to be electrically grounded. The power adapter that came with your Macintosh PowerBook is equipped with a three-wire grounding plug—a plug that has a third (grounding) pin. This plug will fit only a grounded AC outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact a licensed electrician to replace the outlet with a properly grounded outlet. Do not defeat the purpose of the grounding plug!

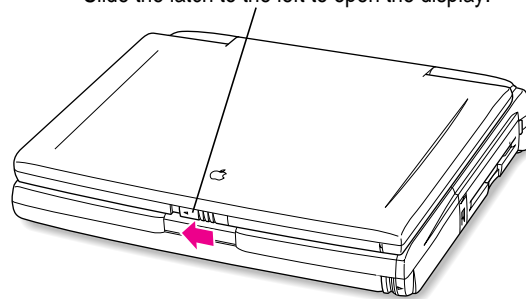
- 2 Plug the power adapter plug into the power adapter port (marked with the icon ) on the back panel of the computer.



Opening the display

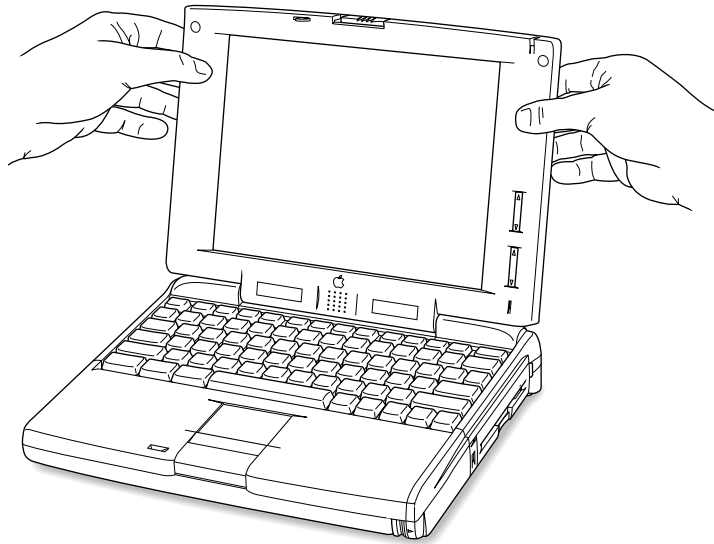
- 1 Slide the latch to the left and lift up the display.

Slide the latch to the left to open the display.



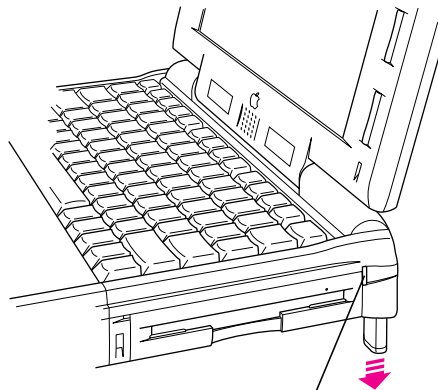
2 Position the display at a comfortable viewing angle.

You can adjust the angle of the display at any time by tilting it toward or away from you.

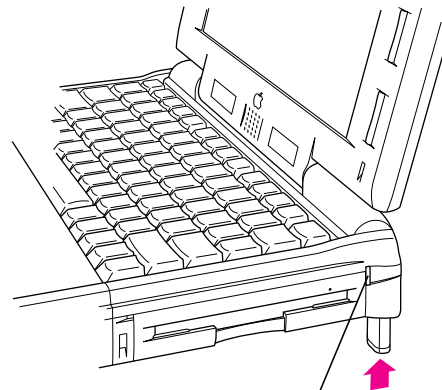


3 Adjust the elevation feet if you want to raise the computer.

The back of the keyboard is slightly elevated when the feet are in use.



To lower the foot, lift the rear of the computer and press the release button. The foot extends automatically.

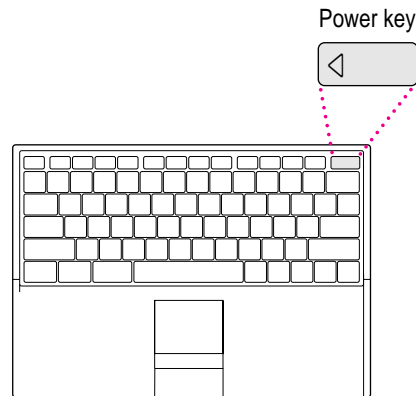


To raise the foot, press the release button while pushing up on the foot until it clicks into place.

Turning the computer on

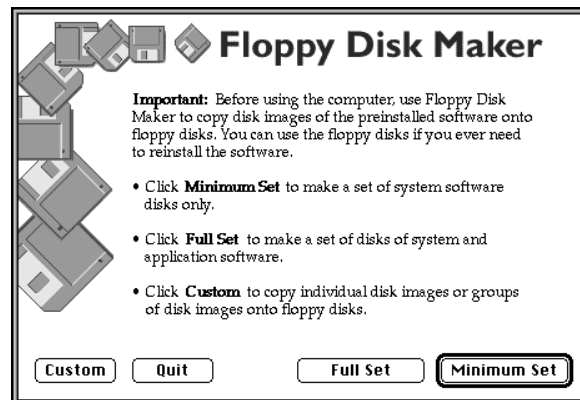
To turn on the computer:

- Press the **Power key** (marked with a ◀) at the upper-right corner of the keyboard.



You should hear a tone when you turn on the computer. It takes the computer a few minutes to start up. You'll see the Mac OS startup screen as the system software is loaded on the computer.

After your computer starts up for the first time, a picture similar to this appears on the screen:



If you don't see this picture on your screen, go to the next section, "Problems Turning Your Computer On?"

If you are a new Macintosh PowerBook user, follow the instructions in the rest of this section. If you have experience using a Macintosh computer, skip to “Making Software Disks” later in this chapter to learn how to make floppy disks of the software installed on your computer.

If you are a new Macintosh PowerBook user

If you have never used a Macintosh PowerBook computer, you need to learn how to use your computer before you can make your disks. Follow these steps:

- 1 Move your finger on the trackpad to move the arrow pointer (␣) on the screen.**
Place your index finger on the trackpad and your thumb on the trackpad button. Don't press the trackpad button yet.
- 2 Move your finger on the trackpad so that the tip of the arrow (␣) is inside the Quit button at the bottom of the Floppy Disk Maker box.**
- 3 Being careful not to move your finger on the trackpad, press and release the trackpad button.**

The following screen replaces the Floppy Disk Maker box.



Note: Your screen should look very similar to this, but it may not look exactly the same.

- 4 Turn to the “Learning the Basics” section later in this chapter.
- 5 Turn to “Making Software Disks,” later in this chapter, as soon as you are done learning the basics.

It is very important that you make your floppy disks as soon as you are done with the first part of the Macintosh Tutorial.

Problems turning your computer on?

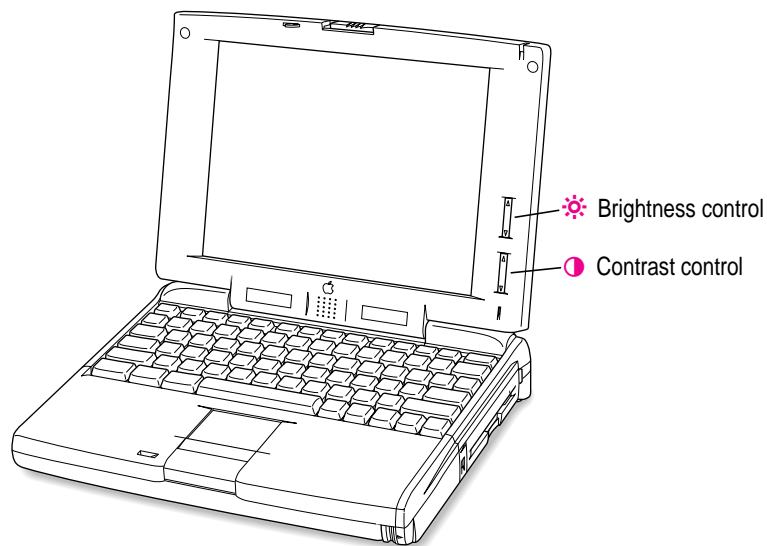
- **Nothing happened when you pressed the Power key.**

The battery may be drained. Make sure you plugged in the power adapter, and that the power adapter is firmly connected to both the computer and a power source. If the power adapter is plugged into a power strip, make sure the power strip is plugged in and turned on. Then try pressing the key again.

If the computer still doesn't turn on, see “Problems Starting Up the Computer” in Chapter 7.

- **The computer made a sound, but you can't see anything on the screen.**

Adjust the brightness control (marked with the icon ☼) and contrast control (●) until an image appears and the screen is easy to read.



- You see a picture of a disk with a blinking question mark on the screen.



This icon usually means that the computer can't find system software on the hard disk or any disks attached to the computer. You may need to reinstall system software. See "Reinstalling System Software" in Chapter 8.

- You don't see the Floppy Disk Maker picture on the screen.

The screen for Floppy Disk Maker appears when you start up your computer until you make a minimum set of disks. If you haven't made a minimum set of disks, see the next section, "Making Software Disks." (Note: The screen that appears for Floppy Disk Maker may be slightly different from the screen shown in this manual.)

Making software disks

This section describes how to create floppy disks of the software that comes on your computer.

Why make software disks?

Your Macintosh PowerBook computer comes with different kinds of software installed. *System software* is the set of programs and other files that your computer uses to start itself up, keep track of your files, and run application programs. When you turn on your computer, it looks for a disk that contains the system software. System software is always in a folder called the System Folder.

Other included software gives you added functionality on your computer, such as file synchronization, hard disk password protection, and DOS–Mac OS file compatibility.

You need to make a copy of this software for safekeeping, in case you ever need to reinstall the software on your computer. The disks you need to install and reinstall software from are called *installer disks*. You use the Floppy Disk Maker application program to create your software installer disks.

What is a disk image?

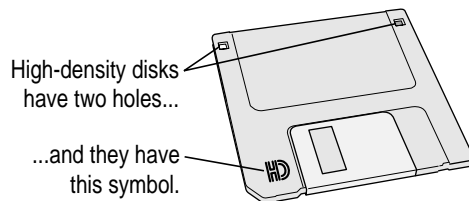
A *disk image* is a discrete electronic representation of each individual installer disk. The Disk Images folder in the Floppy Disk Maker folder on your hard disk contains the disk images you need to create installer disks for both your system software and the other software that comes on the hard disk. When you use Floppy Disk Maker, it copies the disk images onto floppy disks. When you are finished making a set of disks with Floppy Disk Maker, you'll have a set of installer disks and will be able to reinstall the software that comes on your computer.

Note: You must use the Floppy Disk Maker program to create your installer disks. (Although you can copy the disk images onto floppy disks by dragging the files, you won't be able to install the software from those disks because the disk images are compressed files.)

What you need

Just as you need paper to make copies of important documents, you need floppy disks to make copies of the information on your hard disk. You can probably buy the floppy disks at the same place you bought your computer.

Floppy disks come in a variety of sizes and capacities. The ones you need for backing up your hard disk are called *high-density 3.5-inch disks*. You can recognize the disks by the way they look:



Even though these disks have a hard plastic casing, they are called “floppy disks” because the disk inside the casing is floppy.

Before you start making your disks, you'll need to decide if you want to make a *full set* or a *minimum set* of disks. When you make a full set, you'll make disks for your system software and the other disk images that come on your computer. When you make a minimum set, you'll make just the essential system software disks. It is best to make a full set, so you'll have installer disks for your system software and the other disk images that come on your computer. However, making a full set requires more disks and more time than making a minimum set. At the very least, make a minimum set of disks now. If you choose to make a minimum set, you can make disks for the other software later.

If you don't have disks on hand, you can skip these instructions for the moment. But the sooner you make the system software disks, the better. Buy the disks as soon as possible, then return to this section and follow these instructions.

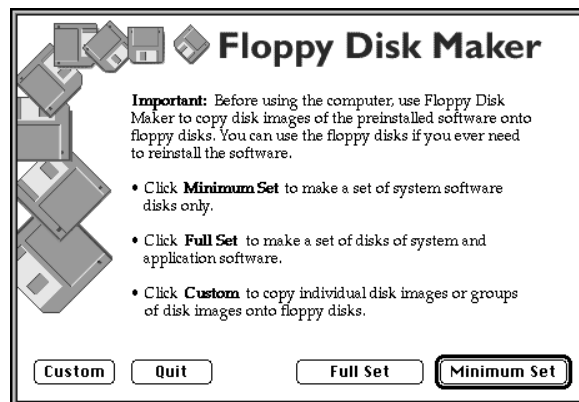
IMPORTANT Be sure you make at least a minimum set of disks as soon as possible, in case you need to reinstall your system software.

Making a set of disks

To use the Floppy Disk Maker program to make your installer disks, follow these instructions:

1 If your computer is off, turn it on.

Before you can begin, the following dialog box should be on your screen:



This dialog box will appear every time you start your computer until you make at least a minimum set of disks. It is very important that you make at least a minimum set. (You can stop the dialog box from appearing by removing the Floppy Disk Maker alias from the Startup Items folder in the System Folder. See “Problems Starting Up the Computer” in Chapter 7 for more information.)

If you clicked the Quit button in the Floppy Disk Maker dialog box, you can find Floppy Disk Maker in either the Applications/Utilities section of Software Highlights or in the Floppy Disk Maker folder (inside the Utilities folder) on your hard disk. (See “Using Software Highlights” in Chapter 5 for more information.)

2 Click Minimum Set or Full Set, depending on the kind of disk set you want to make.

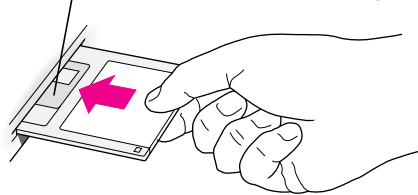
If you are making a minimum set, you can press the Return key. You can make a minimum set first so you have a set of system software disks, and then use Floppy Disk Maker to make the other disks later. (See “Making Individual Disks” later in this section for instructions when you want to make the additional disks.)

If you need to stop Floppy Disk Maker in the middle of making a set of disks, click Quit. Floppy Disk Maker will remember where you were in the disk-making process, and will resume where you left off when you next open Floppy Disk Maker.

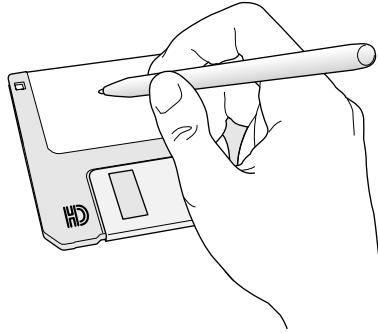
3 Follow the instructions on the screen until a message tells you that you’re finished.

Insert a new disk whenever the screen messages tell you to do so. Do not use the *Disk Tools* floppy disk that came with your computer.

Insert the disk metal end first, label side up.



As you fill each disk, make a label with the disk name displayed on the screen. Then immediately put the label on the disk so that you know what its contents are later.



4 When you're finished, click Quit.

If you want to make more disks, click Continue and go to the next section, "Making Individual Disks," to learn about using Floppy Disk Maker's custom feature.

Be sure the floppy disks are properly labeled, then store them in a safe, cool place.

5 If you quit in the middle of the disk-making process and want to resume copying, click Resume Minimum or Resume Full (depending on the type of set you are making) when you see the Floppy Disk Maker box.

Once you've made a full set of disks, you can delete the disk images to free up space on your hard disk. However, keeping copies of at least the system software images is a good idea. You should keep these disk images on your hard disk, or backed up on an external hard disk or PC Card (PCMCIA card). The disk images are found in a folder called Disk Images, inside the Floppy Disk Maker folder.

Making individual disks

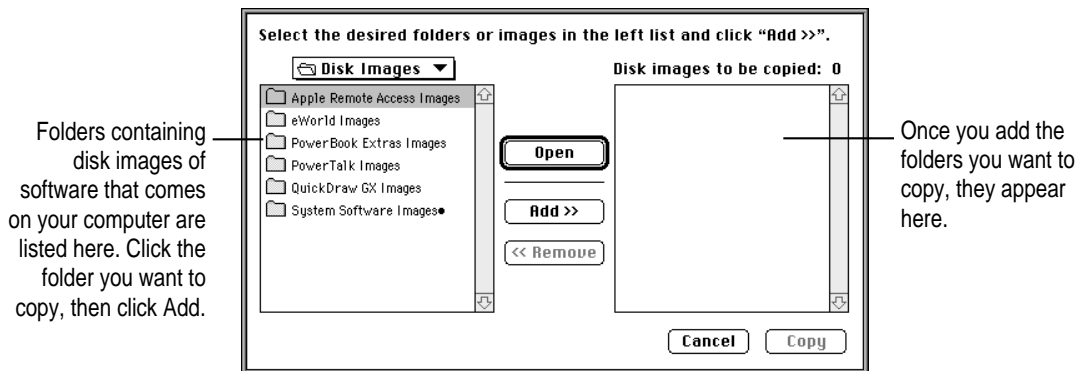
If you made a minimum set of disks, you can go back and make disks of the remaining disk images on your computer. You do this by using the custom feature of Floppy Disk Maker. You can make an individual disk or a set of disks for an application program. Follow these steps:

1 Open the Floppy Disk Maker application program.

You can find Floppy Disk Maker in either the Applications/Utilities section of Software Highlights or in the Floppy Disk Maker folder (inside the Utilities folder) on your hard disk. (See “Using Software Highlights” in Chapter 5 for more information.)

2 When the Floppy Disk Maker dialog box appears, click Custom.

The following appears on the screen:



3 Click the icon for the program you want to copy to select it.

If you want to make an individual disk for a program (in case you lost a disk or an individual disk got damaged), double-click the program's folder to open it, then click the icon of the individual disk image to select it.

4 Click Add.

The folder (or individual disk) appears in the list to the right under “Disk images to be copied.”

Repeat steps 3 and 4 until all the software you want to copy appears in the list to the right. The total number of disks you’ll need appears above the list in the right of the window.

If you want to remove an item from the list on the right, click the item to select it and click Remove.

5 Click Copy.

Follow the instructions on the screen. Remember to label the disks as you make them.

What’s next?

You’ve now finished setting up your Macintosh PowerBook. Continue with one of the following steps:

- If you are new to the Macintosh, turn to the next section, “Learning the Basics.”
- If you are an experienced Macintosh user, turn to Chapter 2, “Getting Help,” to learn about Macintosh Guide, your main source of information when you’re working with the Macintosh computer.
- If you have additional equipment to connect to your computer, see Chapter 4, “Connecting Additional Equipment,” for instructions. (If you are a new Macintosh user, you should complete “Learning the Basics” before connecting additional equipment.)
- If you have application programs that you want to install on your computer, see Chapter 5, “Installing and Using Application Programs,” for instructions. (If you are a new Macintosh user, you should complete “Learning the Basics” before installing application programs.)

IMPORTANT If you need to turn off your computer at any point, read the instructions in “Turning the Computer Off” later in this chapter to learn the correct procedure for turning off your Macintosh PowerBook computer.

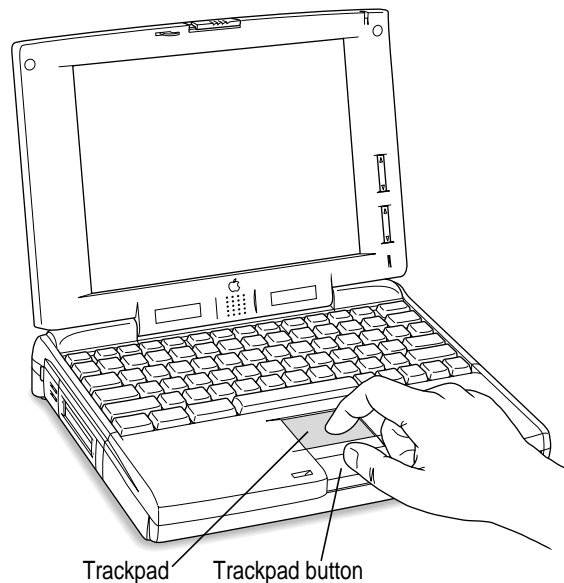
Learning the basics

If you are new to the Macintosh, you should begin by looking at the easy-to-use program called the Macintosh Tutorial. The tutorial teaches you the basic skills you'll need to use your computer. To start the tutorial, follow these steps:

1 Move your finger on the trackpad to move the arrow pointer (␣) on the screen.

Place your index finger on the trackpad and your thumb on the trackpad button. Don't press the trackpad button yet.

Move your finger across the trackpad, watching the arrow on the screen. Notice that the arrow on the screen moves in the same direction that you move your finger on the trackpad.



The trackpad is sensitive not only to the direction you move your finger, but also to how fast you move your finger. If you want the pointer to move a short distance across the screen, you move your finger slowly across the trackpad. The faster you move your finger, the farther the pointer moves on the screen.

Tips for using the trackpad

For best results when using the trackpad:

- Use your index finger (left or right hand). Use only one finger.
- Use only your finger on the trackpad. Do not use a pen or any other object.
- If your finger reaches the edge of the trackpad before the pointer is where you want it, lift your finger and reposition it on the trackpad. (The pointer moves only when your finger moves on the trackpad.)
- Extend your PowerBook's elevation feet when it is placed on a flat surface. This gives your fingers better access to the keyboard and makes it easier to use the trackpad.
- Sometimes humidity or condensation may cause moisture to gather on the trackpad. If this happens, gently wipe the trackpad with a clean cloth before you use it.

- 2 Move your finger on the trackpad so that the tip of the arrow (↖) points to the question mark in the upper-right portion of the screen.
- 3 With the tip of the arrow (↖) on the question mark, press and hold down the trackpad button.

A list of choices (called a *menu*) appears. This is the Guide menu, which is the place to go when you have a question about how to use your computer.



- 4 While holding down the trackpad button, move the arrow (↖) until the words "Macintosh Tutorial" are highlighted, then release the trackpad button.

A window appears welcoming you to the tutorial. You can set aside this book for now and follow the instructions you see on the screen. When you have completed the tutorial, return to this book.

Reviewing the basics

The following illustration summarizes many of the basic skills and terms you learned from the tutorial.

The strip across the top of the screen is called the **menu bar**. The symbols and words in it represent menus of commands.

Icons are small pictures that represent disks, folders, programs, and documents. To open an icon, double-click it (that is, click it twice quickly).

Windows are boxes that display text, graphics, or icons. To bring a partially covered window to the front, click anywhere in the window.

To move a window, drag it by the **title bar**.

To find an answer to a question, look in the **Guide (⌘) menu**.

You can have several application programs open at once. To see which program is active or to switch from one program to another, use this menu (called the **Application menu**).

This icon represents the **startup hard disk** (usually the computer's internal hard disk)

To change the size or shape of a window, drag the **size box**.

To throw away an item you no longer want, drag it to the **Trash** and choose Empty Trash from the Special menu.

To close a window, click the **close box**.

To bring hidden portions of a window's contents into view, click the **scroll arrows**.

The **Control Strip** gives you a quick and easy way to monitor and update your PowerBook's power management options. For instructions on using the Control Strip, see the "Batteries & Power" topic of Macintosh Guide, available in the Guide (⌘) menu.

Turning the computer off

You can turn your computer off using either the Power key or the Shut Down command. Detailed instructions follow.

Turning the computer off using the Power key

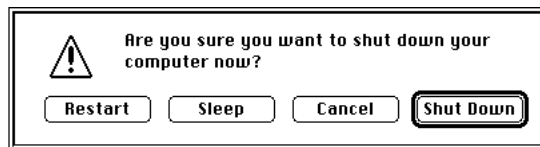
To turn the computer off with the Power key, follow these steps:

- 1 If the computer is in sleep, press any key on the keyboard (except Caps Lock) to wake it.

For information on the sleep feature of your Macintosh PowerBook, see “Putting the Computer to Sleep,” the next major section in this chapter.

- 2 Press and hold the Power key for about two seconds.

The following dialog box appears on the screen:



- 3 Press the Return key on the keyboard (or click the Shut Down button in the dialog box).

Turning the computer off using the Shut Down command

You can also turn your computer off by using the Shut Down command in the Special menu. Follow these steps:

- 1 If the computer is in sleep, press any key on the keyboard (except Caps Lock) to wake it.
- 2 Move the tip of the arrow to the word “Special” at the top center of the screen.



If the word “Special” does not appear at the top of the screen, you’re working in the wrong program. Choose Finder from the Application menu.

- 3 With the tip of the arrow on the word Special, press and hold down the trackpad button.

- 4 While holding down the trackpad button, move the arrow down the list of choices until the words “Shut Down” are highlighted, then release the button.



Trouble? If a problem with the computer prevents you from using the Power key or choosing Shut Down—for example, if the computer “freezes” so that the pointer does not respond to the trackpad—you can turn off the computer by pressing the reset button (marked with an ⓪) on the back of the computer. Use this method only if you cannot click Shut Down or Restart in the dialog box that appears when you press the Power key, or if you cannot choose either command from the Special menu.

Putting the computer to sleep

Sleep is a power conservation feature of Macintosh PowerBook computers, reducing the amount of power the computer draws when it's not being used. When the PowerBook is in sleep, it has a darkened screen and appears to be off. A small green light flashes on the top of the display when your computer is in sleep. (*Note:* The computer must be on in order for you to put it to sleep.)

To put the computer to sleep, follow these steps:

- 1 Press and hold the Power key for about two seconds.
- 2 In the dialog box that appears, click the Sleep button.

WARNING Once you put your computer to sleep, listen for the hard disk to stop spinning before you transport your Macintosh PowerBook. Transporting your Macintosh PowerBook with the hard disk spinning can damage your computer.

Other ways of putting your computer to sleep

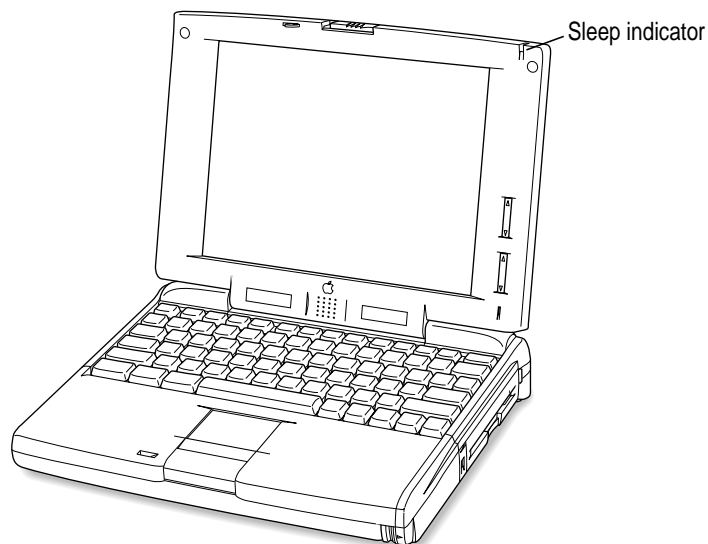
You can also use any of the following alternate methods to put your computer to sleep:

- Choose the Sleep command from the Special menu.



- Close the display.
- Move the pointer over the Sleep Now portion of the Control Strip, then press the mouse button and choose Sleep Now from the pop-up menu that appears.
- Hold down the Command and Shift keys while you press and release the zero (0) key.

When the computer is in sleep, a small green light flashes in the upper right-hand corner of the display.



For more information, see the “Batteries & Power” topic of Macintosh Guide, available in the Guide (⌘) menu. (You can learn about using Macintosh Guide in Chapter 2 of this manual.)

Automatic sleep

If you don't use the computer for several minutes, it goes to sleep automatically. This conserves battery power.

To wake the computer, press any key on the keyboard (except Caps Lock). The screen will reappear as it was before the computer went to sleep.

You can control the automatic sleep feature. For more information on automatic sleep, see the “Batteries & Power” topic of Macintosh Guide, available in the Guide (⌘) menu. (You can learn about using Macintosh Guide in Chapter 2 of this manual.)

Restarting a computer that's already on

You need to restart your computer—turn it off and back on again—when you want to make certain changes to settings, use a newly installed system software file, or start up the computer using a different disk.

You also need to restart if you see a “system error” message on the screen (indicating a temporary software problem). In this case, use the trackpad to click the Restart button that appears.

To restart your computer, follow these steps:

- 1 Press and hold the Power key for about two seconds.**
- 2 In the dialog box that appears, click the Restart button.**

You can also restart the computer using the Restart command.

- Choose Restart from the Special menu.



If the word “Special” does not appear at the top of the screen, you’re working in the wrong program. Choose Finder from the Application menu.

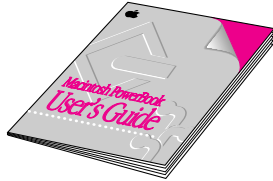
When you choose Restart, the computer prompts you to save your work, closes all open programs, and restarts itself.

Restarting using either of the methods outlined above does not affect your RAM disk (if you created one) or its contents.

Trouble? If a problem with the computer prevents you from using the Power key or choosing Restart—for example, if the computer “freezes” so that the pointer does not respond to the trackpad—you can turn off the computer by pressing the reset button (marked with an ⓪) on the back of the computer. Use this method only if you cannot click Shut Down or Restart in the dialog box that appears when you press the Power key, or if you cannot choose either command from the Special menu.

Where to find answers

When you have questions about using your Macintosh, there are several places you can look for answers.




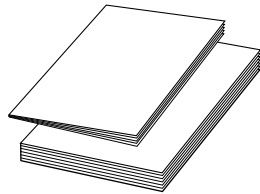
In this book

Use this book to set up and learn about your computer, and for useful tips and suggestions if you have problems with your computer.



In the Guide menu

The Guide menu (marked with the  symbol) is your main source of information about the Macintosh. To learn how to get different kinds of help from the Guide menu, refer to Chapter 2 of this book.



In other manuals

For answers to questions about other equipment or application programs you have purchased, see the manuals that came with them.



In Read Me files

The Read Me files that come on your computer's hard disk are SimpleText documents that contain important late-breaking information about your PowerBook and some of the software that comes on your PowerBook.



From Apple's customer support hotline

If you can't find an answer in any of the materials provided, call the Apple Assistance Center. (The phone number is in the service and support information that came with your computer.)

Use the instructions in this chapter to learn about the help available to you in the Guide menu.

2 Getting Help

The Guide menu is your main source of information when you're working with your computer. The menu is identified by a question mark (🔍) in the upper-right corner of the screen.



Getting answers to your questions

When you have a question while working with your computer, you can get the answer by choosing Macintosh Guide from the Guide menu.

- 1 Pull down the Application menu (in the upper-right corner of the screen) and choose Finder to make it the active application program.

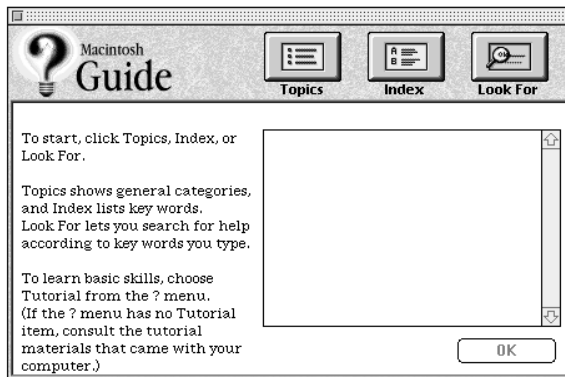


A checkmark in the menu indicates that the Finder is the active program.

- 2 Pull down the Guide menu (marked with the ? icon) and choose Macintosh Guide.



The Macintosh Guide window appears.



Whenever you use Macintosh Guide, its window remains in front of other windows. If the window gets in your way, you can move it by dragging its title bar (the gray bar across the top of the window).

- 3 Notice the three buttons at the top of the window: **Topics**, **Index**, and **Look For**.



Macintosh Guide gives you three ways of finding information:

- **Topics** lets you choose from a list of general subjects; it is like the table of contents in a book.
- **Index** lets you choose from an alphabetical list of more specific subjects; it is like the index in a book.
- **Look For** lets you search for information related to a specific word or phrase that you type.

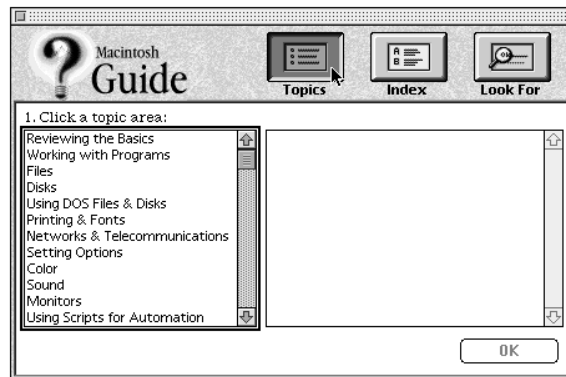
In the following sections you will practice using each method.

If you have problems while using Macintosh Guide, see “Tips for Using Macintosh Guide” later in this chapter.

Getting answers with the Topics button

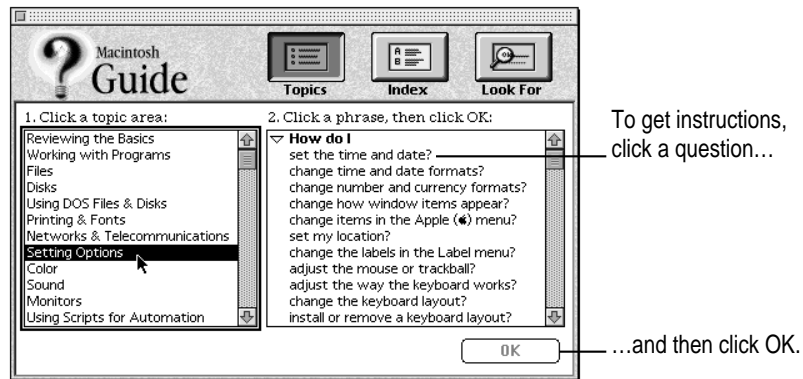
- 1 In the Macintosh Guide window, click the **Topics** button.

A list of general topics appears on the left side of the Macintosh Guide window. (Depending on the hardware and software you have, the list of topics may look different.)



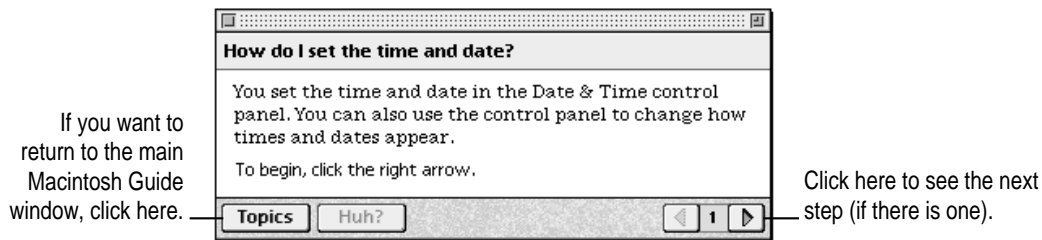
2 Click “Setting Options” in the list of topics.

When you click any topic area, a list of related questions appears on the right side of the Macintosh Guide window.



3 Click the question “How do I set the time and date?” and then click OK. Or double-click the question.

A small window appears with instructions for you to follow.



4 Read and follow the instructions in this window.

Macintosh Guide provides step-by-step instructions to answer the question you selected. When you have completed each step, click the right arrow in the lower-right corner to see the next step.

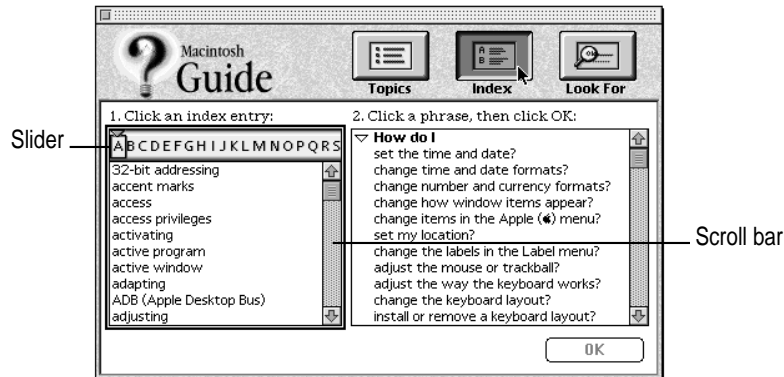
5 When you have completed all the steps, click the Topics button in the lower-left corner to return to the main Macintosh Guide window.

Now continue with the next section.

Getting answers with the Index button

- 1 In the Macintosh Guide window, click the Index button.

An alphabetical list of subjects appears on the left side of the window.

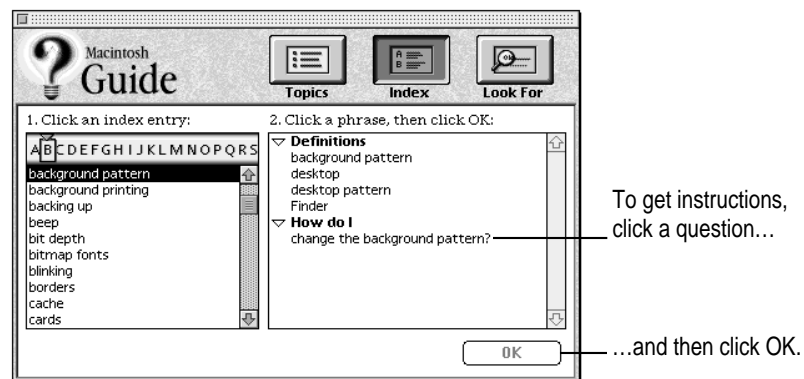


- 2 Scroll through the alphabetical list until the phrase “background pattern” is visible.

You can scroll through the list either by dragging the slider to the letter *B* or by using the scroll bar at the right of the list.

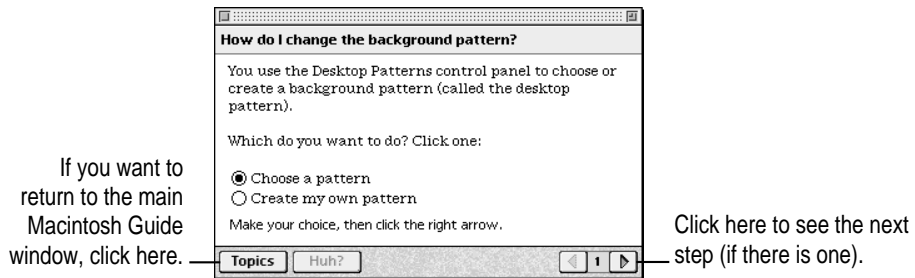
- 3 Click the phrase “background pattern” in the alphabetical list.

When you click any index entry, a list of related questions appears on the right side of the Macintosh Guide window.



- 4 Click the question “How do I change the background pattern?” and then click OK. Or double-click the question.

A small window appears with instructions for you to follow.



- 5 Read and follow the instructions in the window.

Macintosh Guide provides step-by-step instructions to answer the question you selected. When you have completed each step, click the right arrow in the lower-right corner to see the next step.

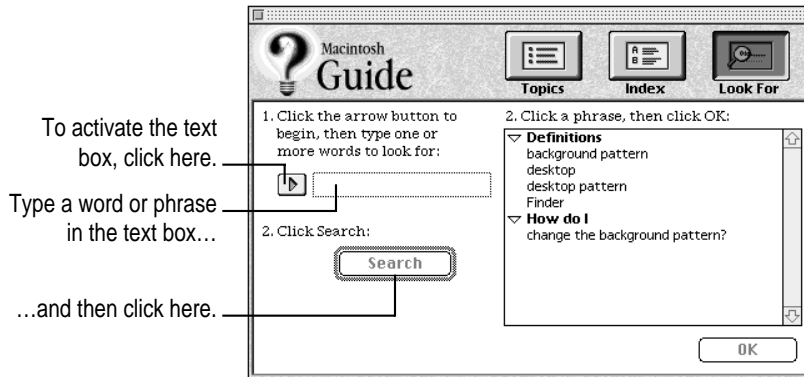
- 6 When you have completed all the steps, click the Topics button in the lower-left corner to return to the main Macintosh Guide window.

Now continue with the next section.

Getting answers with the Look For button

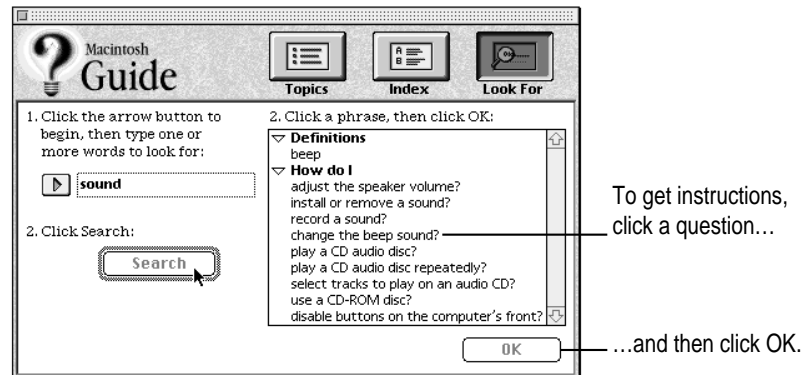
- 1 In the Macintosh Guide window, click the Look For button.

A small box appears on the left side of the window, where you can type text.



- 2 Click the arrow button to activate the text box.
- 3 Type "sound" in the text box and then click Search.

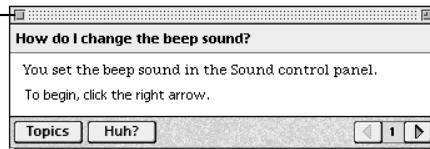
When you click Search, a list of questions related to the word or phrase you typed appears on the right side of the Macintosh Guide window.



- 4 Click the question “How do I change the beep sound?” and then click OK. Or double-click the question.

A small window appears with instructions for you to follow.

If you want to close
Macintosh Guide,
click here.



Click here to see the next
step (if there is one).

- 5 Read and follow the instructions in the window.

Macintosh Guide provides step-by-step instructions to answer the question you selected. When you have completed each step, click the right arrow in the lower-right corner to display the next step.

- 6 When you have completed all the steps, click the close box in the upper-left corner to close Macintosh Guide.

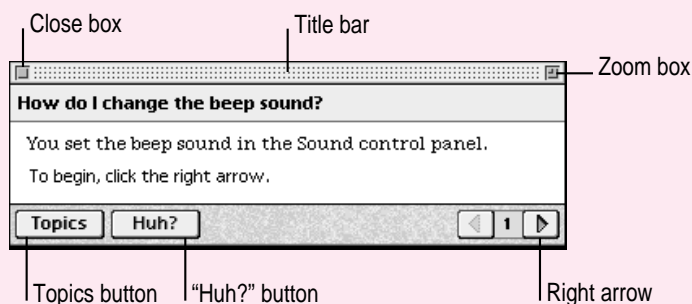
Tips for using Macintosh Guide

Here are a few tips for using Macintosh Guide effectively:

- Macintosh Guide is available only when you are in the Finder—the desktop area where you can see the icons of disks, folders, and files. (Other programs may also have help available in the Guide menu, however.) If you don't see Macintosh Guide in the Guide menu, pull down the Application menu (to the right of the Guide menu) and choose Finder.
- Follow the steps when you're instructed to; don't skip ahead or read ahead. That way the computer can check to make sure you've done a step correctly.
- Unlike most windows, the Macintosh Guide window stays in front of other windows on the screen so that your instructions are never covered. If you need to move the Guide window out of the way, drag it by the title bar at the top of the window.

You can also move the window out of the way by clicking the zoom box. Click the box once to shrink the window; click it a second time to expand the window to its original size.

- If you need more information about an instruction or a term, click the button labeled “Huh?” to get further explanation. (The “Huh?” button is dimmed when no additional information is available.)
- If you want to return to the main Macintosh Guide window, click the Topics button in the lower-left corner of the Guide window.
- When you're finished using Macintosh Guide, click the close box in the upper-left corner of the window.



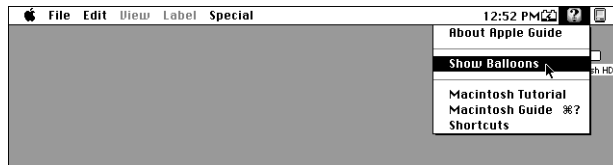
Identifying objects on the screen

Sometimes you'll see an unfamiliar item on the screen and ask yourself, "What's that?" You can get an answer by using a Macintosh feature known as Balloon Help.

Balloon Help explains the function of icons, menus, commands, and other items on the Macintosh screen in balloons like those you see in comic strips.

Follow these steps to use Balloon Help:

- 1 Pull down the Guide menu (marked with the  icon) and choose Show Balloons.**



- 2 Point to any object on the screen that you want to identify.**

A balloon appears next to the object. In the following illustration, for example, pointing to the Trash displays a balloon that explains how to use the Trash to throw items away.




Although balloons appear next to items when you point to them, the way you work does not change; you can still select icons, choose commands, and so on.

- 3 When you're finished using Balloon Help, choose Hide Balloons from the Guide menu.**

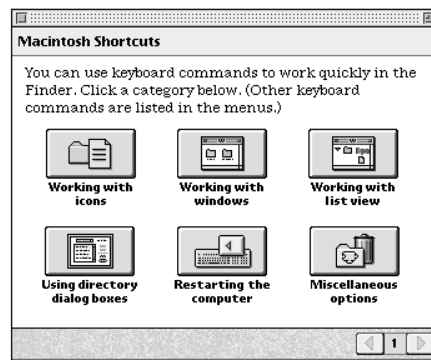
Learning useful shortcuts

You can perform many tasks in the Finder more quickly if you use keyboard or mouse shortcuts. For example, instead of clicking an icon and choosing Open from the File menu, you can simply double-click the icon to open it.

Follow these steps to learn keyboard and mouse shortcuts:

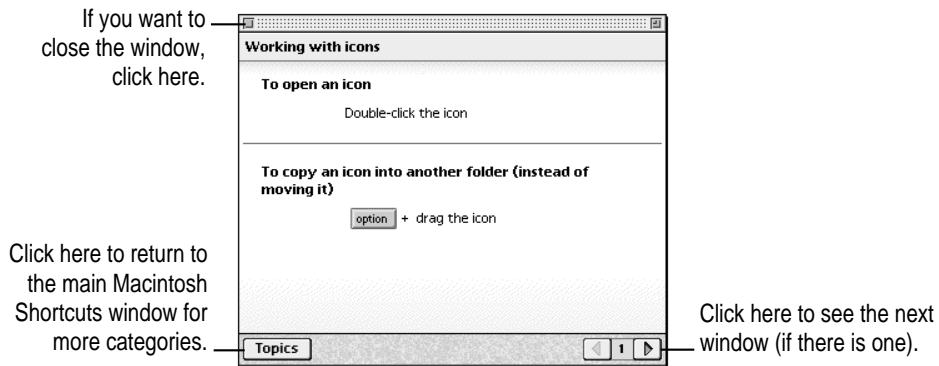
- 1 Pull down the Guide menu (marked with the ) and choose Shortcuts.

The main Macintosh Shortcuts window appears.



2 Click one of the category buttons.

Another window appears, describing shortcuts for that category.



3 Read about the shortcuts available for the category you selected.

Click the right arrow in the lower-right corner of the window to display the next window (if there is one).

4 When you finish reading about the shortcuts for your category, click the Topics button in the lower-left corner to return to the main Macintosh Shortcuts window. Or click the close box in the upper-left corner to close the window.

Read this chapter for information on
using expansion bay modules
and PC Cards.

3

Using Expansion Bay Modules and PC Cards



Using expansion bay modules

The floppy disk drive in your Macintosh PowerBook is a removable module, which you can easily switch with other types of removable modules. The place in your computer where modules go is called the *expansion bay*. All expansion bay modules are inserted and removed in the same way.

You should not remove an expansion bay module if there is a floppy disk (or other storage medium) inserted and in use or you may lose data. When the small green in-use light on the side of the module lights up, the floppy disk (or other medium) inserted in the module is in use. Before removing the module, you must first close any files and quit any programs using the floppy disk, then drag the disk to the Trash or choose Put Away from the File menu.

Removing an expansion bay module

To remove an expansion bay module from your Macintosh PowerBook, follow these steps:

- 1** Close any files and quit any application programs or files that are using the floppy disk (or other medium), if any is inserted.

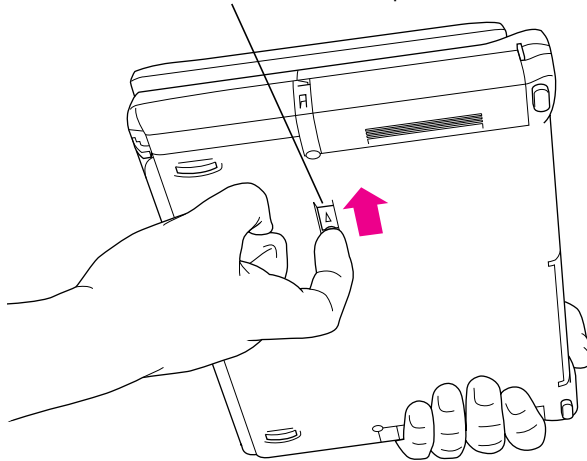
Remember to save your work.

- 2** If a floppy disk is inserted in the module, click its icon to select it and drag its icon to the Trash (or choose Put Away from the File menu).

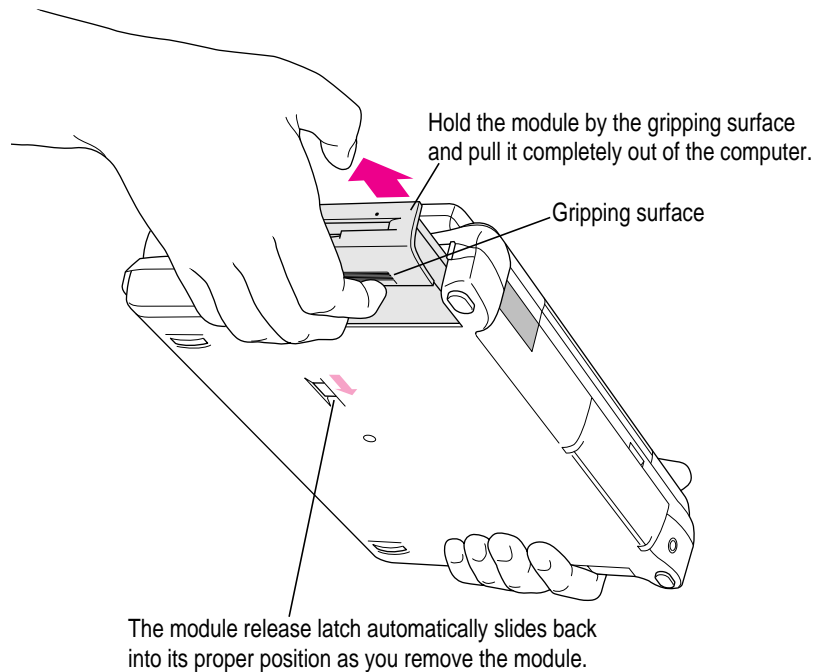
If you have any other kind of optional expansion bay module, make sure you drag the icon for whatever kind of medium is inserted to the Trash or choose Put Away from the File menu.

- 3** Unlock the expansion bay module by sliding the module release latch on the bottom of your Macintosh PowerBook in the direction of the arrow.

To unlock the module, slide the latch on the underside of the computer.



4 Hold the module by the gripping surface and pull it out of the computer.



IMPORTANT You should not remove an expansion bay module if it is in use or you may lose data. If you try to remove the module when it is in use, you'll see a message telling you to reinsert it. Reinsert the module, close any files and quit any programs using the floppy disk or other medium, then drag the medium's icon to the Trash or choose Put Away from the File menu.

If you put your computer to sleep while a floppy disk or other medium is inserted, the module's green in-use light will flash (similar to the sleep indicator light on your computer's display). Do not remove the module while the in-use light is flashing.

Inserting an expansion bay module

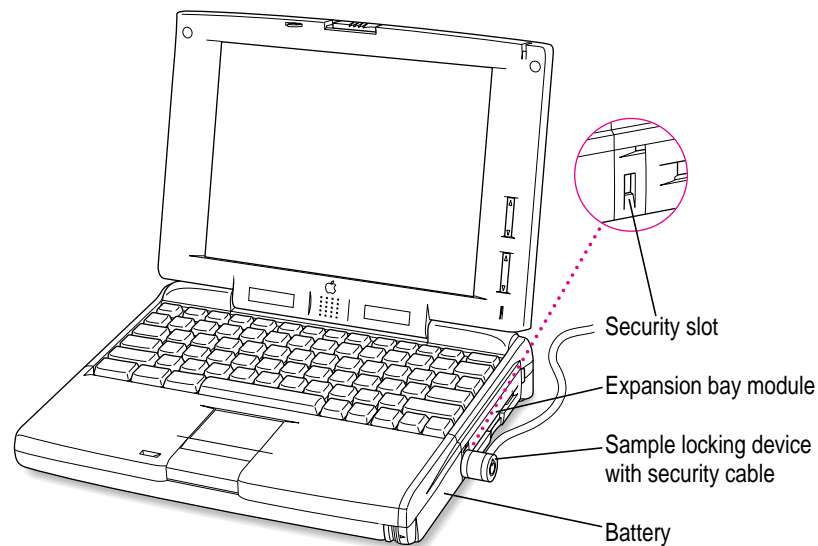
To reinsert the expansion bay module, slide the module in. Make sure the gripping surface is facing down. The release latch automatically returns to the locked position.

Locking an expansion bay module

You can purchase a security cable and lock to protect your Macintosh PowerBook. With a lock, you can do the following:

- secure your computer to a desk or table
- lock the expansion bay module in your computer
- lock the battery in your computer

See your Apple-authorized dealer or computer retailer for details on what kinds of security devices are available.



Note: You can protect the contents of your hard disk by turning on password protection in the Password Security control panel. For information on using the Password Security control panel, see the question “How do I turn password security on and off?” in the “Setting Options” topic area of Macintosh Guide, available in the Guide (🔍) menu.

Using PC Cards (PCMCIA cards)

PC Cards (also known as PCMCIA cards) are about the size of a thick credit card and have a 68-pin connector at one end. They come in many varieties, such as fax/modem cards, mass-storage cards, Ethernet connection cards, and wireless communications cards. You can use PC Cards to expand your Macintosh PowerBook's capabilities.

This section tells you how to insert and eject PC Cards, and how to set up your communications software to use PC Card modems. For information on using PC Cards, see the "Using PC Cards" topic of Macintosh Guide, available in the Guide (Ⓜ) menu.

Inserting a PC Card

Your Macintosh PowerBook has two PC Card slots: an upper slot and a lower slot. You can insert a card into either slot, or you can use both slots simultaneously.

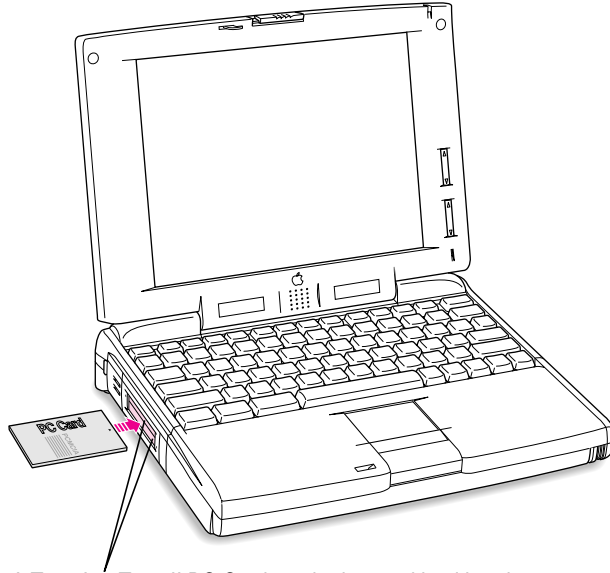
There are three types of PC Cards. The different types refer to the thickness of the card. A Type I card is 3.3 millimeters (mm) thick, a Type II card is 5 mm thick, and a Type III card is 10.5 mm thick. Make sure you check the documentation that came with your PC Card to verify that it is compatible with your Macintosh PowerBook.

WARNING Make sure you only use cards that are designated by the PC Card manufacturer as compatible with your Macintosh PowerBook. If you use an incompatible card, it may not work with your PowerBook. If you are not sure whether a PC Card is compatible with your PowerBook, contact the PC Card manufacturer.

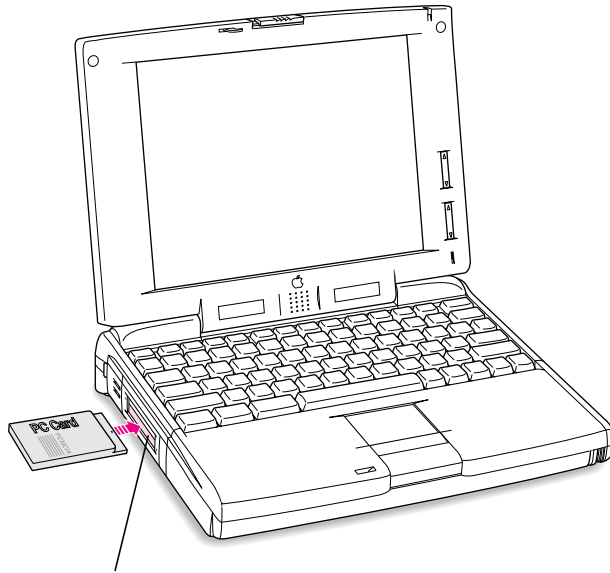
You can place a Type I or Type II card in either the upper or lower slot. You can place a Type III card only in the lower slot. When a Type III card is in the lower slot, you cannot use the upper slot. To make sure a card is properly inserted, you may find it useful to get in the habit of always using the lower slot.

To insert a card, do this:

- **Insert the card, connector first and label up, into the slot. Make sure the card is level.**



A Type I or Type II PC Card can be inserted in either the upper or lower slot.



A Type III PC Card must be inserted in the lower slot.

You'll feel some resistance as you slide the card in. When the card is firmly seated, you hear a click.

An icon for the PC Card appears on the desktop.

You are now ready to use the card.

Ejecting a PC Card

Your computer must be on or off in order to eject a PC Card. You cannot eject a PC Card when the computer is in sleep.

IMPORTANT Before you eject a card, make sure that nothing is blocking the card's slot. If you want to use the card again immediately, pull it out about an inch more and then push it back in. (If you don't follow this procedure and you try to push the card back in to use it again, the card will not engage properly.)

To eject a PC Card when the computer is on, follow these steps:

- 1** If the computer is in sleep, press any key on the keyboard (except Caps Lock) to wake it.
- 2** Click the PC Card's icon to select it.
- 3** Drag the card's icon to the Trash.
- 4** Pull the card the rest of the way out of the slot.

IMPORTANT Do not force a PC Card out of the slot. Doing so may damage your computer or PC Card.

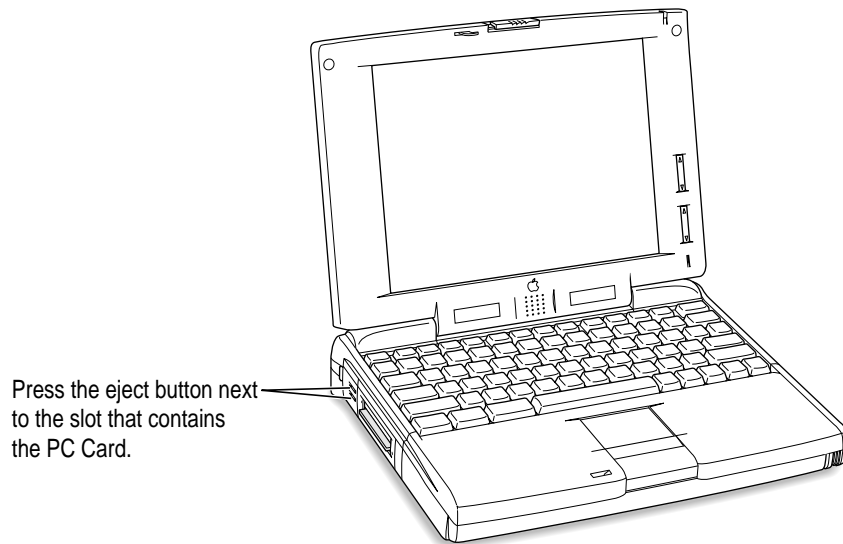
Other ways to eject a card

When the computer is turned on, you can also do any of the following:

- Click the card's icon to select it, then pull down the File menu and choose Put Away. After the card is ejected, pull it out of the slot.
- Click the card's icon to select it, then pull down the Special menu and choose Eject PC Card. After the card is ejected, pull it out of the slot.

To eject a PC Card when the computer is on or turned off, you can also do this:

- Press the eject button next to the slot containing the PC Card you want to eject. (The eject buttons do not work if your computer is in sleep.) If the card is not in use, it will be ejected.

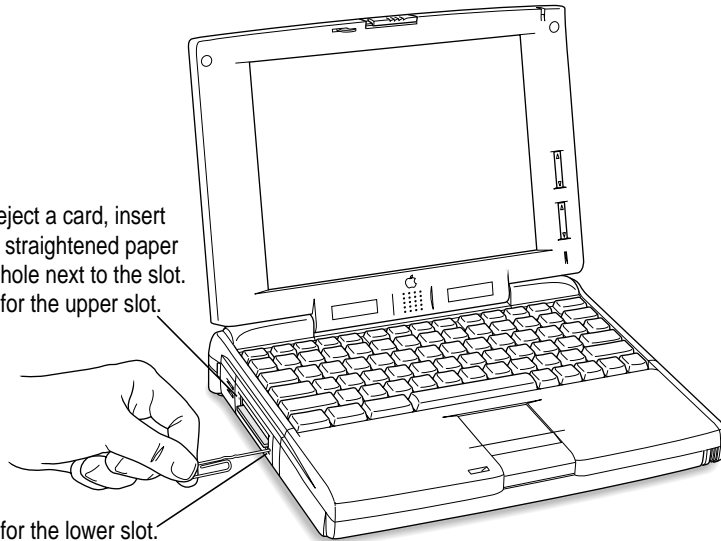


If you can't eject a card

If you are unable to eject a card using any of the methods described, follow these steps:

- 1 Shut down the computer.**
- 2 Straighten one end of a paper clip.**
- 3 Insert the end of the straightened paper clip into the hole next to the slot that contains the card, and press gently but firmly until the card is ejected.**

If you can't eject a card, insert the end of a straightened paper clip into the hole next to the slot. This hole is for the upper slot.



This hole is for the lower slot.

- 4 Pull the card out of the slot.**

Using a PC Card modem

When you are using a PC Card modem, make sure you do the following:

1 Install the communications software you want to use.

PC Card modems work with your communications software by accessing a feature of your Macintosh PowerBook's software called the Communications Toolbox. Your software must support the Communications Toolbox in order to use PC Card modems. If you're not sure whether or not your communications software supports the Communications Toolbox, contact the software's manufacturer.

See the documentation that came with your communications software for instructions on setting up a PC Card modem. Check to see if PC Card modem files for your software were included.

Modem files for some communications programs (AppleLink, Apple Remote Access [ARA], and eWorld) come on your Macintosh PowerBook's hard disk. The instructions for setting up your modem with these application programs are given in the sections below. You can get other modem files from the manufacturer of your communications software. You can use the steps given below for setting up eWorld, ARA, and AppleLink as guidelines for setting up your PC Card modem with other types of communications software if you are having trouble connecting.

2 Insert the PC Card modem.

When a PC Card modem is inserted, the following icon may appear on the desktop:



Some card manufacturers may use a custom icon.

3 Plug your modem into a working phone line.

4 Follow instructions for setting up your modem with the communications software you are using.

Using eWorld with a PC Card modem

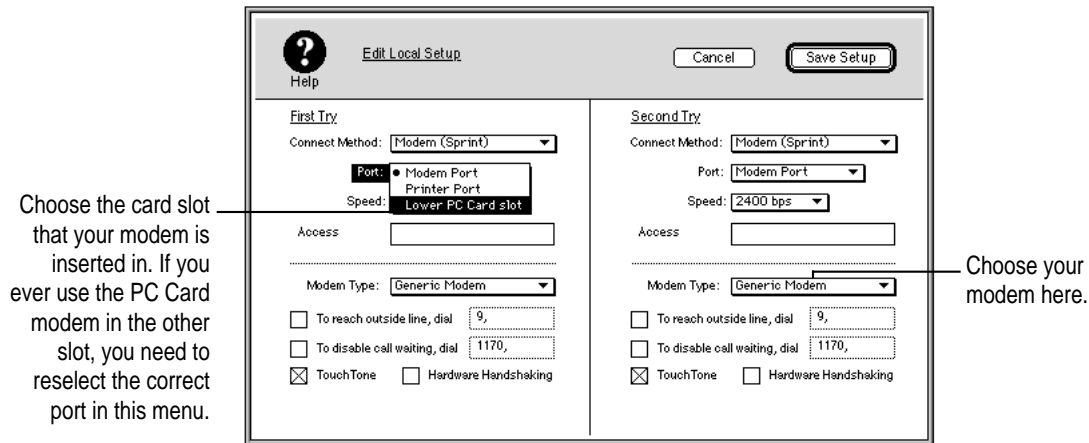
Follow these steps when using eWorld with a PC Card modem. You can also use these steps as a guideline for setting up other communications programs to use the Communications Toolbox.

Note: The files listed below were designed to work with the United States phone system. These files may or may not work properly outside of the United States.

To select the correct modem file for your PC Card modem, follow these steps:

- 1** Insert your PC Card modem.
- 2** Open the eWorld application program.
- 3** Click the Edit Local Setup button.
- 4** Select the port that your PC Card modem is in.

You should see either upper or lower PC Card slot listed. If you don't, make sure your modem is properly inserted.



- 5** Choose your modem from the Modem Type pop-up menu.

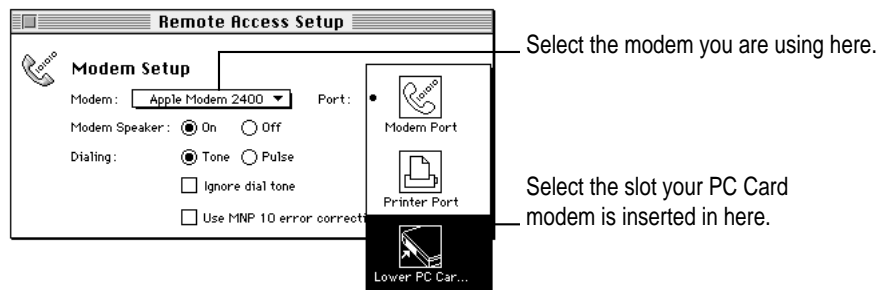
If your PC Card modem is not listed, try Generic Modem or Hayes Basic. If that doesn't work, you may need to create a new modem type. (See the eWorld Help topic "Creating a New Modem Type.")

Using Apple Remote Access with a PC Card modem

Apple Remote Access uses modem files (sometimes called connection scripts or CCLs) to get the best performance from some modems. Follow these steps to select your modem file:

- 1 Insert your PC Card modem.
- 2 Open the ARA application program.
- 3 Open Remote Access Setup.

The following screen appears:



- 4 Choose your modem from the Modem pop-up menu.

If your PC Card modem is not listed, check in the ARA Connection Files folder (inside the PC Card Modem Files folder in the Apple Extras folder on your hard disk). If the file for your modem appears, drag it to the Extensions folder (inside the System Folder). If the file for your modem is not listed, try using an existing modem file from the pop-up menu (such as a different model from the same manufacturer). If this doesn't help, you may need to get a connection script from your PC Card modem's manufacturer.

- 5 Choose the port that your PC Card modem is in.

You should see either upper or lower PC Card slot listed. If you don't, make sure your modem is properly inserted.

If you even insert the PC Card modem in the other slot, you need to reselect the modem port.

Using AppleLink with a PC Card modem

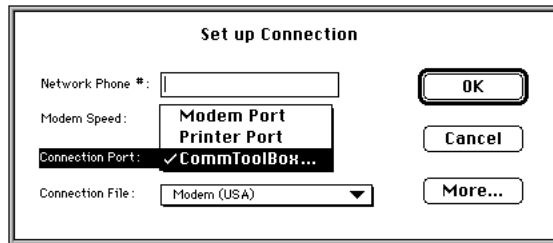
To use AppleLink with a PC Card modem, follow these steps:

- 1 Insert your PC Card modem.
- 2 Open the AppleLink Connection Files folder (inside the PC Card Modem Files folder in the Apple Extras folder on your hard disk).
- 3 Drag the icon for the PC Card Modem (USA) file to the Connection Files folder (inside the AppleLink folder).

If a dialog box appears advising you that older files with the same name already exist, click OK.

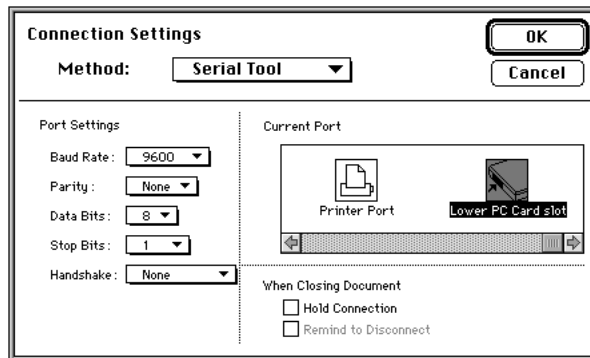
- 4 Open the AppleLink application program.
- 5 Choose Set Up Connection from the Network menu.

The following screen appears:



- 6 Choose CommToolbox from the Connection Port pop-up menu.

The following screen appears:



7 Choose Serial Tool from the Method pop-up menu.

8 Select the Upper Slot or Lower Slot icon in the Current Port window.

If your modem is not currently inserted, its icon will not be displayed in the window. You must always insert the modem in the same slot, or you'll need to set up the modem again for the other slot.

9 Choose PC Card Modem (USA) from the Connection File pop-up menu.

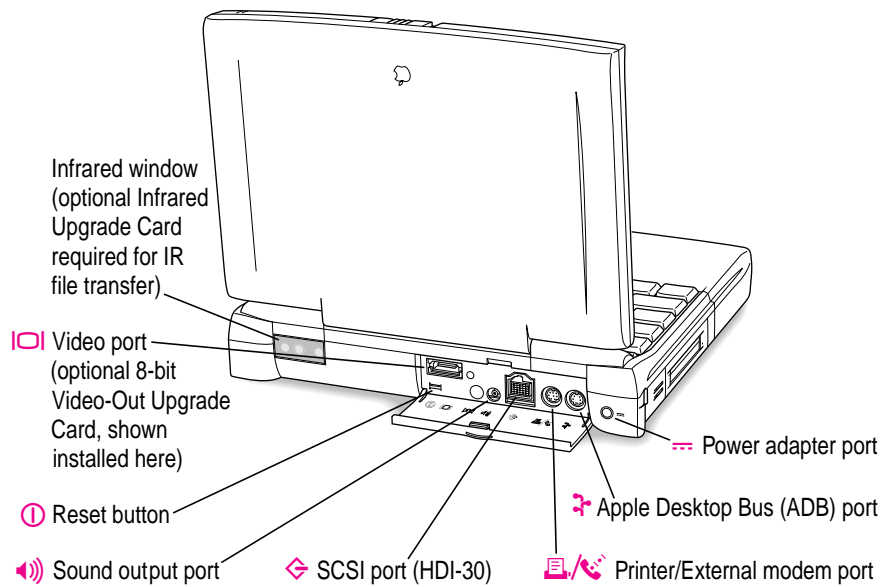


Read this chapter for information on expanding your computer system with additional hardware.

4

Connecting Additional Equipment

The illustration below shows where equipment should be connected to your Macintosh PowerBook. In most cases, you should refer to the manuals that came with your equipment for instructions on connecting it. Make sure you always shut down your Macintosh PowerBook before you connect any cable other than the power adapter.



Additional information is provided in this chapter for adding the following devices to your computer system:

- printers
- external modems
- SCSI devices
- external monitors
- sound output devices
- additional memory

Connecting a printer

The printer/modem port on your computer can accept either a direct connection (to a printer such as a StyleWriter) or a network connection (to a printer such as a LaserWriter).

To connect a printer directly to your Macintosh PowerBook using the printer/modem port, follow these steps:

- 1 Make sure the computer is in sleep or shut down.**
- 2 Connect your printer according to the manual that came with your printer.**

Also follow the instructions in your printer manual to install the printer software and learn how to use your printer.

- 3 Turn on your Macintosh PowerBook.**
- 4 Make sure AppleTalk is turned off in the Chooser.**

You are now ready to use the printer.

Connecting an external modem

You can use a PC Card modem in your computer's PC Card slot. For information on connecting and using a PC Card modem, see the documentation that came with your modem, "Using a PC Card Modem" in the section "Using PC Cards (PCMCIA Cards)" in Chapter 3 of this manual, and the "Using PC Cards" topic of Macintosh Guide, available in the Guide (🔍) menu.

You can also connect an external modem to the printer/modem port on the back panel of the computer.

To connect an external modem, follow these steps:

- 1 Make sure the computer is in sleep or shut down.**
- 2 Connect the modem to a power source and to the phone line.**
- 3 Make sure the modem is turned off.**
- 4 Connect the modem cable to the port marked with this icon:**



- 5 Turn on the modem.**
- 6 Wake or restart the computer.**
- 7 Open the Chooser and click the icon for a networked printer (such as a LaserWriter).**

Follow this step whether or not a networked printer is connected to your PowerBook.

- 8 Click OK in the dialog box that appears.**
- 9 Make sure AppleTalk is turned off in the Chooser.**

You are now ready to use the external modem.

Connecting SCSI devices

A SCSI device is any product—including hard disk drives, CD-ROM drives, and scanners—that communicates with your computer by means of a standard electronic interface. (SCSI stands for Small Computer System Interface.) You can attach up to 6 SCSI devices to your computer by linking them together in a chain that starts at your computer's SCSI port.

To connect a SCSI device to your Macintosh PowerBook, you need an Apple HDI-30 SCSI System Cable or equivalent. This cable is light gray (the same color as desktop Macintosh computers), is about 19 inches long, and has 29 pins (one “missing” pin).

Refer to the manuals that came with your SCSI devices for instructions on installing any necessary software, setting SCSI ID numbers, and connecting SCSI cables and SCSI terminators. Refer to the illustrations below for the proper positioning of SCSI terminators. A SCSI chain of devices must include a terminator attached to the first and last devices in the chain (but nowhere else in the chain). Some devices include internal terminators. Your Macintosh PowerBook is not internally terminated.

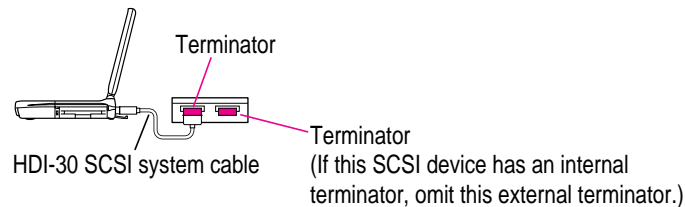
The names and the part numbers of the cables mentioned in this chapter are the following:

Type of connection	Name of cable	Part number
From your computer to a SCSI device	Apple HDI-30 SCSI System Cable	M2538LL/A
From SCSI device to a SCSI device	Apple SCSI Peripheral Interface Cable	M0207
For SCSI disk mode	Apple HDI-30 SCSI Disk Adapter Cable	M2539LL/A
To connect an external monitor	PowerBook Video Adapter Cable	M3927LL/A

WARNING When connecting SCSI equipment, *always* turn off power to all devices in the chain, including your computer. If you don't, you could lose information and damage your equipment.

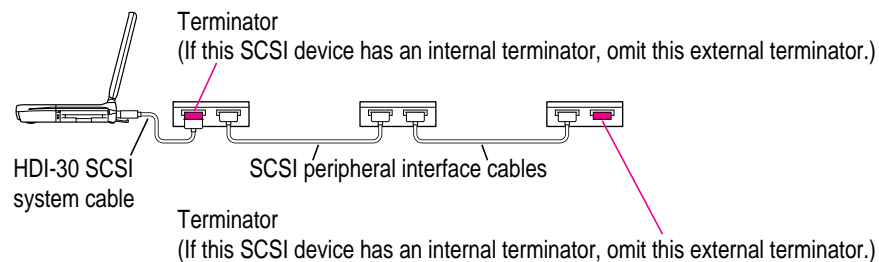
Where to add cable terminators when connecting a single SCSI device:

Connecting one SCSI device



Where to add cable terminators when connecting two or more SCSI devices:

Connecting more than one SCSI device



Using your Macintosh PowerBook as a hard disk

You can purchase a cable called the Apple HDI-30 SCSI Disk Adapter which lets you connect your Macintosh PowerBook to another computer as a hard disk. The PowerBook appears on the desktop of the other computer as a hard disk icon, and you can transfer information between the computers by dragging files. This feature is called *SCSI disk mode*.

The Apple HDI-30 SCSI Disk Adapter cable is dark gray, is about 10 inches long, and has 30 pins.

WARNING Follow the steps for connecting and disconnecting SCSI devices carefully to avoid loss of information and damage to your equipment.

Connecting your computer as a hard disk

Before making any connections, you need to assign a unique SCSI ID number to the PowerBook. (The unique ID number allows the computer to communicate with several connected devices.)

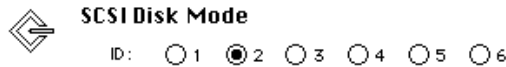
- 1 Make sure the password protection feature is turned off in the Password Security control panel.
- 2 Choose Control Panels from the Apple (🍏) menu of your Macintosh PowerBook computer.
- 3 Open the PowerBook Setup control panel.



PowerBook Setup

- 4 In the SCSI disk mode section of the control panel, click the ID number you want to assign.

If you are connecting the Macintosh PowerBook to an existing SCSI chain, make sure to give it an ID number different from those of the other devices. (Many devices include an ID number indicator on the back panel.)



- 5 Close the PowerBook Setup control panel.
- 6 Hold down the Power (⏻) key on the PowerBook until you see the Shut Down dialog box.
- 7 Click Shut Down to turn the PowerBook off.
- 8 Shut down the computer you are connecting to, and turn off any other devices in the SCSI chain.
- 9 Connect the small connector on the Apple HDI-30 SCSI Disk Adapter to the SCSI port on your PowerBook.

- 10 If there are no SCSI devices currently connected to the other computer, attach a SCSI system cable to the other computer. Make sure you have a terminator connected to your PowerBook. If there are SCSI devices currently connected to the other computer, attach a SCSI peripheral interface cable to the last device in the SCSI chain.
- 11 Connect the large connector on the Apple HDI-30 SCSI Disk Adapter cable to a SCSI cable attached to the SCSI port on the last device in the SCSI chain, or to the SCSI system cable on the other computer.

If the last device in the chain has an internal terminator, disconnect the device and connect the PowerBook before it in the SCSI chain. If the last device is not internally terminated, make sure you connect a terminator to your PowerBook (or whichever device is last in the SCSI chain).

WARNING Always shut down the Macintosh PowerBook before connecting or disconnecting the SCSI disk adapter cable. Connecting the adapter cable while the computer is turned on can damage the computer.

- 12 Turn on the PowerBook by pressing the Power key.

After a few seconds a SCSI icon appears on the screen, showing the ID number you assigned in step 3.



WARNING If you do not see the SCSI icon, and the computer starts normally or displays an error message, press the Power key to shut down the computer (if you can) and then immediately disconnect your computer from the SCSI chain. (If you cannot shut down your Macintosh PowerBook, you should disconnect the cable anyway, or you may lose information.) Then go back and repeat steps 8 through 12, making sure to use the proper cables.

13 Turn on the other SCSI devices in the chain, if any.

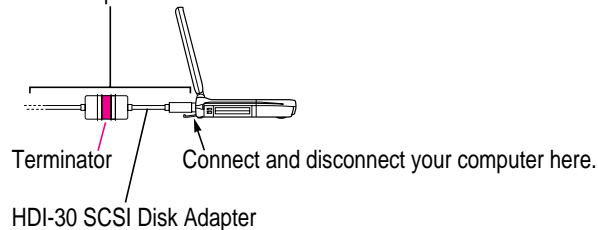
14 Turn on the other computer.

The PowerBook appears as a hard disk icon on the screen of the computer you connected it to. You can now transfer and use files as if the Macintosh PowerBook were an external hard disk.

Simplifying the connection process

If you plan to use your Macintosh PowerBook regularly as a hard disk with the same computer, you can leave the SCSI adapter cable attached to the other computer or its SCSI chain. (Make sure a terminator is attached between the other SCSI cables and the adapter.) When you want to use your PowerBook as a hard disk, simply shut down all devices and connect the adapter cable to the SCSI port on your PowerBook.

These cables can stay attached to your other computer or its SCSI chain.



WARNING Always disconnect your Macintosh PowerBook from the adapter cable when you are not using it as a hard disk. Your PowerBook will not work correctly if the adapter cable remains attached.

Quitting SCSI disk mode

- 1 Shut down the computer your PowerBook is connected to.
- 2 Hold down the Power (<) key on the PowerBook until the computer shuts down.
- 3 Turn off any other SCSI devices in the chain.
- 4 Disconnect the PowerBook from the adapter cable.

If you plan to connect your PowerBook regularly to the same computer, you can leave the adapter cable attached to the SCSI chain or the other computer.

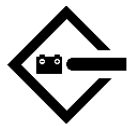
IMPORTANT Do not leave the adapter cable attached to the PowerBook. If you do, the computer will behave as though it is still in SCSI disk mode when you try to restart.

- 5 If necessary, disconnect the adapter cable from the other computer or its SCSI chain.

Your equipment is now ready for normal use. If you disconnected the adapter cable from the other computer or SCSI chain, make sure that the SCSI chain is properly terminated.

Drawing battery power in SCSI disk mode

Your Macintosh PowerBook continues to draw battery power when you use it as a hard disk. Low battery power is indicated by a blinking low-power warning on the PowerBook's screen.



If you see this warning while using your computer as a hard disk, either plug in the power adapter or quit SCSI disk mode, as described in the previous section.

Connecting an external monitor

IMPORTANT You must install a video-out upgrade card to use an external monitor with your Macintosh PowerBook. Contact your Apple-authorized dealer to purchase the Macintosh PowerBook 8-Bit Color Video-Out Upgrade Kit (which includes a PowerBook video adapter cable), and for information on which monitors are compatible with your PowerBook.

When equipped with a video-out upgrade card, your PowerBook has a video port to which you can connect most Apple monitors. To connect an external monitor, you need the PowerBook video adapter cable (which comes with the video-out upgrade card).

In addition to many Apple monitors, your PowerBook supports most VGA and SVGA monitors. To connect a VGA or SVGA monitor, you need an additional adapter, which should come from the same source as the monitor.

Once you have installed the video-out upgrade card, an external monitor connected to your computer can function as an extension of your PowerBook's built-in screen—that is, you can drag objects from one screen to another and do your work on either one. Or you can show the same image on both screens (a feature called *video mirroring*).

To connect an external monitor, follow these steps. Also consult the documentation that came with the monitor.

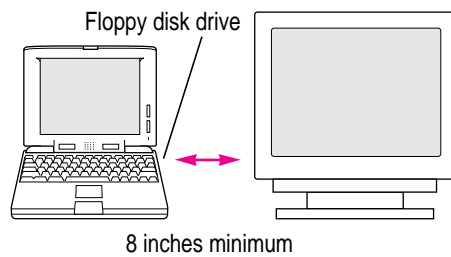
1 **Make sure your computer is shut down or in sleep.**

If you connect a monitor with your computer turned on, the computer will not recognize the monitor.



2 Place the monitor where you will be using it.

Keep the computer and the monitor at least eight inches apart. Interference between the monitor and your computer's floppy disk drive can cause errors on your floppy disks.



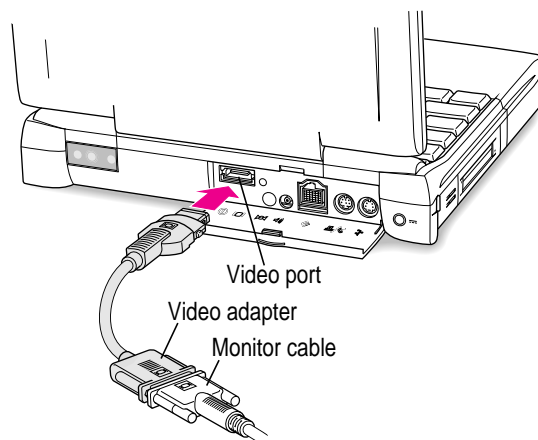
Arrange the monitor so the top of the screen is slightly below eye level while you work. Position the monitor to minimize glare and reflections on the screen from lights and windows.



3 Make sure the monitor's power cord is attached to the monitor, then plug the other end into a grounded outlet or power strip.

If your monitor's power cord is designed to plug into the power receptacle on the back of a computer, rather than into an electrical outlet, you can obtain a cord with the correct plug from your Apple-authorized dealer.

If you are using a power strip, make sure it is turned on.

4 Make sure the monitor cable is attached to the monitor, then attach the other end of the monitor cable to the PowerBook's video adapter.




- 5 Attach the video adapter to the video port (marked with the icon ) on the computer's back panel.
- 6 Turn on the external monitor.
- 7 Press the Power () key to turn on your computer. (You can press any key if your PowerBook is in sleep.)

The external monitor is ready to use.

Trouble?

- **Nothing happened when you tried to turn on the PowerBook.**

Make sure that all your equipment is connected properly, then try pressing the Power () key again.


Make sure that the battery is charged, or that the power adapter is plugged into both the computer and an electrical outlet. If you are using a power strip, make sure it is turned on.


- **The computer is on, but the external monitor is dark.**

Make sure that the video-out upgrade card has been properly installed in your PowerBook. You need to install this card to use an external monitor with your PowerBook.


Make sure that the monitor's power cord is connected, and that its power switch is on. Try adjusting the monitor's brightness and contrast settings. If this doesn't work, try restarting your computer.

Working with an external monitor

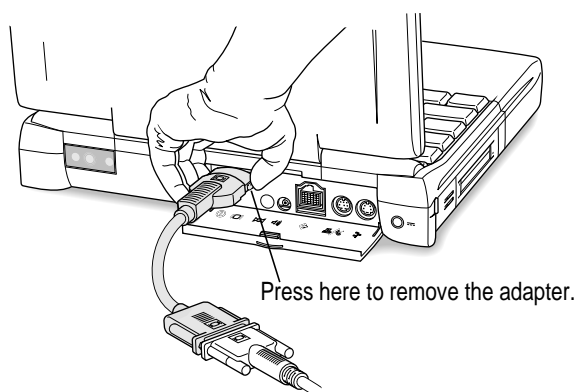
For information on using an external monitor or using video mirroring for presentations, see the "Monitors" topic of Macintosh Guide, available in the Guide () menu.

Note: The screen dimming feature in the PowerBook control panel turns the screen brightness down to a low level when you haven't used the computer for a few minutes. (You can think of dimming as "screen sleep.") Dimming also affects the external monitor. When you move your finger on the trackpad or press a key on the keyboard, the brightness is restored on both screens. For more information on screen dimming, see the "Batteries & Power" topic of Macintosh Guide, available in the Guide () menu.

Disconnecting an external monitor

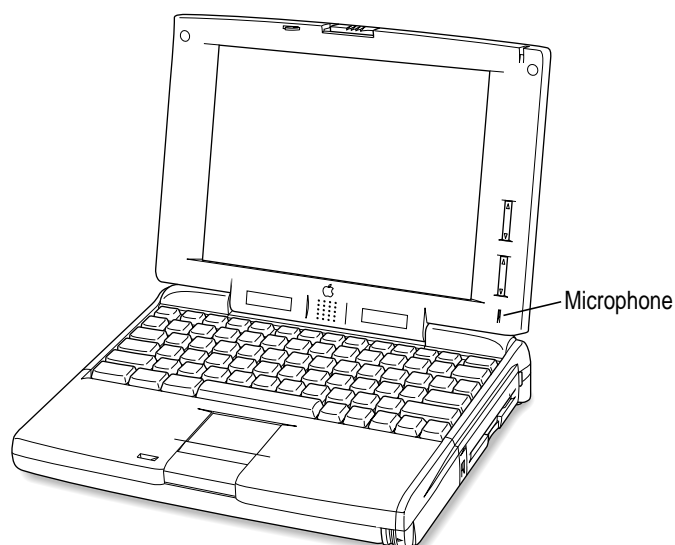
- 1 Make sure your computer is shut down or in sleep.
- 2 Make sure your monitor is switched off.
- 3 Disconnect the video adapter from the video port on the computer's back panel. The video port is marked with this icon: .

Press the small buttons on both sides of the connector to remove the video adapter from the port.



Connecting sound output devices

Your computer has a built-in microphone to the lower right of the display. For information on using the microphone to record sounds, see the “Sound” topic of Macintosh Guide, available in the Guide (🔍) menu.



The Macintosh PowerBook also has a stereo sound output port (marked with the icon 🎧)) to which you can connect externally powered speakers, an amplifier, headphones, or other audio output devices. The sound output port accepts a standard stereo miniplug, like that used to attach headphones to a portable tape player.

Connecting other devices

For instructions on connecting a device not discussed in this chapter—for example, an external input device (such as a mouse) or networking hardware—refer to the manuals that came with the device.

Adding infrared (IR) capabilities to your computer

Your Macintosh PowerBook comes ready to install a PowerBook Infrared Upgrade Card. When you add this card to your PowerBook, you can use the Apple IR File Exchange application program (which comes on your hard disk) to exchange items with another IR-equipped computer without needing a cable connection. See your Apple-authorized dealer for further information.

Adding memory to your computer

Your Macintosh PowerBook comes with at least 4 MB of RAM. You can increase your computer's memory by adding a RAM expansion card. You can find out how much memory your computer has by choosing About This Macintosh from the Apple () menu in the Finder.

You can purchase memory upgrades from Apple-authorized dealers. For complete instructions on installing a RAM expansion card, see Appendix C.

Your Macintosh PowerBook also supports virtual memory, a feature that makes use of hard disk space to provide additional RAM. Your computer was developed to take advantage of the virtual memory feature. If your computer came with 4 MB of RAM, virtual memory is turned on; if it came with 8 MB of RAM, virtual memory is turned off. For information on using virtual memory, see the "Memory" topic of Macintosh Guide, available in the Guide (🔍) menu.

Read this chapter for information on installing and using application programs on your computer.

5

Installing and Using Application Programs



Using Software Highlights

Your Macintosh PowerBook comes with some great software already installed that includes such programs and features as:

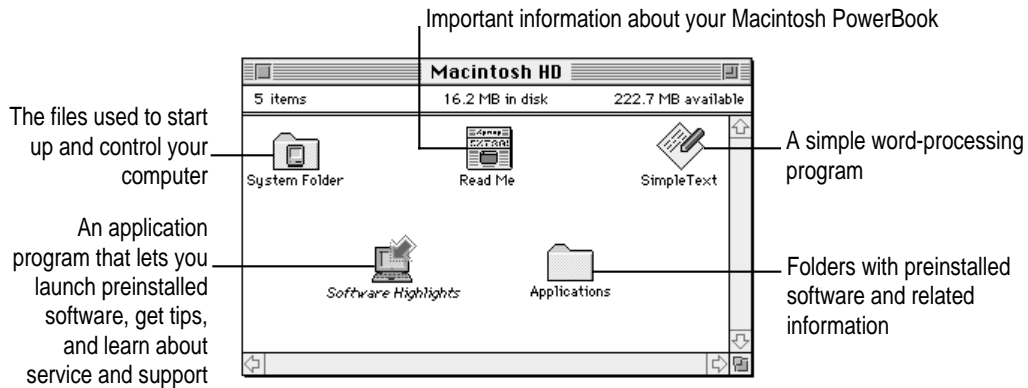
- ClarisWorks
- hard drive password protection
- file synchronization
- DOS and Windows file compatibility
- remote access to another Macintosh
- an assortment of games

You can access this software from a feature called Software Highlights. Software Highlights gives you access to application programs, product demos, quick tips, important information in Read Me files, and service and support information.

To get started with your software, follow these steps:

1 Open the Macintosh HD icon.

A window similar to this appears.



2 Double-click the Software Highlights icon.

There are six topic buttons at the top of the window. When you click a button, the window displays items or information associated with that topic.

IMPORTANT If you delete the Software Highlights icon, you have not deleted your preinstalled software. (Most of the software is in the Applications folder on your computer's hard disk.)

If you don't see a Software Highlights icon, you can access the information in Software Highlights by following these steps:

1 Choose Control Panels from the Apple () menu.

2 Open the Launcher control panel.

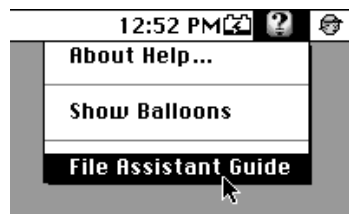
The same window you see when you open Software Highlights appears on your screen.

See the "Working With Programs" topic area of Macintosh Guide, available in the Guide (⌘) menu, for instructions on using the Launcher.

Getting help for application programs

Some application programs that come on your Macintosh PowerBook (for instance, PowerTalk and File Assistant) are documented in their own Apple Guide online help systems. Follow these steps to see if a program has an Apple Guide help system:

- 1 **Open the application program.**
- 2 **Pull down the Guide (?) menu.**



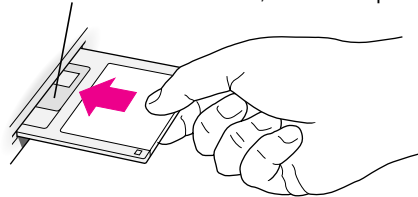
If an item appears in the Guide menu for your application program, choose it. If an item does not appear, then there is no Apple Guide online help for that program.

Installing application programs

You'll probably want to buy and install additional application programs. Refer to the manuals you receive with your programs for instructions on installing and using them.

In most cases, you install application programs onto your internal hard disk from floppy disks that you receive as part of an application program package. The following illustration shows how to insert a floppy disk in the floppy disk drive.

Insert the disk metal end first, label side up.



Working with several programs at a time

You can open as many application programs and desk accessories as your computer's memory allows.

All open programs are listed in the Application menu at the right end of the menu bar. The name of the active program (the one you're using right now) has a checkmark next to it, and its icon appears in the menu bar.



Finding out which programs are open

If you have several programs and windows open, you can find out which program is active and which other programs are open by pulling down the Application menu.

Switching programs

You can switch to another open program or desk accessory by choosing its name from the Application menu.

If a program's icon is dimmed in the menu, that means its windows are hidden. Choosing the program from the Application menu displays its windows.

You can also switch to another program by clicking in a window that belongs to an open program, or by double-clicking a program icon (or the icon of a document that was created with the program).

Hiding and showing windows on the desktop

You can hide all windows except those of the active program by choosing Hide Others from the Application menu.

The other programs remain open even though their windows are hidden. When you switch to another program, its windows become visible again.

If you want to see all the open windows, choose Show All from the Application menu.

Backing up your files

Making backup copies of important files is good protection against possible damage to the originals.

- Your hard disk contains disk images of system software and most application programs that came with your computer. You can make disks from these images by using the FloppyMaker application program. See “Making Software Disks” in Chapter 1 for instructions.
- You can back up an entire floppy disk by copying it to another floppy disk, or to a hard disk.
- You can use a commercial backup program to copy new and changed files from a hard disk to another hard disk, to a tape drive, or to a series of floppy disks.
- If your computer is on a network, you can back up files by copying them to a shared disk on the network.
- You can back up files by copying them from one computer to the other using SCSI disk mode. (See “Using Your Macintosh PowerBook as a Hard Disk” in Chapter 4 for more information on SCSI disk mode.)

Read this chapter for information about your Macintosh PowerBook's battery.

6

Power Management



Power sources

Your computer can draw its operating power from two different sources.

- **Main battery** Your computer came with a nickel-metal-hydride (NiMH) battery. The battery should provide between 2.5 and 5 hours of work time (you may get longer work time depending on the battery conservation features you choose).
- **AC power** You can run your computer from a grounded electrical outlet by plugging in the power adapter.

These power sources are described in more detail in the following sections.

Monitoring the battery charge

There are three ways you can determine the charge level of your battery:

- Look in the Battery Monitor portion of the Control Strip.
For information on the Battery Monitor, see the “Batteries & Power” topic of Macintosh Guide, available in the Guide (🔍) menu.
- Receive low-power messages on your display.
- Look at the battery level icon next to the clock in the menu bar (if this feature is turned on).

Responding to low-power messages

When the battery runs low, the computer displays a series of low-power messages. The work time remaining after you see the first message varies depending on how you are using the computer. It's a good idea to act promptly.

What you should do

When you see a low-power message, you should do one of the following:

- **Plug in the power adapter.**

or

- **Save your work, put the computer to sleep, remove the depleted battery, and replace it with a charged battery within two minutes of removing the depleted one.**

IMPORTANT Always save your work when you see a low-power message.

What you should know

When the first low-power message appears, the screen dims automatically to save power.

If you continue to work without plugging in the power adapter or changing the battery, the computer displays a second low-power message.

The second message is followed by a third and final message indicating that the computer is about to put itself to sleep. Within a few seconds, the computer goes to sleep automatically to protect the contents of RAM. All activities are interrupted. It's a good idea to save your work when you see the first two low-power messages to make sure you don't lose information.

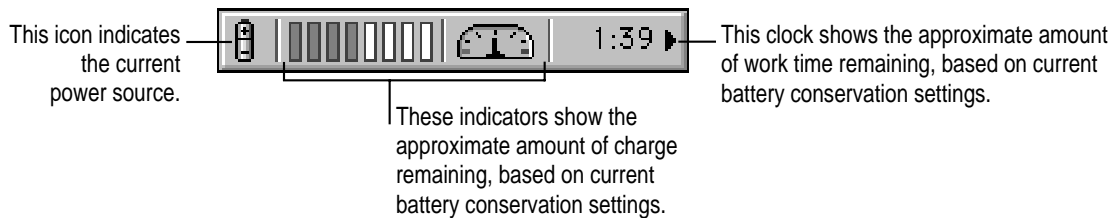
If you continue working until the computer goes to sleep automatically, you can wake it again as soon as you plug in the power adapter or replace the depleted battery with a charged battery.

If you can't plug in the power adapter or replace the battery, the contents of RAM are retained in sleep for about 8 hours (as long as you don't remove the battery).

IMPORTANT Recharge a depleted battery as soon as possible. Leaving a depleted battery in the computer for a length of time (especially in a hot location, such as the trunk of a car) may damage the battery so that it can't be recharged. If this happens, you need to replace the battery.

Using the Control Strip to monitor battery charge


The Battery Monitor portion of the Control Strip shows the current power source and the approximate amount of charge left in your battery.




For more information, see the question “How do I check the battery power level?” in the “Batteries & Power” topic area of Macintosh Guide, available in the Guide (⌘) menu.

Using the battery icon to monitor battery charge

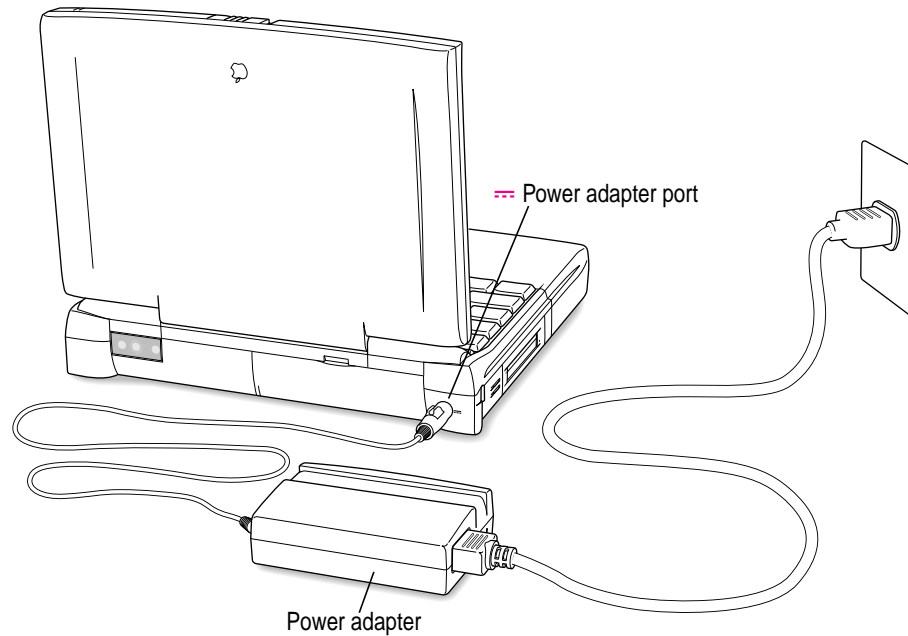
A battery icon in the menu bar displays the amount of charge left in your battery.

 The amount of black in the icon indicates the charge level.

 When a lightning bolt appears in the icon, the battery is charging.

Recharging the battery

To recharge the battery in your computer, plug in the power adapter. (Do not use an external recharger, even one designed for another Macintosh PowerBook model. Macintosh PowerBook 190 series batteries should be charged inside the computer.)



WARNING Use only the power adapter that came with your computer. Adapters for other electronic devices (including other portable computers) may look similar, but they may damage your computer.

A lightning bolt icon appears in the Battery Monitor portion of the Control Strip when the power adapter is plugged in and a battery is recharging.

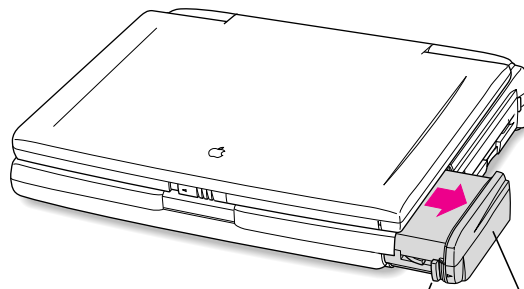


The battery will recharge regardless of whether you are using the computer, or the computer is off or in sleep.

Removing or replacing the battery

To remove or replace the battery, follow these steps.

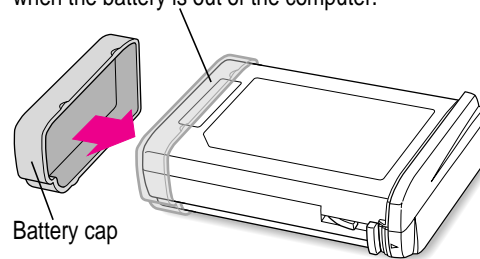
- 1 Save your work, and then choose Shut Down or Sleep from the Special menu, or plug in the power adapter.**
- 2 Close the display.**
- 3 Press the battery release button on the battery.**



1 Press the button on the battery. 2 Slide the battery out.

- 4 Pull the battery out of its compartment.**
- 5 Put the battery cap on the battery to cover the battery contacts.**

Always snap the battery cap on the battery when the battery is out of the computer.



The battery contacts should not be exposed when the battery is out of the computer.

- 6** If you are inserting another battery, remove the battery cap from the new battery to expose the contacts, then slide it into the battery compartment.

You cannot insert a battery if the battery cap is still on the battery. You should store the battery cap in case you want to remove and transport the battery later.

Make sure you use only a battery that is designed for your Macintosh PowerBook.

- 7** If you just inserted a new battery, it's a good idea to plug in the power adapter in case the battery is not fully charged.

IMPORTANT Macintosh PowerBook batteries contain metals that are hazardous when released in the environment. It is inappropriate, and in some cases unlawful, to throw batteries away with your household or business trash. Instead of throwing away your spent batteries, dispose of them as described here.

- **In the United States** Return spent batteries to your Apple-authorized service provider, who will make sure they are included in Apple's battery recycling program.
- **Elsewhere** Many locations have government or Apple-sponsored collection and/or recycling programs for spent batteries. Dispose of spent batteries in accordance with the mandatory or voluntary battery collection programs in your location. Contact your Apple-authorized service provider for information about the recommended disposal procedures in your area.

Maximizing work time

Your Macintosh PowerBook's battery can provide between 2.5 and 5 hours of work time before you need to recharge. The actual work time available depends on which model of Macintosh PowerBook you have, what equipment you're using with your computer, and what steps you take to conserve power while you work.

For battery conservation tips, see the "Batteries & Power" topic of Macintosh Guide, available in the Guide (🔍) menu.

About lithium ion replacement batteries

You can purchase an optional lithium ion (LiIon) battery as an extra or replacement for the standard NiMH battery that came with your Macintosh PowerBook. LiIon batteries provide somewhat longer work time than NiMH batteries before you need to recharge—from 3 to 5.5 hours, depending on which model of Macintosh PowerBook you have, what equipment you're using with your computer, and what steps you take to conserve power while you work.

In addition, LiIon batteries weigh less than NiMH batteries and provide indicator lights on the battery itself that let you monitor the remaining charge.

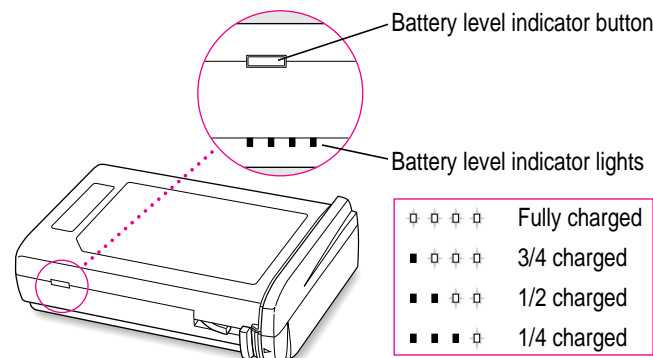
Follow these steps to determine the charge level in a LiIon battery:

- 1 Save your work, and then choose Shut Down or Sleep from the Special menu or plug in the power adapter.**
- 2 Pull the battery out of its compartment.**

For instructions on removing the battery, see “Removing or Replacing the Battery” earlier in this chapter.

- 3 Push the battery level indicator button to activate the battery level indicator lights.**

The lights show whether the battery is fully charged, three-fourths charged, one-half charged, one-fourth charged, or empty. The indicator lights remain lit for a few seconds.

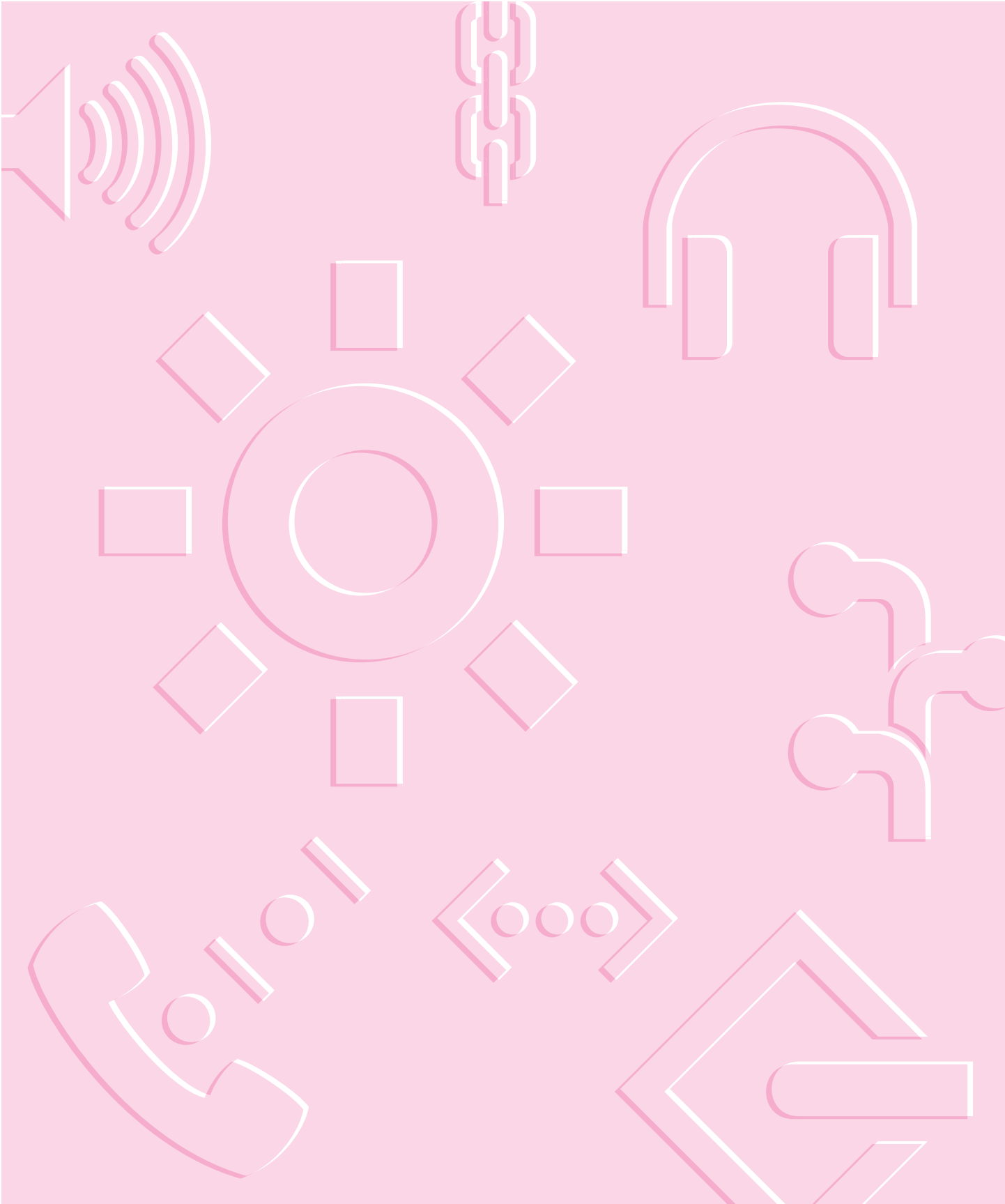


Chapter 7 **Tips and Troubleshooting**

Chapter 8 **Diagnostic Techniques**



part
II



Consult this chapter and the next if you have questions or experience problems using your computer.

7 Tips and Troubleshooting

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When you have questions

If you want to know how to do a particular task with your computer, refer to Macintosh Guide in the Guide (🔍) menu. For instructions on using Macintosh Guide, see Chapter 2 of this manual. If the suggestions in this chapter and Macintosh Guide don't solve the problem, go to Chapter 8 for some diagnostic techniques to help you solve system software and hard disk problems.

When you run into trouble

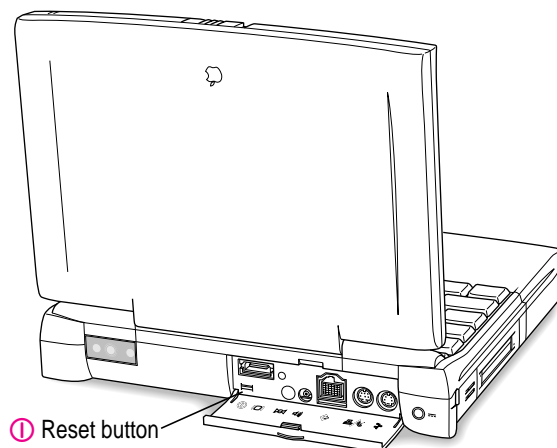
While you're using your computer, you may see a bomb icon or an error message, or you may have a problem such as the pointer (⏏) "freezing" on the screen. If you have trouble with your computer, take a few minutes to read the information in this chapter and Chapter 8. If your problem is related to a particular procedure, you should also look for information on that procedure in Macintosh Guide, available in the Guide (🔍) menu. If you are unable to access Macintosh Guide (for example, if your screen is "frozen"), refer to this chapter to see if you can resolve the problem.

This chapter and Chapter 8 describe solutions to problems you may experience with your computer. If the suggestions in these two chapters don't solve your problem, contact a local Apple-authorized service provider or call the Apple Assistance Center. (See the service and support information that came with your computer for the phone number.) If your problem is with third-party software or equipment, please call the software or equipment manufacturer for help.

Problems starting up the computer

The computer doesn't start up.

- The battery may need recharging. Plug the power cord into a working outlet, and then plug the power adapter into the computer. Let the battery recharge for a few minutes.
- Check that the power cord is plugged into a working outlet. If it's plugged into a power strip, make sure the power strip is turned on. The power adapter should get warm after being plugged in for 10 minutes. If it is cold, make sure the adapter is securely plugged in and attached to the power cord.
- The screen brightness may be turned down. Adjust the brightness control (marked with the icon ☼) and contrast control (●), located to the right of the display.
- Make sure the battery is properly seated in its compartment.
- Press the reset button (marked with the icon Ⓜ) on the back panel.



The computer makes an unusual sound at startup.

- If you hear an unfamiliar startup sound, start up the computer with the *Disk Tools* disk that came with your computer. If the computer does not start up, or if the hard disk icon does not appear, the hard disk may need repair. Contact an Apple-authorized service provider or call the Apple Assistance Center. If the hard disk icon does appear, see Chapter 8, “Diagnostic Techniques.”
- There may be a problem with the information stored in the area called parameter RAM (PRAM). Reset the parameter RAM (also called “zapping the PRAM”).

Resetting the PRAM erases the contents of your RAM disk, if you have one. Resetting the PRAM also restores the default settings in most control panels. After you reset the PRAM, be sure to check any custom settings you made for the desktop pattern, memory, network, AppleTalk, trackpad, power conservation, and so forth. Resetting the PRAM also resets the power manager.

Follow these steps to reset the PRAM:

1. Locate the keys Command (⌘), Option, P, and R.
 2. Make sure the Caps Lock key is not down.
 3. Restart your Macintosh. Immediately after hearing the startup sound, press the Command (⌘), Option, P, and R keys simultaneously.
If you don't hold down the key combination within 5–10 seconds after you restart, you may need to repeat steps 1–3.
 4. Hold down the keys until you hear the startup sound. Then release the keys.
 5. If the computer shuts itself off, press the reset button to turn it back on.
 6. When the computer has finished starting up, restore any custom control panel and network settings.
- There may be a problem with a RAM expansion card. If you installed a RAM expansion card in your computer, check Appendix C to make sure the card is properly installed. If you purchased an expansion card from a third-party manufacturer, contact the manufacturer for help.

See also “The Computer Makes Unusual Sounds” in the section “Other Problems While Working” later in this chapter.

The computer starts up, but the desktop (or Floppy Disk Maker screen) doesn't appear.

- The screen brightness may be turned down. Adjust the brightness control (☼) and contrast control (●), located to the right of the display.
- The computer may be trying to start up using an external hard disk that does not contain the correct version of system software. Disconnect the external hard disk and restart your computer.
- Start the computer, holding down the Shift key until you see the message “Extensions off” in the Welcome to Macintosh box. If the computer starts up, turn to “Checking Your System Software Extensions” in Chapter 8 and try the steps given.
- If you see the following icon on the screen, your PowerBook is in SCSI disk mode. See “Quitting SCSI Disk Mode” in the section “Connecting SCSI Devices” in Chapter 4 for more information.



- There may be a problem with the display of windows. Restart the computer and hold down the Option key until the desktop icons appear. (When the desktop appears, all windows will be closed.)

When I start up the computer, I keep seeing a message about making floppy disks.

- The Floppy Disk Maker screen will appear every time you start up your computer until you make at least a minimum set of disks. It is very important that you make a minimum set in case you ever need to reinstall system software. If you still want to stop the Floppy Disk Maker screen from appearing without making at least a minimum set, you can remove the Floppy Disk Maker alias from the Startup Items folder (in the System Folder).

When I start up the computer, I see a message about the system software.

- The system software on the startup disk you're using may be incomplete or damaged, or may be the wrong version. Make sure you're using the correct disk as a startup disk.
- If you're sure you're using the correct startup disk, you may need to reinstall system software. See “Reinstalling System Software” in Chapter 8.

The computer displays a flashing question mark icon.



- This icon usually means that the computer can't find system software on any disks attached to the computer. (After it displays this icon for two minutes, the computer will shut itself off.)

If the computer is connected to any external hard disks, make sure that the SCSI chain is terminated properly (see "Connecting SCSI Devices" in Chapter 4) and that the external hard disks are turned on. Then restart the computer. If the problem recurs, the hard disk or its system software may be damaged. See Chapter 8, "Diagnostic Techniques."

- Turn off the computer, disconnect all external devices except the power adapter, and restart the computer. If the computer starts up, turn to "Problems with Equipment Connected to Your Macintosh PowerBook," later in this chapter.

The computer freezes or displays an error message during startup.

- Turn off the computer, disconnect all external devices except the power adapter, and restart the computer. If the computer starts up, turn to "Problems with Equipment Connected to Your Macintosh PowerBook," later in this chapter.
- Start the computer, holding down the Shift key until you see the message "Extensions off" in the Welcome to Macintosh box. If the computer starts up, turn to "Checking Your System Software Extensions" in Chapter 8.

About the codes in error messages: The number codes in error messages are used in software development. Sometimes they can help a technician narrow down the source of a problem. However, the codes are usually too general or technical in nature to help you diagnose a problem yourself.

When the computer starts up, a message says there is not enough memory.

- There may not be enough memory to load all the system software extensions you've installed. Restart the computer, holding down the Shift key until you see the message "Extensions off" in the Welcome to Macintosh box. Then try the following to increase available memory:
 - Reduce the size of the disk cache in the Memory control panel.
 - If you use a RAM disk, reduce its size or turn it off in the Memory control panel.
 - Remove any system software extensions you don't need from the Extensions folder (inside the System Folder).
 - Turn on virtual memory in the Memory control panel.

You need to restart the computer for these changes to take effect.

- If these suggestions don't work, you can increase memory by installing a RAM expansion card in your computer. See Appendix C for information.

The computer won't restart.

- If the computer freezes, you can try to "force" the program you're using to quit by simultaneously pressing the keys Command (⌘), Option, and Esc on your keyboard. Then click Force Quit in the dialog box that appears. (*Note:* Unsaved changes in any open documents will be lost.) Immediately save all open documents, quit all other open programs, and restart the computer.
- Press the reset button (marked with the icon Ⓟ) on the back panel.
Note: You will lose any work you have not saved.
- If the problem recurs, reset the parameter RAM (see "The Computer Makes an Unusual Sound at Startup," earlier in this section). If the problem still occurs, see Chapter 8, "Diagnostic Techniques."

Every time the computer starts up, it rebuilds the desktop.

- There may be a folder on your hard disk that has the same name as a file the computer uses to keep track of information on your disks. Manually search for a folder named "Desktop" or "Desktop file." If you find one, rename it "Storage." Then restart the computer. (Do not use the Find File command to search for the desktop file. It may find it but you may not be able to access it.)

When the computer starts up, no icons appear in the windows, and the pointer alternates between an arrow and a wristwatch, or an empty flashing box appears.

- There is a problem with the display of windows. Restart the computer, holding down the Option key until the desktop icons appear. (When the desktop appears, all windows will be closed.)

When I start up the computer, the display lights up for a moment, then shuts down.

- Make sure you are using the correct power adapter for your computer model and that the adapter is plugged into a working outlet.

Problems working with programs

The computer freezes or displays a system error message.

- There may be a temporary software problem. To reset the computer, try the following suggestions in order until the computer starts up normally:
 1. If the computer freezes, you can try to quit the program you're using by pressing the keys Command (⌘), Option, and Esc on your keyboard. Click Force Quit in the dialog box that appears. (You'll lose unsaved changes in that program's documents.)

Immediately save all open documents and quit all open programs, then restart the computer.
 2. If you see a message about a system error, press the reset button (on the back of your Macintosh PowerBook) to restart the computer.
 3. Reset the PRAM (see "The Computer Makes an Unusual Sound at Startup" in the section "Problems Starting Up the Computer" earlier in this chapter for instructions).
- If the problem recurs, it may involve one or more of your application programs. See "The Computer Exhibits Odd Behavior, Such as Many Unexplained System Failures," next.

About the codes in error messages: The number codes in error messages are used in software development. Sometimes they can help a technician narrow down the source of a problem. However, the codes are usually too general or technical in nature to help you diagnose a problem yourself.

The computer exhibits odd behavior, such as many unexplained system failures.

- Check for multiple System Folders on your startup disk, using the Find File command. Throw away extra System Folders (but do not throw away any System Folders from your RAM Disk Backup folder). The System Folder that your computer is using has a small computer icon on it.



System Folder

- Check for viruses on all your disks, using a virus-detection program. Eliminate any viruses the program finds.
- If a problem recurs when you are using a particular program, try the following:
 - Consult the documentation that came with the program to make sure you are using it correctly.
 - Check for multiple copies of the program on your hard disk. Use the Get Info command to check the programs' version numbers. Keep one copy of the latest version and throw away all other copies.
 - Reinstall the program from a known good source (such as the original program disks or installer disks you made with Floppy Disk Maker).
 - Increase the program's memory. Quit the program, select its icon, choose Get Info from the File menu, and type a larger number in the Preferred Size box.
 - Contact the manufacturer or vendor of the program to find out whether the program contains software errors or "bugs" and whether an upgrade is available.
 - Check that the program is compatible with System 7.5 (see the program's documentation, or contact the manufacturer or vendor).
 - Make sure your control panels and system software extensions (especially any that you recently added) are compatible with your programs. See "Checking Your System Software Extensions" in Chapter 8.



A program won't open.

- The application program may already be open. Check the Application menu to see what programs are running.
- There may not be enough memory available to open the program. Quit any programs you're not using and try again. If that doesn't work, try restarting the computer.
- If the program is on a floppy disk, make sure the disk is unlocked. (You unlock a disk by sliding the tab at the corner of the disk so that it covers the hole.)
- The program may be damaged. Reinstall the program from a known good source (such as the original program disks).
- Contact the manufacturer or vendor of the program to see if the program is compatible with System 7.5.

A program suddenly quits or disappears, or a message says a program has quit.

- There may be a temporary software problem. Restart the computer, then try opening the program again.
- The program may have run out of memory. See the suggestions in "A Message Says There is Not Enough Memory," later in this section.
- If the problem occurs when you are trying to print, there may not be enough memory for printing.
- Contact the manufacturer or vendor of the program to see if the program contains software errors or "bugs" and if it is compatible with the version of system software you're using.

A message says there is not enough memory.

- There may be a temporary software problem. Save your work, quit all open programs, and restart the computer. If you can't restart, see the suggestions in "The Computer Freezes or Displays a System Error Message," earlier in this section.
- If you get this message when you are trying to open or use a program, follow these steps:
 1. Choose About This Macintosh from the Apple () menu. Take note of the number in the "Largest Unused Block" section. This number tells you how much memory is available to open programs.
 2. Quit the program if it's open, select its icon, and choose Get Info from the File menu. Take note of the numbers in the Minimum Size and Preferred Size boxes.
 3. If the number in the Minimum Size box is larger than the largest unused block, not enough memory is available to use this program. To free memory, quit open programs or restart the computer. You can also type a smaller number in the Minimum Size box if you want to open the program using less memory. (But some programs don't work well if you assign them less memory.)
 4. If the number in the Preferred Size box is smaller than the largest unused block, you may need to assign more memory to the program. (A program may need more memory if you are working with complex documents.) Type a larger number in the Preferred Size box.
- If you frequently want to open more programs than memory allows, try the following:
 - Use the Memory control panel to reduce the size of the disk cache or to remove or reduce the size of your RAM disk.
 - Turn on virtual memory in the Memory control panel.
 - Install a RAM expansion card in your computer. See Appendix C for instructions.



When I try to open a document, a message says the program can't be found.

- The document may have been created with a program that is not on your hard disk, or with a different version of the program.
- You can also open a document from within a program by using the Open command in the File menu. For more information, see the documentation that came with your programs.
- If you know the correct program is on your hard disk, there may be a problem with the information that the computer uses to keep track of files. Restart the computer and hold down the Command (⌘) and Option keys until you see a message asking if you want to rebuild the desktop. Release the keys and click OK.

Note: If you have Macintosh Easy Open installed, you must turn off all extensions except the Macintosh Easy Open control panel before rebuilding your desktop.

A window has disappeared.

- Another open window may be covering the one you're looking for. Move, resize, close, or hide windows until you see the one you want.
- The program the window is associated with may be hidden. Choose Show All from the Application menu, then click the window you want, or choose the program from the Application menu.

Other problems while working

The screen went blank.

- Screen dimming may be on. Move the pointer to restore the screen's brightness. You can adjust the interval before screen dimming takes effect, or you can turn screen dimming off, using the PowerBook control panel.
- The computer may have gone to sleep. Press any key on the keyboard (except Caps Lock) to wake it.
- The battery may be drained. Install a charged battery, or plug in the power adapter and let the battery charge for a few minutes. Then try to wake or start up the computer.

Some icons look different from usual.

- There may be a problem with the information that the computer uses to keep track of files. Restart the computer and hold down the Command (⌘) and Option keys until you see a message asking if you want to rebuild the desktop. Release the keys and click OK.

Note: If you have Macintosh Easy Open installed, you must turn off all extensions except the Macintosh Easy Open control panel, and then follow the steps given above to rebuild your desktop.

- You may be using a file-compression program to save space on your hard disk. Some compression programs change the appearance of icons.

When trying to open or move a font file, I see an error message.

- The font file may be damaged. To remove damaged font files, follow these steps:
 1. Drag the Fonts folder out of the System Folder.
 2. Restart the computer.
 3. Open the Fonts folder that you dragged out, and drag undamaged fonts to the System Folder icon. Click OK in the dialog box that appears.
 4. Throw away the old Fonts folder.
 5. Reinstall the damaged font from the original disk.

An icon is blinking in the menu bar.

- A program needs attention. Open the menu and choose the program whose icon is blinking (it may have a diamond by its name). Respond to any messages on the screen. If it's not clear what you should do, consult the documentation that came with the program.

A file can't be thrown away.

- The file may be locked. Choose Get Info from the File menu and click the Locked checkbox to remove the X. You can also delete locked files by holding down the Option key while you choose Empty Trash from the Special menu.
- An application program may be using the file. Close the file or quit the program.

- If the file is on a floppy disk, the disk may be locked. Unlock the disk by sliding the tab so that it covers the hole at the corner of the disk.
- The file may be in a shared folder that can't be changed. You can throw away the file by turning off file sharing temporarily (click Stop in the Sharing Setup control panel). Or you can select the shared folder, choose Sharing from the File menu, and uncheck the box labeled either "Can't be moved, renamed, or deleted" or "Same as enclosing folder."

The computer makes unusual sounds.

- A program may need your attention. If an icon is blinking in the menu bar, open the menu, choose the program whose icon is blinking (it may have a diamond by its name), and take the necessary action.
- If the Easy Access control panel is installed on your computer, open it and check whether any features are turned on.
- Select a different system sound in the Sound control panel.
- The computer speaker periodically turns itself off to save power. Sometimes this causes a clicking or popping noise. This sound is normal.
- If the sounds are regular or melodic, they may be caused by interference from electrical equipment. Move the computer farther away from any such equipment.

See also "The Computer Makes an Unusual Sound at Startup" in the section "Problems Starting Up the Computer," earlier in this chapter.

I can't access some of the memory on my computer.

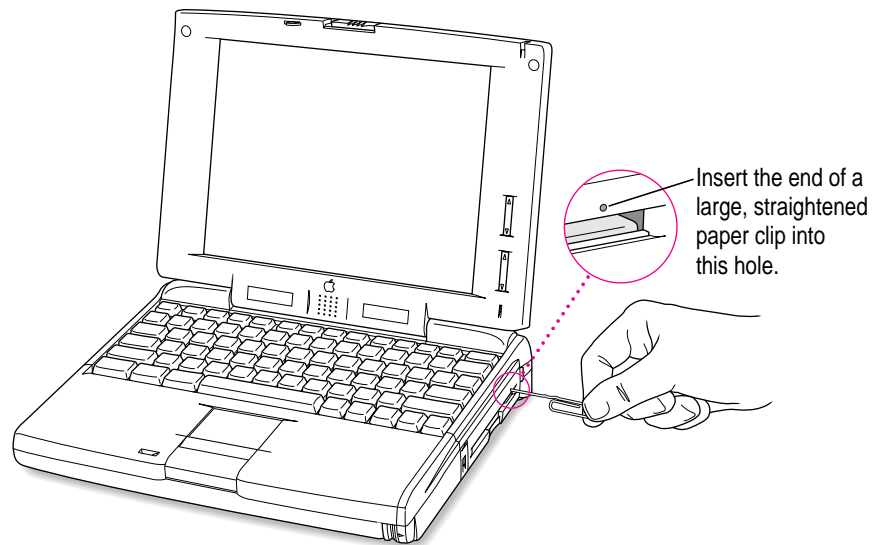
- All computers set aside some memory for system overhead. Macintosh PowerBook 190 series computers set aside about 300K of RAM.
- If you want to open more programs than memory allows, you can use the Memory control panel to decrease the size of the disk cache, or to remove or decrease the size of the RAM disk (if you're using one). You can also have a RAM expansion card installed in your computer. See Appendix C for more information.
 - Turn on virtual memory in the Memory control panel.

Problems with hardware

Floppy disk drive

I can't eject a floppy disk.

- The disk may be stuck. Restart the computer, holding down the button on your trackpad. If the disk is not ejected, you can eject it manually. Carefully insert the end of a straightened paper clip into the small hole near the disk drive's opening, and push firmly until the disk is ejected.



I can't save or copy files onto a floppy disk.

- The disk may be locked. Unlock it by sliding the tab at the corner of the disk so that it covers the hole.
- The disk may be full. Throw away items on the disk that you no longer need, or save the files on a different disk.
- The disk or disk drive may be damaged. Test the disk with Disk First Aid (on the *Disk Tools* disk that came with your computer).

Hard disk

The computer won't start up from the internal hard disk, or the hard disk icon doesn't appear on the desktop.

- There may be a temporary software problem. Turn off the computer, wait at least 10 seconds, and then turn it on again.

The hard disk keeps stopping and starting again.

- The hard disk may be going to sleep to conserve power. Use the PowerBook control panel to change the power conservation settings.

The computer is using the wrong disk as a startup disk.

- Open the Startup Disk control panel and make sure the correct disk is selected. Then restart the computer.
- If you're trying to start up from an external hard disk, the computer may not be recognizing the disk. See "SCSI Equipment and SCSI Disk Mode" later in this section. (If you want to force the computer to start up from an external hard disk, hold down the Command (⌘), Option, Shift, and Delete keys while you restart. This procedure makes the computer bypass the internal hard disk when looking for a startup disk.)
- There may be a problem with your startup disk or with its system software. See "Testing Your Hard Disk" in Chapter 8.

Trackpad

The pointer won't move.

- A program may be doing some work. Wait a few moments and then try again.
- A temporary software problem may have caused the computer to "freeze." See "The Computer Freezes or Displays a System Error Message" in the section "Problems Working With Programs," earlier in this chapter.

The pointer sticks or jumps when I use the trackpad.

- Make sure to use only one finger on the trackpad and that your finger is dry.

When I use the trackpad to click or double-click, it does not seem to work.

- Make sure your finger is off the trackpad at the end of the motion. If your finger stays on the trackpad, the computer will not recognize the motion as a click or a double-click. To click, tap the trackpad once; to double-click, tap twice.

When I use the trackpad to drag, it seems to think I'm double-clicking.

- Make sure your finger stays down on the trackpad at the end of the dragging motion.
- Turn on Drag Lock in the Trackpad control panel. When Drag Lock is on, the drag will not end until you tap the trackpad.

When I use the trackpad to drag, the item I'm dragging doesn't always go where I want, or the drag stops before I want it to.

- The computer automatically ends a drag after a certain amount of time has passed. Continue the drag more quickly, or turn on Drag Lock in the Trackpad control panel. When Drag Lock is on, the drag will not end until you tap the trackpad.

When I use the trackpad to select text or items, dragging doesn't seem to work as I expect, or the drag gets "stuck."

- To select a word, double-click and drag; to select a line, triple-click and drag.
- If Drag Lock is on, remember to tap the trackpad after selecting text or other items to end the drag.

Keyboard

Typing on the keyboard produces nothing on the screen.

- Make sure the program you're using is set to accept text input. Usually you need to set an insertion point or select some text before typing. If you're using a communications program, you may need to turn on the "local echo" setting.
- If the Easy Access control panel is installed on your computer, open it and make sure Slow Keys is turned off.
- Open Key Caps in the Apple () menu and check whether the computer is recognizing keyboard input. If so, the keys in the Key Caps window will darken when keys are pressed on the keyboard.

A key won't stop repeating.

- Open Key Caps in the Apple (🍏) menu. If any keys in the window are darkened, keys may be stuck down on your keyboard. This problem is sometimes related to an incorrectly installed RAM expansion card. Review the RAM card installation instructions in Appendix C.

PowerBook display

The screen went blank.

- Screen dimming may be on. Move the pointer to restore the screen's brightness.
- The computer may have gone to sleep. Press any key (except Caps Lock) on the keyboard to wake it.
- The battery may need recharging. Plug in the power adapter, let the battery charge for a few minutes, and then try to wake or start up the computer again.

The screen flickers.

- Adjust the brightness control (☼) and the contrast control (●) to the right of the display.
- Open the Monitors control panel and set the computer to display fewer colors or grays.
- If tilting the display affects the flickering, there may be a loose cable. Contact an Apple-authorized service provider, or call the Apple Assistance Center.

The computer freezes when screen dimming takes effect.

- Screen dimming does not work with some programs. Open the PowerBook control panel and turn off screen dimming.

External monitors

The monitor remains dark.

- Shut down the PowerBook, then make sure the monitor is connected to the PowerBook, plugged into an active outlet, and turned on. (Most monitors have a light on the front panel to show whether they are on.)

The monitor is on, but no image appears.

- Screen dimming may be on. Move the pointer to restore the screen's brightness.
- Adjust the monitor's brightness and contrast controls.
- Open the Monitors control panel and press the Identify button. The number on each monitor icon should appear on the corresponding screen. If not, there may be a problem with the connection, or the monitor may need repair.

The external monitor does not show the menu bar.

- Open the Monitors control panel and drag the small menu bar to the icon of the monitor that you want to display the menu bar.

The pointer won't move from one monitor to another.

- The pointer moves between monitors in the area where the monitor icons touch in the Monitors control panel. Open the Monitors control panel and check that the positions of the monitor icons match the positions of the actual monitors. If not, drag the icons until they are positioned as you want them.

There are black bars at the top and bottom of the monitor screen. The monitor shows the same image as the display.

- The video mirroring feature is turned on. With video mirroring, the monitor shows the same image as the internal display. You can turn it off using the PowerBook Display control panel, or the video mirroring section in the Control Strip.

The monitor goes dark after a few minutes.

- Screen dimming may be turned on. Move the pointer to restore the screen's brightness. You can change the interval before screen dimming takes effect in the PowerBook control panel.

The computer freezes when screen dimming takes effect.

- Screen dimming does not work with some programs. Open the PowerBook control panel and turn off screen dimming.

There is wavy or jittery interference on the external monitor.

- This interference may be generated by a magnetic field. If the monitor is near another piece of equipment (such as a TV, speakers, or another monitor), move the monitor away from the equipment.

Printers

The computer can't find the printer.

- Make sure the printer is connected and turned on.

IMPORTANT Make sure that all equipment is turned off before connecting or disconnecting cables.

- The printer may not be selected in the Chooser. Open the Chooser and select the printer you want to use. If the printer is connected to a port, make sure the correct port is selected.
- Reset the parameter RAM. (See “The Computer Makes an Unusual Sound at Startup” in the section “Problems Starting Up the Computer” earlier in this chapter for instructions.) Then select the printer in the Chooser and try printing again.

The printer does not appear in the Chooser.

- Make sure you've selected the correct kind of printer on the left side of the Chooser window. For example, if you're using a StyleWriter II, make sure to select StyleWriter II, not StyleWriter.
- Use the scroll bars to look through all the selections in the Chooser areas.
- Check the connections between your computer and the printer, including relevant sections of the network if appropriate. (See "Solutions to Common Network Problems" in the section "Problems With Networks and File Sharing" later in this chapter.)
- Make sure the correct printer software is in the Extensions folder inside your System Folder.
- If you're using a network printer, make sure that AppleTalk is active in the Chooser. If you are using a printer connected directly to your computer, make sure AppleTalk is inactive.
- If your network has zones, make sure the zone containing your printer is selected.

Nothing happens, or an error message appears, when I try to print.

- There may not be enough memory for printing. Try the following:
 - Quit the program immediately after sending the Print command.
 - Increase the amount of memory that PrintMonitor uses. (Quit PrintMonitor if it's open, select it, choose Get Info from the File menu, and type a larger number in the Preferred Size box.)
 - Reduce the amount of memory the program uses.
- Make sure the printer is turned on. Some printers need to warm up for a few minutes after you turn them on.
- The printer may be out of paper or may need attention. Check the printer status lights and any messages on your screen.
- Open the Application menu. If the PrintMonitor program is there, choose it and check for status messages.
- Reinstall your printer software.
- Reset the parameter RAM. (See "The Computer Makes an Unusual Sound at Startup" in the section "Problems Starting Up the Computer" earlier in this chapter for instructions.)

SCSI equipment and SCSI disk mode

External SCSI equipment doesn't work, or a hard disk icon does not appear on the desktop.

- Check that all cables are connected securely, that the devices are plugged into working outlets, and that the devices are turned on.

IMPORTANT Make sure that all equipment is turned off before connecting or disconnecting cables.

- Make sure that you turn on SCSI equipment before you start up the PowerBook.
- Check that each connected SCSI device has a unique ID number between 1 and 6.
- Make sure that SCSI cable terminators are correctly positioned. Follow the instructions in “Connecting SCSI Devices” in Chapter 4.

I can't turn on the computer after connecting a SCSI device.

- Turn on the SCSI equipment first, and then turn on the computer.

When I start up using SCSI disk mode, the desktop appears.

- You may not be able to use your PowerBook in SCSI disk mode with password protection turned on. Turn password protection off in the Password Security control panel.
- When you use SCSI disk mode, the computer should display an icon with a number in it.



If the computer starts up normally, immediately press the Power key to shut down (if you can) or turn off the computer. If you don't, you might damage your information or equipment.

- Make sure you are using the correct cable for SCSI disk mode. The HDI-30 SCSI Disk Adapter is about 8 inches long, is dark gray, and has 30 pins in the connector (no “missing” pins). Do not use the HDI-30 SCSI System Cable, which is light gray, is about 18 inches long, and has 29 pins in the connector (one “missing” pin). That cable is for connecting SCSI equipment to your PowerBook.
- Check that all cable connections are secure.
- The PowerBook’s battery may be drained. Plug in the power adapter and let the battery charge for a few minutes. Then press the Power key on the PowerBook’s keyboard to restart it, and restart the other Macintosh.
- Start up the other Macintosh with the *Disk Tools* disk that came with it (do not use the disk that came with your PowerBook). If the connection works, then a system software extension on the other Macintosh may be causing the problem.

When I start up using SCSI disk mode, I see a flashing question mark icon.



- Make sure you are using the correct cable for SCSI disk mode. The HDI-30 SCSI Disk Adapter is about 8 inches long, is dark gray, and has 30 pins in the connector (no “missing” pins). Do not use the longer, light gray HDI-30 SCSI System Cable.
- Make sure terminators are placed correctly in the SCSI chain. See “Connecting SCSI Devices” in Chapter 4 for more information.

Problems with equipment connected to your Macintosh PowerBook

If a problem occurs while your Macintosh PowerBook is connected to external equipment, such as SCSI equipment, an external monitor, a modem, a printer, a mouse, or an external keyboard, these steps may help you determine the source of the trouble:

- 1 Shut down your Macintosh PowerBook and anything that's connected to it. Disconnect everything connected to your Macintosh PowerBook (except the power adapter) and restart it.**

Note: If you're connected to a network, contact your network administrator or warn other users before disconnecting from the network, because it may interrupt network services.

If the problem does not recur, it is likely to be related to equipment connected to your PowerBook.

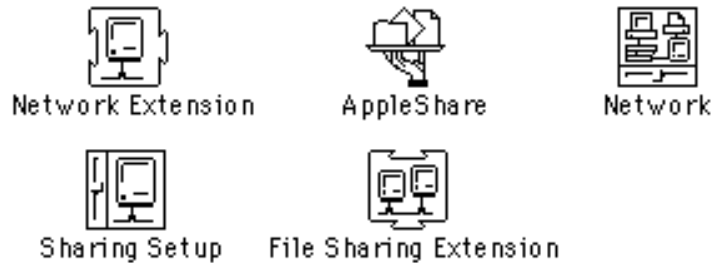
- 2 Shut down the Macintosh PowerBook.**
- 3 Reconnect one device.**
- 4 Make sure that the device is plugged into a working outlet and turned on, if applicable.**
- 5 Start up the Macintosh PowerBook.**
- 6 Repeat steps 2–5 until the problem recurs. The last device you connected may be causing the problem.**

Problems with networks and file sharing

Solutions to common network problems

If you are having problems using the network or file sharing, try the following before attempting further solutions:

- Make sure that AppleTalk is turned on in the Chooser.
- Open the Network control panel and make sure the correct network type is selected.
- Make sure that all the network software is installed. The Network Extension and AppleShare files should be in the Extensions folder, and the Network control panel should be in the Control Panels folder. If you want to use file sharing, the Sharing Setup control panel should be in the Control Panels folder, and the File Sharing Extension file should be in the Extensions folder. If any of these items is missing, use the system software disks that you made with Floppy Disk Maker to reinstall network and file-sharing software.



- Make sure the network is working by checking in the Chooser for the shared disks and printers you use.
- Try connecting to the network from a different location, or try connecting a printer or another computer directly to the PowerBook using network cables. If that works, the problem is likely to be in the network. If it doesn't work, the problem may be in the PowerBook or its network software.

Solutions to other network problems

The computer I want to connect to doesn't appear in the Chooser.

- Make sure the computer you're trying to connect to is turned on.
- Make sure file sharing is active on the computer you're trying to connect to. (That computer's Sharing Setup control panel should say that file sharing is on.)

I connected to another computer, but the shared disk I want to use is not available.

- You may already be connected to the shared disk. Check for its icon on your desktop.
- You may not have the access privileges you need to use the shared disk. Ask the network administrator or the owner of the shared item to give you access. (See the "Networks & Telecommunications" topic area of Macintosh Guide, available in the Guide (🔍) menu.)

I connected to another computer, but I can't see any files.

- Make sure that files are being shared on the other computer. The File Sharing Monitor control panel on that computer lists the items being shared.
- Make sure you have the access privileges you need to view the files. Ask the network administrator or the owner of the shared item to give you access. (See the "Networks & Telecommunications" topic area of Macintosh Guide, available in the Guide (🔍) menu.)

A message says that a disk can't be ejected because it's being shared.

- When you have file sharing turned on, you can't eject disks (other than floppy disks) that were connected to your computer when you started it up. You can eject the disk by turning off file sharing in the Sharing Setup control panel. After you've ejected the disk, you can turn file sharing back on.

A message says that file sharing can't be turned on.

- Make sure AppleTalk is turned on in the Chooser.
- Make sure you have at least 1MB of available space on your hard disk.
- Some disk-formatting programs don't work with file sharing. If you use such a program, contact the manufacturer or vendor for compatibility information.
- There may be a problem with some of the information your computer uses to start up file sharing. Follow these steps in order until the problem is solved:
 1. Open the Sharing Setup control panel and enter new information in the Owner section. Then try again to turn on file sharing.
 2. Remove the File Sharing folder from the Preferences folder (inside the System Folder). Then restart the computer and try to turn on file sharing.
 3. Reset the parameter RAM. Afterward, make sure to turn AppleTalk back on and select the correct network type in the Network control panel. (For instructions, see "The Computer Makes an Unusual Sound at Startup" in the section "Problems Starting Up the Computer" earlier in this chapter.)
 4. Remove the Users & Groups data file from the Preferences folder (inside the System Folder). Restart the computer.
 5. Reinstall system software. (See "Reinstalling System Software" in Chapter 8.)

A message says that an item can't be shared.

- Make sure you have at least 1 MB of space available on your hard disk.
- Some removable storage devices can't be shared. Check with the manufacturer or vendor for more information.
- Some disk-formatting programs don't work with file sharing. If you use such a program, check with the manufacturer or vendor.

The file-sharing section doesn't appear in the Sharing Setup control panel.

- You may have turned off AppleTalk or file sharing using the Extensions Manager control panel. Turn them back on.
- If the file-sharing and network software is not in your System Folder, use the system software disks that you made with Floppy Disk Maker to reinstall file-sharing and network software.

I can't open a shared disk or folder.

- You may not have the access privileges needed to use the disk or folder. Ask the network administrator or the owner of the shared item to give you access. (See the "Networks & Telecommunications" topic area of Macintosh Guide, available in the Guide (📖) menu.)
- Check with the owner of the item to make sure you are entering your name exactly as specified by the owner (including spaces and capitalization) and try again.

Problems with Apple Remote Access

The Remote Access Setup control panel won't open.

- Make sure that AppleTalk is turned on in the Chooser.
- If you still can't open the control panel, reinstall the Apple Remote Access software.

The modem is not listed in the Remote Access Setup control panel.

- Reinstall the modem software. If that doesn't help, then reinstall the Apple Remote Access software.
- Contact the modem manufacturer to see whether your modem can use the settings for another type of modem.

The modem didn't dial the phone number.

- Check that the phone cord is plugged into the computer and into a working phone line.
- Try dialing the number again. Sometimes there is a temporary connection problem.
- Quit the program and restart it. Sometimes this procedure solves temporary problems with the modem.
- Another program may be using the modem. Quit all other programs that use the modem.
- Try using another communications program. If that works, the problem may be in the Apple Remote Access software. Reinstall the software.

The modem dialed the phone number, but the connection failed.

- Check that the phone cord is plugged into the computer and into a working phone line.
- Make sure your modem is plugged into an analog phone line. Do not use a digital phone line. Digital phone lines can damage your modem.
- Check with your Apple Remote Access administrator to make sure your version of Apple Remote Access is compatible with the version on the computer you're calling. If you're using a version of Apple Remote Access higher than 1.0, you can use the Remote Access Setup control panel to set your software to work with version 1.0.

I'm connected via Apple Remote Access, but I can't see any shared disks.

- Open the Chooser and click the AppleShare icon. Shared disks should appear on the right side of the Chooser. If you still don't see any shared disks, and your Chooser has a box labeled Zones, choose a different zone (some networks don't have zones).
- If there are still no shared disks, or you can't connect to the one you want, contact your Apple Remote Access administrator or the owner of the computer you want to connect to.

Whenever I try to use Apple Remote Access, a message says it's not installed correctly.

- This message sometimes appears if AppleTalk is turned off. Make sure AppleTalk is turned on in the Chooser.



Consult this chapter before you call the Apple Assistance Center to solve problems with system software and your hard disk.

8

Diagnostic Techniques



This chapter provides a step-by-step approach to diagnosing and solving system software and hard disk problems. Try the steps listed in each section in the order they are given until you can identify and solve the problem.

Checking your system software extensions

System software extensions are files that add features to your system software. Some extensions are incompatible with one another or with certain programs. To check whether an extension is causing problems, follow these steps:

- 1 Start up the Macintosh PowerBook while holding down the Shift key. Keep it held down until you see the message “Extensions off” in the Welcome to Macintosh box.**

This procedure turns off extensions.

If this procedure solves your problem, then continue with this section. If not, then turn to the next section, “Testing Your Hard Disk.”



2 Turn off troublesome extensions using the Extensions Manager control panel.

Tips for locating problem extensions:

- If you recently installed a new item in the System Folder, it may be causing the problem. If you recently installed a new application program, a new extension may have been installed along with it. Check for new items in the Extensions folder and Control Panels folder. Also check for items of the kind “extension” or “control panel” in the System Folder itself.
- If two of your extensions provide similar features (such as two screen savers or two clocks), they may be incompatible with each other. Remove one of the extensions.
- If the computer is freezing or displaying an error message before it finishes starting up, restart the computer and take note of the icons that appear at the bottom of the screen. Many extensions display an icon as they start up, and extensions start up alphabetically. The last extension that displays an icon, or the one after it alphabetically, may be the problem extension.

3 Turn extensions back on, one extension at a time, in the Extensions Manager control panel. Restart the computer after each turning on each extension and test to see if the problem recurs.

When you have located the problem extension, remove it from the System Folder and contact the developer or vendor for compatibility information.

4 Restart the computer while holding down the keys Command (⌘), Option, P, and R until you hear the startup sound. Then release the keys.

This procedure resets the parameter RAM. For more information, see “The Computer Makes an Unusual Sound at Startup” in the section “Problems Starting Up the Computer” in Chapter 7.

If the problem does not recur, it may involve file sharing, virtual memory, or the disk cache. Turn these features back on one at a time (restarting the computer each time) until the problem recurs. You may be able to fix the problem by making the disk cache smaller or using a smaller amount of virtual memory. If the problem involves file sharing, contact your network administrator to make sure there are no network problems.

5 Go to the next section if you are still having problems.

Testing your hard disk

The following steps will help you determine whether you have a problem with your hard disk or a problem with the system software on your hard disk.

- 1 Start up the Macintosh PowerBook with the *Disk Tools* disk that came with your computer.**

If the computer starts up normally, you may have a problem with the system software on your hard disk. If the computer starts up but you don't see the hard disk icon, you may have a problem with the hard disk.

If the computer doesn't start up normally, you may have a problem with equipment connected to your Macintosh PowerBook. See "Problems with Equipment Connected to Your Macintosh PowerBook" in Chapter 7.

If nothing is connected, your computer may need repair. Contact an Apple-authorized service provider, or call the Apple Assistance Center.

- 2 Open the Drive Setup icon.**

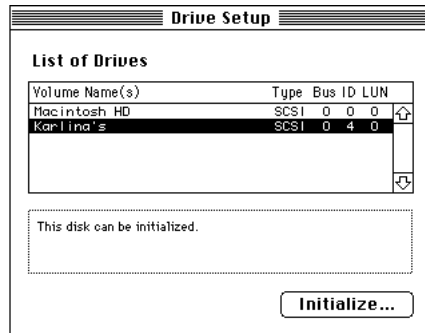
You may need to look in a folder called Utilities to find Drive Setup.



Drive Setup

Note: You can get onscreen help for the Drive Setup application program by choosing the Drive Setup Guide, available in the Guide (⌘) menu when Drive Setup is the active program.

- 3 In the list of drives, click the disk you want to test.



- 4 Pull down the Functions menu and choose Test Drive.
- 5 When a message tells you that testing is complete, click Quit.

If you cannot repair the disk, you may need to reinitialize the disk using the Drive Setup program.

WARNING Reinitializing the hard disk erases all the information on it. If you don't have a recent backup of your information, an Apple-authorized service provider may be able to recover some of the information before you reinitialize the hard disk.

- 6 If testing indicates that no repair is necessary, but you're still having a problem with your computer, go to the next section.

Reinstalling system software

When should you install system software?

Your computer came with all the necessary system software installed on its internal hard disk, so you don't need to install system software on that disk unless you encounter software problems.

If you have a new hard disk or a newly initialized hard disk that doesn't contain system software, or if you want to upgrade to a more recent version of system software on a hard disk, follow the instructions in "Doing a Normal Installation of System Software" later in this chapter.

If you have a problem with your system software, you may see this icon in the middle of the screen:



If this icon appears, follow the instructions in "Testing Your Hard Disk" earlier in this chapter to test your startup hard disk and repair any damage.

If repairing the disk doesn't help, follow the instructions in "Doing a Normal Installation of System Software" later in this chapter to reinstall system software on your startup hard disk.

What if you don't have system software disks?

You should have a set of system software disks that you made with the Floppy Disk Maker application program. If you did not make the disks, you may need to call the Apple Assistance Center for help. (See the service and support information that came with your computer for the phone number.) But before you call the Apple Assistance Center, try this:

- 1 **Insert the *Disk Tools* disk in your computer's floppy disk drive.**
- 2 **Restart your computer.**
- 3 **Look for a Read Me file on the *Disk Tools* disk.**

If there is not a Read Me file on the disk, call the Apple Assistance Center.

- 4 **Open the Read Me file and follow the directions for reinstalling system software.**

Doing a normal installation of system software

Follow the steps in this section to do what is commonly called a “normal” installation of system software.

If you’re installing system software on a hard disk for the first time, make sure that your hard disk has been initialized, a process that prepares the disk to store information. (You use the Drive Setup program on the *Disk Tools* disk to initialize a hard disk.)

To do a normal installation, follow these steps:

- 1 Start up your computer from the *Disk Tools* disk.**

- 2 Find and open the Disk First Aid icon.**



Disk First Aid

After Disk First Aid starts, follow the instructions on the screen. Disk First Aid checks your hard disk for any problems.

- 3 When Disk First Aid has finished checking your hard disk, choose Quit from the File menu.**

- 4 Open the Drive Setup program.**

You use the Drive Setup program to update your hard disk.

- 5 In the list of drives, click your startup disk.**

- 6 Pull down the Functions menu and choose Update Driver.**

- 7 When the update process is finished, quit Drive Setup.**

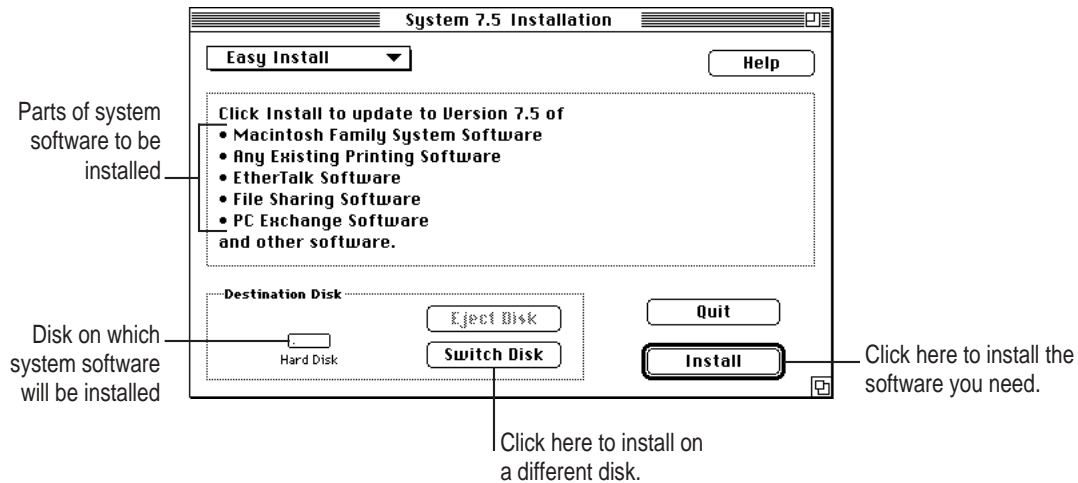
- 8 Shut down your computer.**

- 9 Start up your computer from the first system software installation disk you made with Floppy Disk Maker.**

The Installer’s Welcome screen appears. You may have to double-click the System Software Installer icon to open the Installer program.

10 Click OK.

The Easy Install dialog box appears. (The dialog box that appears on your screen may not look exactly like this one.)



11 Make sure that the hard disk named in the Destination Disk box is the one on which you want to install system software.

If it isn't, click Switch Disk until the correct disk name appears.

12 Click Install.

13 Follow the instructions that appear on the screen.

You'll see messages asking you to insert different disks.

14 When you see a message reporting that the installation was successful, click Restart.

If, after reinstalling system software by doing a normal installation, you still experience problems with your computer, follow the steps in the next section for doing a "clean" installation of system software.

IMPORTANT Certain additional system extensions or application programs that were originally on your hard disk may not be installed with the system software Installer program. If you notice that a certain extension or program was not installed, you may need to install it separately. You can find these additional extensions and programs in the disk images that come on your computer's hard disk. (You can make installer disks for these programs with the Floppy Disk Maker application program.)

Doing a clean installation of system software

The steps in this section outline what is commonly called a “clean” installation of system software. A clean installation allows you to discover which item in your System Folder is causing a problem. A clean installation creates a brand new System Folder and saves everything in your original System Folder in a different location. After doing a clean installation, you can then follow the instructions in “Replacing Special Software” to reinstall system extensions, control panels, and other special software one at a time from the old System Folder to the new System Folder. This procedure allows you to determine which item in the old System Folder was the source of the problem.

Do a clean installation if you can't determine what is damaged in your System Folder (especially if you think any special software, such as control panels, system extensions, or custom utilities, may be causing the problems you're experiencing). You should also do a clean installation if you're still having problems with your computer after you've reinstalled system software by doing a normal installation.

To do a clean installation, follow these steps:

- 1 Start up your computer from the *Disk Tools* disk.**
- 2 Find and open the Disk First Aid icon.**



Disk First Aid

After Disk First Aid starts, follow the instructions on the screen. Disk First Aid checks your hard disk for any problems.

3 When Disk First Aid has finished checking your hard disk, choose Quit from the File menu.

4 Open the Drive Setup program.

You use the Drive Setup program to update your hard disk.

5 In the list of drives, click your startup disk.

6 Choose Update Driver from the Functions menu.

The Update Driver command will not affect the contents of your startup disk.

7 When the update process is finished, quit Drive Setup.

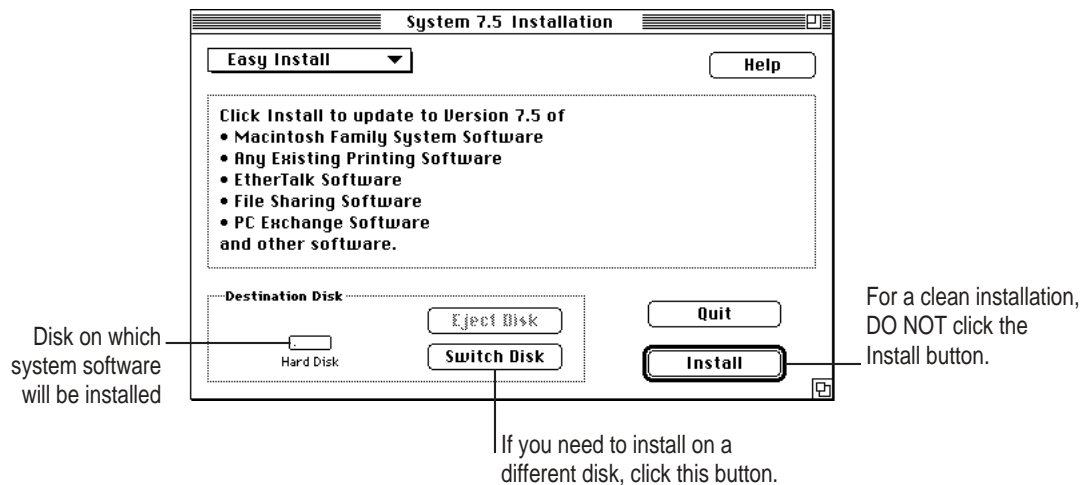
8 Shut down your computer.

9 Start up your computer from the first system software installation disk that you made with the Floppy Disk Maker application.

The Installer's Welcome screen appears. You may have to double-click the System Software Installer icon to open the Installer program.

10 Click OK.

The Easy Install dialog box appears. (The dialog box that appears on your screen may look slightly different than this one.)



- 11 Make sure that the hard disk named in the Destination Disk box is the one on which you want to install system software.

If it isn't, click Switch Disk until the correct disk name appears.

- 12 Hold down Shift-⌘-K to start the clean installation.

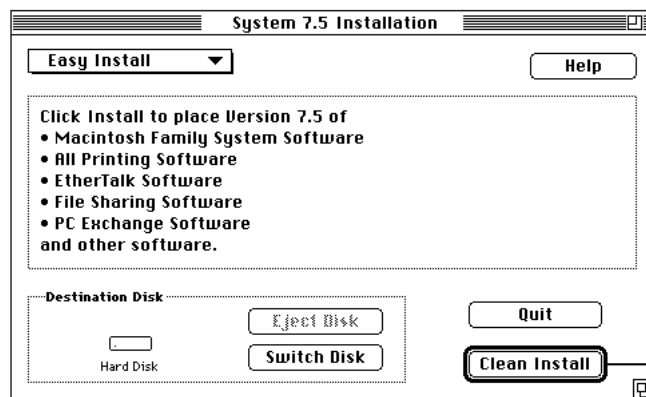
The following dialog box appears.



- 13 Click the Install New System Folder button and click OK.

The Easy Install dialog box appears. The Install button has changed to Clean Install, and the contents of your old System Folder have been moved to a new folder named Previous System Folder.

- 14 Click Clean Install.



Click here to install the software you need.

- 15 Follow the instructions that appear on the screen.

It takes a few minutes to complete the installation.

- 16 When you see a message reporting that the installation was successful, you may need to click Restart.**

You need to click Restart only if you installed software onto the startup disk.

If a message reports that installation was not successful, try repeating the clean installation procedure.

IMPORTANT Certain additional system extensions or application programs that were originally on your hard disk may not be installed with the system software Installer program. If you notice that a certain extension or program was not installed, you may need to install it separately. You can find some of these additional extensions and programs in the disk images that come on your computer's hard disk. (You can make installer disks for these programs with the Floppy Disk Maker application program.)

Replacing special software

Special software consists of items such as control panels, system extensions, custom utilities, fonts, or Apple menu items that you may have added to your old System Folder. To make sure that special software does not create any conflicts with other programs on your computer, follow this procedure to safely replace these items in your new System Folder:

- 1 Copy any special software items from the Previous System Folder back to your System Folder one item at a time, restarting the computer after copying each item.**

IMPORTANT Be very careful not to *replace* (copy over) any of the files in the System Folder with files from the Previous System Folder.

- 2 Check after each restart to make sure your computer is not having any software problems.**

If any of your special software items cause software problems, contact the software manufacturer for assistance or an upgrade.

Doing a custom installation of system software

For most Macintosh users, the Easy Install procedure described in the previous sections is appropriate, because it automatically installs all the items you need. However, if you'd like to select a combination of system software files for your specific needs, you can customize your system software installation. You use the custom installation option to install or update one or more specific files, or to save space on your hard disk by installing only the files you want.

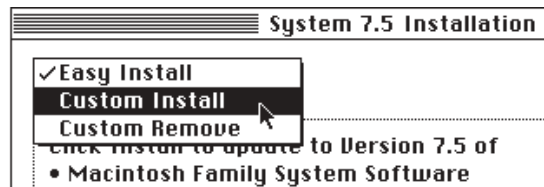
To install customized system software, follow these steps:

- 1 Start up your computer from the first system software installation disk that you made with Floppy Disk Maker.

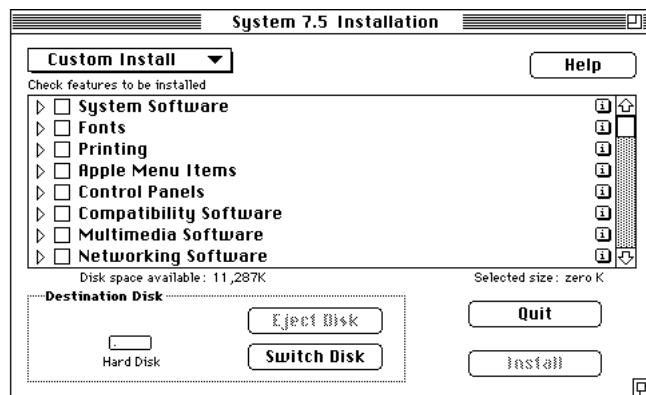
- 2 Click OK.

The Easy Install dialog box appears.

- 3 Choose Custom Install from the pop-up menu.



The Custom Install dialog box appears, listing all available system software components. (Your Custom Install dialog box should look similar but may not be identical to this.)



- 4 Scroll through the list of components, clicking the checkbox next to each component you want to install.**

You can see and select individual items within each component by clicking the arrow to the left of the component, then clicking the item you want to install. To get additional information about each component listed, click the box with the letter *i* in it to the right of the component.

- 5 Click Install.**

- 6 Follow the instructions that appear on the screen.**

- 7 When you see a message reporting that the installation was successful, click Quit.**

If a message reports that installation was not successful, try installing again. (Follow the instructions on the screen.)

- 8 Restart your computer.**

The system software is installed and your computer is ready to use.

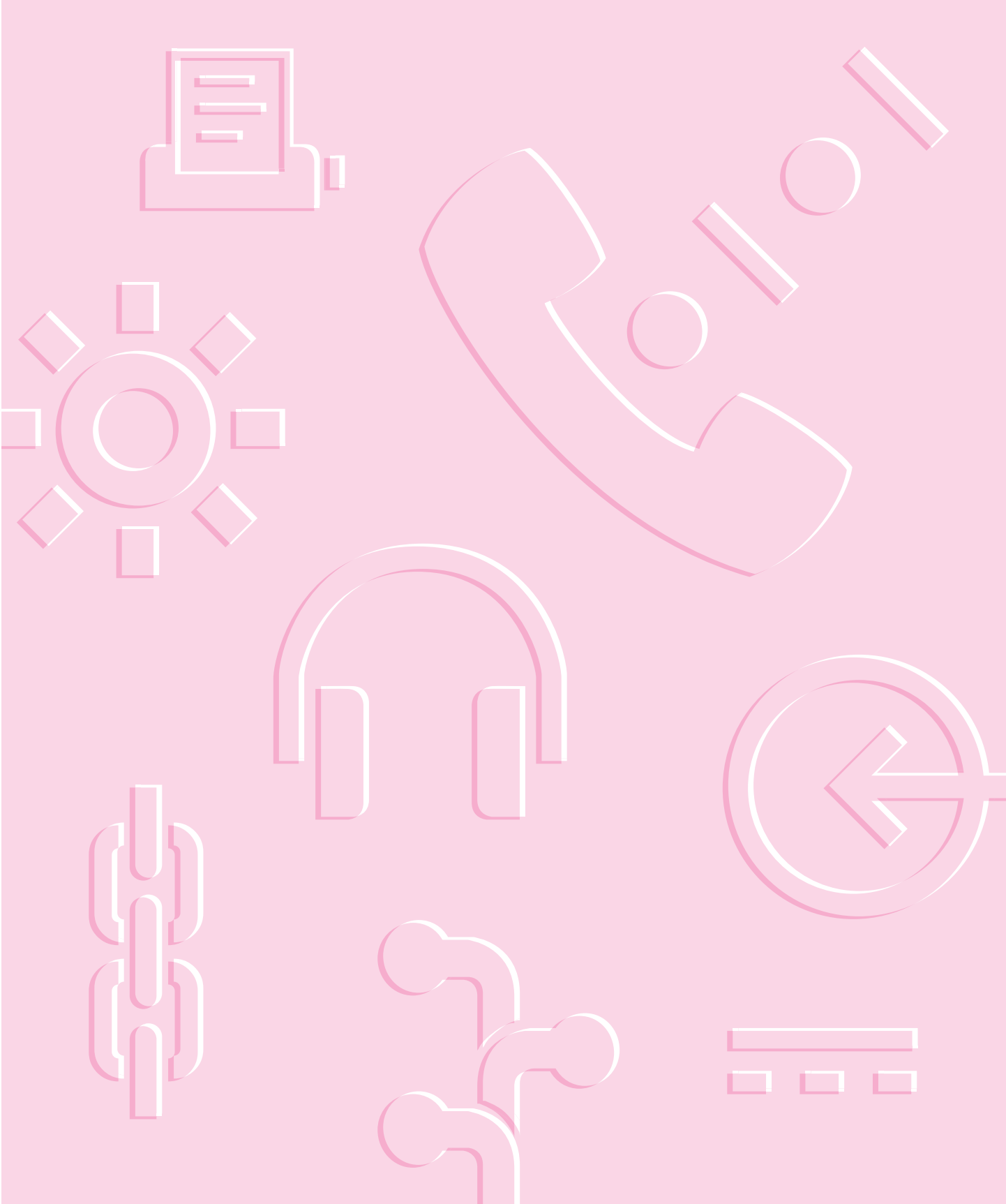
Appendix A Health, Safety, and Maintenance Tips

Appendix B Using Your Keyboard

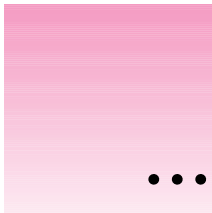
Appendix C Installing a RAM Expansion Card

III *part*





Refer to this appendix for important health-related information and safety tips.



Appendix A Health, Safety, and Maintenance Tips

Health-related information about computer use

Muscle soreness, eye fatigue, and other discomforts and injuries sometimes associated with using computers can occur from performing any number of activities. In fact, misuse of the same muscles during multiple activities can create a problem that might not otherwise exist. For example, if you engage in nonwork activities that involve repetitive stress on the wrist—such as bicycling—and also use your computer’s keyboard improperly, you may increase your likelihood of developing wrist problems. Some individuals are at greater risk of developing these problems because of their health, physiology, lifestyle, and general exposure to stress. Work organization and conditions, such as workstation setup and lighting, also play a part in your overall health and comfort. Preventing health problems is a multifaceted task that requires careful attention to the way you use your body every hour of every day.

The most common health effects associated with using a computer are musculoskeletal discomfort and eye fatigue. We’ll discuss each area of concern below.

Musculoskeletal discomfort

As with any activity that involves sitting for long periods of time, using a computer can make your muscles sore and stiff. To minimize these effects, set up your work environment carefully, using the guidelines that follow, and take frequent breaks to rest tired muscles. To make working with your computer more comfortable, allow enough space in your work area so that you can change position frequently and maintain a relaxed posture.

Another type of musculoskeletal concern is repetitive stress injuries (RSIs), also known as cumulative trauma disorders (CTDs). These problems can occur when a certain muscle or tendon is repeatedly overused and forced into an unnatural position. The exact causes of RSIs are not totally understood, but in addition to awkward posture, such factors as the amount of repetition, the force used in the activity, the individual's physiology, workplace stress level, and lifestyle may affect the likelihood of experiencing an RSI.

RSIs did not suddenly arise when computers were invented; tennis elbow and writer's cramp, for example, are two RSIs that have been with us for a long time. Although less common than other RSIs, one serious RSI discussed more often today is a wrist problem called carpal tunnel syndrome, which may be aggravated by improper use of computer keyboards. This nerve disorder results from excessive pressure on the median nerve as it passes through the wrist to the hand.

This section offers advice on setting up your work area to enhance your comfort while you use your computer. Since the effects of repetitive movements associated with using a computer can be compounded by those of other work and leisure activities to produce or aggravate physical problems, proper use of your computer system must be considered as just one element of a healthy lifestyle.

No one, of course, can guarantee that you won't have problems even when you follow the most expert advice on using computer equipment. You should always check with a qualified health specialist if muscle, joint, or eye problems occur.

Eye fatigue

Eye fatigue can occur whenever the eyes are focused on a nearby object for a long time. This problem occurs because the eye muscles must work harder to view an object that's closer than about 20 feet (6 meters). Improper lighting can hasten the development of eye fatigue. Although eye fatigue is annoying, there's no evidence that it leads to permanent damage.

Whenever you're engaged in an activity that involves close-up work—such as reading a magazine, doing craft work, or using a computer—be sure to have sufficient glare-free lighting and give your eyes frequent rest breaks by looking up and focusing on distant objects. Remember to have your eyes examined regularly.

To prevent discomfort and eye fatigue:

- Arrange your work space so that the furniture is properly adjusted for you and doesn't contribute to an awkward working posture.
- Take frequent short breaks to give your muscles and eyes a chance to rest.

Arranging your work area and equipment

The suggestions in this section can help you work more comfortably with your computer.

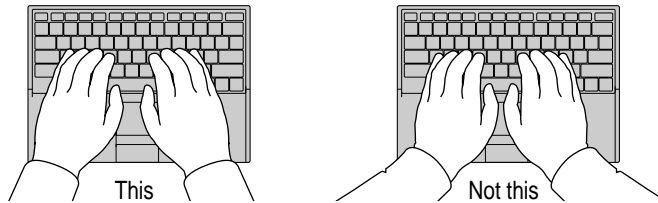
Chair

- An adjustable chair that provides firm, comfortable support is best. Adjust the height of the chair so your thighs are horizontal and your feet flat on the floor.

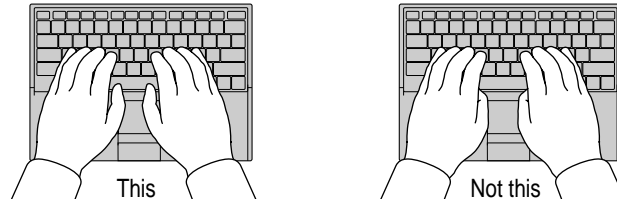
The back of the chair should support your lower back (lumbar region). Follow the manufacturer's instructions for adjusting the backrest to fit your body properly.

Keyboard and trackpad

- When you use the keyboard and trackpad, your shoulders should be relaxed. Your upper arm and forearm should form an approximate right angle, with your wrist and hand in roughly a straight line.

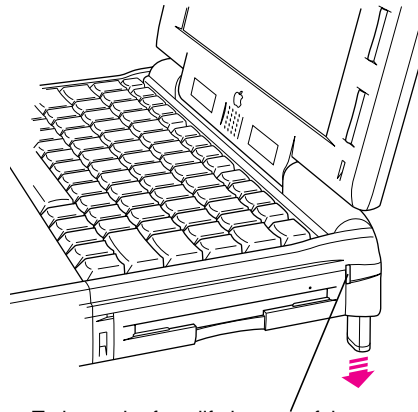


- You may have to raise your chair so your forearms and hands are at the proper angle to the keyboard. If this makes it impossible to rest your feet flat on the floor, you can use a footrest with adjustable height and tilt to make up for any gap between the floor and your feet. Or you may lower the desktop to eliminate the need for a footrest. Another option is to use a desk with a keyboard tray that's lower than the regular work surface.
- Use a light touch when typing or using the trackpad and keep your hands and fingers relaxed. Avoid rolling your thumbs under your palms.

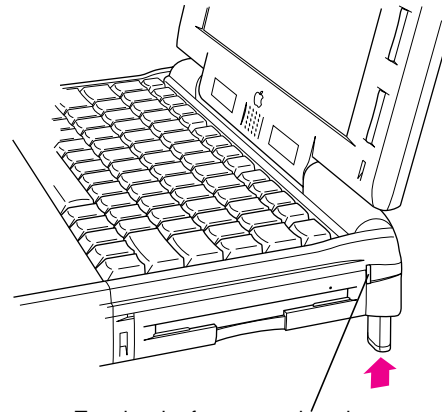


Some computer users may develop discomfort in their hands, wrists, or arms after intensive work without breaks. If you begin to develop chronic pain or discomfort in your hands, wrists, or arms, consult a qualified health specialist.

- Change hand positions often to avoid fatigue.
- If you prefer, you can adjust the elevation of the keyboard by lowering the feet until they snap into position.



To lower the foot, lift the rear of the computer and press the release button. The foot extends automatically.



To raise the foot, press the release button while pushing up on the foot until it clicks into place.

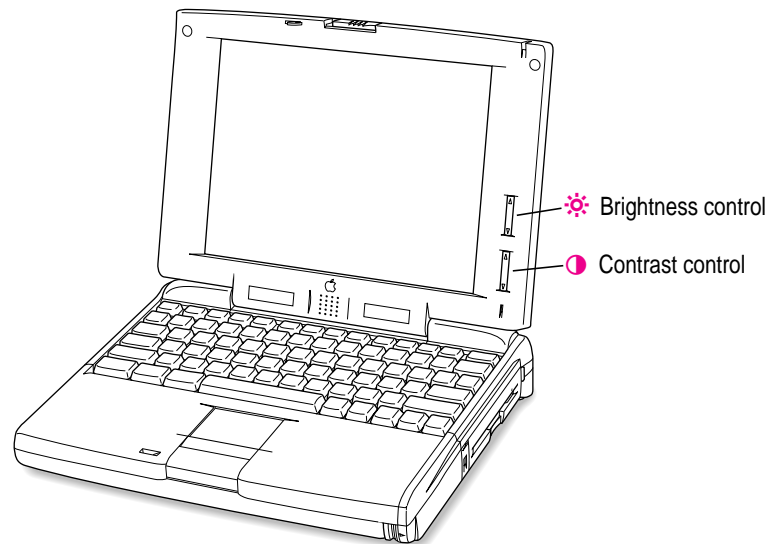
The back of the keyboard is slightly elevated when the feet are in use. Otherwise, the keyboard is level.

Mouse

- If you use an external mouse, position the mouse at the same height as your keyboard. Allow adequate space to use the mouse comfortably.

Built-in display

- Adjust the angle of the display to minimize glare and reflections from overhead lights and windows.
- You may need to adjust the brightness and contrast of the screen when you take the computer from one work location to another, or if the lighting in your work area changes. The brightness (☀) and contrast (●) controls are to the right of the display.



External monitor

If you use an external monitor, this suggestion may be helpful.

- If possible, arrange the monitor so the top of the screen is slightly below your eye level when you're sitting at the keyboard. The best distance from your eyes to the screen is up to you, although most people seem to prefer 18 to 28 inches (45 to 70 cm).

Avoiding fatigue

- Change your seated position, stand up, or stretch whenever you start to feel tired. Frequent short breaks are helpful in reducing fatigue.
- Allow adequate work space so that you can work comfortably. Place papers or other items so you can view them easily while using your computer. A document stand may make reading papers more comfortable.
- Eye muscles must work harder to focus on nearby objects. Occasionally focus your eyes on a distant object, and blink often while you work.
- Clean your screen regularly. Keeping the screen clean helps reduce unwanted reflections.

What about electromagnetic emissions?

There has been recent public discussion of the possible health effects of prolonged exposure to extremely low frequency (ELF) and very low frequency (VLF) electromagnetic fields. Such fields are associated with electromagnetic sources such as television sets, electrical wiring, and some household appliances—as well as computer monitors.

Apple has reviewed scientific reports and sought the counsel of government regulatory agencies and respected health organizations. Based on the prevailing evidence and opinions, Apple believes that the electric and magnetic fields produced by computer monitors do not pose a health risk. In response to those customers who wish to reduce their exposure to electromagnetic fields, Apple has lowered the emission levels of its products.



Important care and safety instructions

For your own safety and that of your equipment, read and follow all the instructions in this section. Keep these instructions available for reference by you and others.

Warning

- Electrical equipment may be hazardous if misused. Operation of this product, or similar products, must always be supervised by an adult. Do not allow children access to the interior of any electrical product and do not permit them to handle any cables.
- Do not use the computer in or near water.
- Do not use cables that are frayed or otherwise damaged. Hold a cable by its connector (the plug, not the cord) when connecting or disconnecting it.
- Always handle batteries carefully.
- Do not drop, puncture, mutilate, or burn the computer or battery.
- Recharge batteries only as described in this manual and only in ventilated areas.
- Transport batteries either inside the computer or with the protective cap covering the battery contacts.
- Do not short-circuit the battery terminals (that is, do not allow a metal object such as a paper clip or key chain to touch the terminals). Doing so may cause an explosion or a fire.

Caution

- If you have a problem with your computer and nothing in the computer manuals solves the problem, take the computer to your Apple-authorized dealer or service provider. Attempting to repair the computer yourself may void the limited warranty.
- Do not move the computer when you can hear its hard disk spinning. When you put the computer to sleep, wait until the screen is blank before moving the computer.



- Never force a connector into a port. Make sure that the connector matches the port and that it's right side up. If the connector and port do not join easily, they do not match.
- Do not use the computer in wet or dusty environments.
- Keep dirt and liquids away from the ports on the back panel, the keyboard, and the trackpad. If you spill any food or liquid onto the computer, shut it down immediately and unplug it before cleaning up the spill. Depending on what you spilled and how much got into the computer, you may have to bring the computer to an Apple-authorized service provider for cleaning.
- Do not touch the screen with any sharp or pointed objects.
- Use only the battery supplied with your computer, or an identical model. Batteries designed for other portable computers may look similar, but they may not work with your computer and may damage it.
- Use only the power adapter supplied with your computer, or an identical model. Adapters designed for other electronic devices may not work with your equipment and may damage it.
- Do not leave batteries in hot locations (such as the trunk of a car).

Important

- Use the computer only in environments where the temperature range is between 50°F/10°C and 104°F/40°C.
- Do not expose the computer to very low (less than -13°F/-25°C) or very high (more than 140°F/60°C) temperatures.
- If the computer has been in a cold place for several hours, let it warm up to room temperature before you use it.
- Clean the computer's outside surfaces with a damp (not wet) cloth. Clean the screen with soft, lint-free paper or cloth and a mild glass cleaner. Do not spray the glass cleaner directly onto the screen.



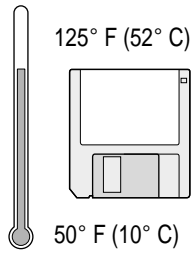
Caring for batteries

- Use only the battery supplied with your computer, or an identical model. Batteries designed for other portable computers may look similar, but they may not work with your computer and may damage it.
- Always handle batteries carefully.
- Never get batteries wet.
- Do not short-circuit the battery terminals (that is, do not touch both terminals with a metal object). Doing so may cause an explosion or a fire.
- Do not drop, puncture, disassemble, mutilate, or incinerate the battery.
- Recharge batteries only as described in this manual and only in ventilated areas.
- Do not leave batteries in hot locations (such as the trunk of a car).
- Do not leave a battery in your computer for longer than a week without plugging in the power adapter.
- Transport batteries either inside the computer or with the protective cap covering the battery contacts.
- Do not leave a battery in storage for longer than 3 months without recharging it.
- Take dead batteries to an Apple-authorized service provider for recycling or proper disposal. The batteries contain hazardous chemicals and should not be thrown out with household or office trash.

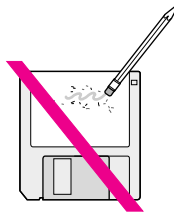


Handling floppy disks

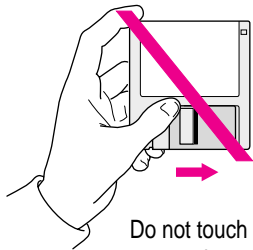
Store disks at temperatures between 50° F and 125° F.



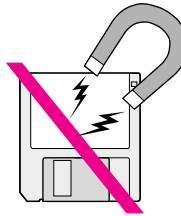
Do not use a pencil or an eraser on a disk or disk label.



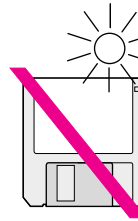
Keep disks dry.



Do not touch the exposed part of the disk behind the metal shutter.



Keep disks away from magnets.



Avoid exposing disks to extremely hot temperatures.

Traveling with the Macintosh PowerBook

IMPORTANT Always bring either the *Disk Tools* disk than came with your PowerBook or a set of system software disks that you made with the Floppy Disk Maker program with you when you travel. If you experience any system software problems while traveling, you will need these disks to correct any problem.

Airplanes and airports

Some airlines have reported that use of portable electronic devices may have interfered with the aircraft's flight navigation or communications systems. Many airlines restrict or manage the use of electronic equipment during flights. Please respect the regulations of the airlines.

A properly tuned X-ray machine should cause no damage to your PowerBook. But the motors that drive the belts on some security machines have magnets that can damage your information. To avoid problems, place the PowerBook close to the entrance of the machine and remove it as soon as possible. At most airports you can also have the PowerBook hand-inspected by security personnel.

Metal detectors should not damage the PowerBook.

Security officials may require you to turn the PowerBook on. Make sure you have a charged battery on hand.

Handling the Macintosh PowerBook

The safety instructions earlier in this appendix also apply when you are traveling. In addition, note these precautions:

- Do not transport your PowerBook while it is turned on. Put your computer to sleep or shut it down before you move it.
- Transport batteries either inside the computer or with the protective cap covering the battery contacts. Do not transport unprotected batteries.
- Be sure your batteries are fully charged if you are taking the computer places where you cannot plug it in.
- Do not check your computer as baggage. Carry it with you.

- Take the necessary plug adapters if you're traveling overseas. (You may need to use them with the power adapter.) You do not need a voltage transformer. The power adapter can handle 90 volts to 260 volts AC (48 Hz to 62 Hz).

Check the diagrams below to determine which plug adapters you'll need, or ask your travel agent.

Outlet Type	Locations
	United States, Canada, parts of Latin America, Japan, Korea, the Philippines, Taiwan
	Russia and the Commonwealth of Independent States, most of Europe, parts of Latin America, the Middle East, parts of Africa, Hong Kong, India, most of South Asia
	Mexico, United Kingdom, Ireland, Malaysia, Singapore, parts of Africa
	China, Australia, New Zealand

Storing the Macintosh PowerBook

- 1 Save your work on a hard disk or floppy disks.
- 2 Choose Shut Down from the Special menu.
- 3 Close the display.
- 4 Store the computer in a cool, dry place.

Storage temperatures should remain between 10°C and 40°C (between 50°F and 104°F). Avoid leaving the computer where temperatures may be extreme or unpredictable—in the trunk of a car, for example.

International use

The PowerBook AC Adapter can handle a wide range of voltages; a step-down transformer is not required. See the bottom of your power adapter for voltage information, and check local power voltages before using the PowerBook in a location outside the U.S. You may need a plug adapter to fit the adapter to an outlet.

To use a printer or other device in a location outside the U.S., you may need a step-down transformer. Obtain the transformer in the area you're traveling to. It should be able to handle at least 150% of the equipment's power requirements (as stated on the product label or in the technical specifications). You must use the transformer with a grounded outlet. A surge protector is highly recommended.

International repair and service

Apple's global limited warranty covers your Apple products for one year, regardless of where the products were purchased. Apple-authorized service providers in more than 80 countries can handle most repairs (unless the repair involves a component specific to another area of the world). Bring a copy of your proof of purchase with you.

Because of variations in environment and power supplies, Apple is not responsible for damage to Apple products used outside the U.S.

Service and support

If your computer is malfunctioning but does not appear to be physically damaged, shut it down (and leave the power adapter plugged in, if possible) until you can get help.

If you know or suspect that your computer is physically damaged, disconnect the power adapter, remove the battery, and do not use the computer until it can be repaired.

See the service and support information that came with your computer for information about how to contact the Apple Assistance Center for customer assistance.

Refer to this appendix for
information on using the
PowerBook 190 series keyboard



Appendix B Using Your Keyboard

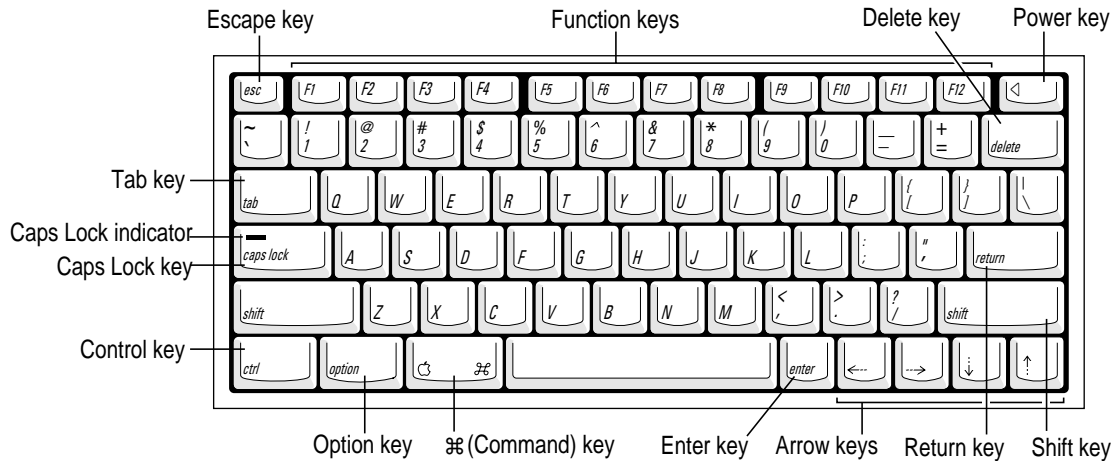


The PowerBook 190 series keyboard works in much the same way as the keyboards on other computers and on electric typewriters. However, there are a few special keys you should know about.

The illustration on the following page explains the function of all the special keys on the PowerBook 190 series keyboard.



Special keys on the PowerBook 190 series keyboard

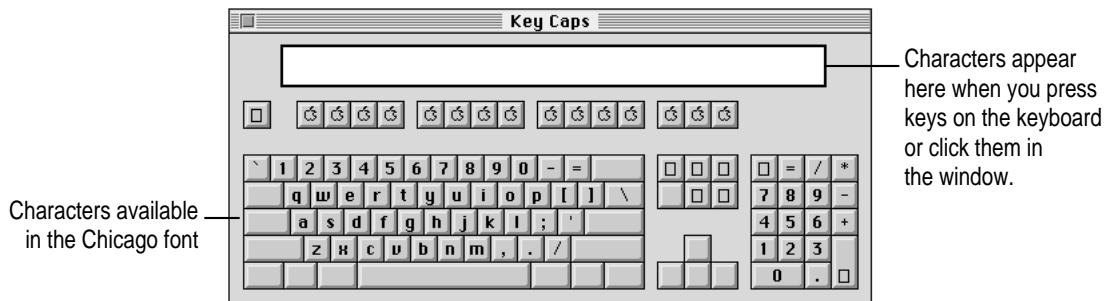


Arrow keys	Move the insertion point, as an alternative to using the pointing device. In some programs, the arrow keys have other functions.
Caps Lock key	A locking Shift key for letters only (numbers and symbols aren't affected).
⌘ (Command) key	Works in combination with other keys as an alternative to choosing a menu command.
Control key	In combination with other keys, provides shortcuts or modifies actions.
Delete key	Deletes selected material, or the character to the left of the insertion point.
Enter key	In a dialog box, pressing Enter is the same as clicking the outlined button. In some programs, confirms information you have provided.
Escape key	The function of this key depends on the program you're using.
Function keys	Some programs allow you to use function keys to give commands. You can assign commands or action sequences to function keys with utility programs.
Option key	In combination with other keys, produces special characters or modifies actions.
Power key	Turns the computer on, off, and restarts the computer.
Return key	Moves the insertion point to the beginning of the next line. In a dialog box, pressing Return is the same as clicking the outlined button.
Shift key	Produces capital letters (or the upper character on the key).
Tab key	Moves the insertion point to the next stopping place (such as a tab stop or data field).

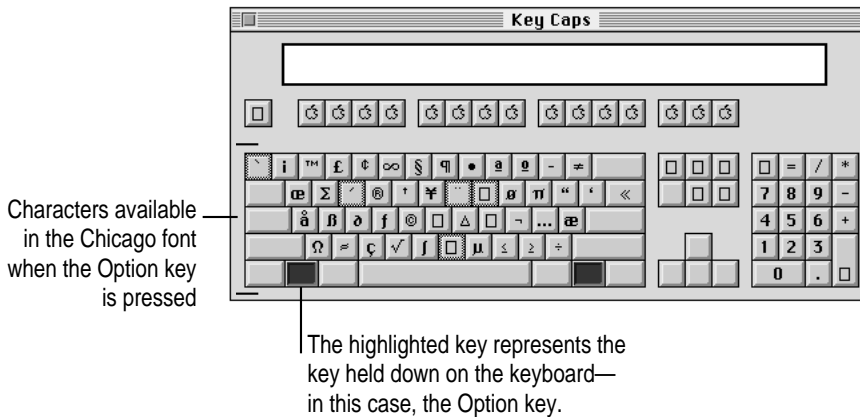
Typing special characters and symbols

You can type a variety of international and other special symbols and characters (including characters with diacritical marks, such as accents) by pressing combinations of keys.

The Key Caps program, which is installed with your system software, shows you the characters produced when you type certain keys and key combinations in the fonts available on your computer. Choose Key Caps from the Apple (🍏) menu, then choose the font from the Key Caps menu.



To have Key Caps show more options for special characters, press each of these keys or key combinations: Option, Shift, Shift-Option, Shift-⌘, and Option-⌘.



If you press the Option key, Key Caps outlines lightly the keys that you can use in combination with letter keys to type letters with accents or other diacritical marks.

If you see rectangles: If you see rectangles instead of diacritical marks on some of the pictures of keys in Key Caps, try pressing Option-⌘ to see the diacritical marks. However, you only need to use the Option key (not Option-⌘) in combination with the other keys to type letters with diacritical marks.

If you press the Option key at the same time as a key for a specific diacritical mark and then release both keys, Key Caps outlines in bold the keys for letters that can be typed with that mark. (You'll see that most key combinations for diacritical marks can be used with the Space bar as well as letter keys—producing the mark without a letter.)

The most common diacritical marks and how to create them are summarized next.

Diacritical mark	Key combination
Grave accent (`)	Option-` , then type the character
Acute accent (´)	Option-e, then type the character
Circumflex (^)	Option-i, then type the character
Tilde (~)	Option-n, then type the character
Umlaut (¨)	Option-u, then type the character
The letter "c" with a cedilla (ç)	Option-c

- **To type a letter or a space with a specific diacritical mark, press the Option key and the key for the mark simultaneously. Then type the letter that needs the mark.**

If you are having trouble getting a mark and letter to appear together, try again. Be sure to press the Option key before (or at the same time as) the key for the mark; then, after you release both keys, type the letter to be marked.

Special key combinations

If difficulties with your trackpad or computer don't allow you to use standard methods of quitting a program or restarting your computer, you can try using these special key combinations.

To do this...	...press this key combination
Force a program to quit	⌘-Option-Esc
Force the computer to restart	⌘-Control-Power key

Here are other key combinations you may find useful.

To do this...	...press this key combination
Start a "debugging" application used by software programmers*	⌘-Power key
Rebuild desktop	Shift key (while starting up) release, then hold Option-⌘

*If you do not have a debugging program installed, your screen displays a caret prompt (>). To return to the desktop, type the letter "G."

Refer to this appendix for instructions on installing a RAM expansion card.



Appendix C Installing a RAM Expansion Card

• • • • •

The instructions in this section tell you how to install a RAM expansion card in your Macintosh PowerBook.

Note: Installing a RAM card is a technically challenging procedure. You should attempt it only if you are comfortable working with electronic equipment. You should read all of the following instructions before you begin. If the procedure sounds like something you don't want to do yourself, any Apple-authorized service provider can install the card for you (for a service charge).

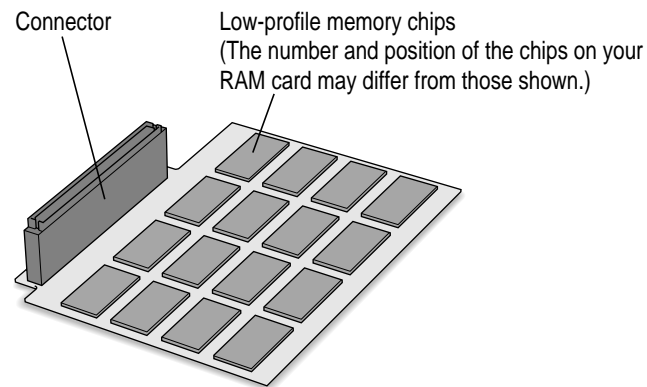
WARNING If you attempt to install additional RAM yourself, any damage you may cause to your equipment will not be covered by the limited warranty on your computer. See an Apple-authorized dealer or service provider for additional information about this or any other warranty question.

Getting ready

You need the computer, the RAM expansion card, and a screwdriver with a Torx T-8 head. (If one is not provided with your RAM card, you can purchase a Torx T-8 screwdriver at a hardware or electronics supply store.) Make sure you are installing an upgrade card made for a Macintosh PowerBook 190 series computer.

IMPORTANT No other type of screwdriver can be used to install an expansion card in your PowerBook.

The RAM card must use low-profile memory chips.



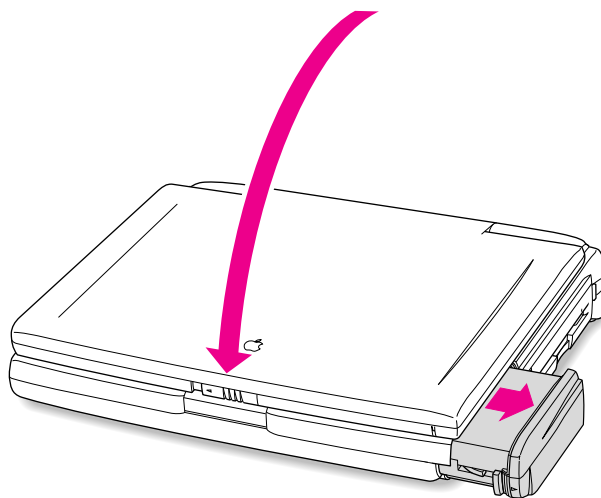
There are three steps you need to follow to install a RAM expansion card:

1. Remove the PowerBook's keyboard.
2. Install the card.
3. Replace the keyboard.

Removing the keyboard

To remove the keyboard from the PowerBook, follow these steps:

- 1 Shut down the computer.**
- 2 Disconnect the power adapter cable from the computer.**
- 3 Close and latch the display.**

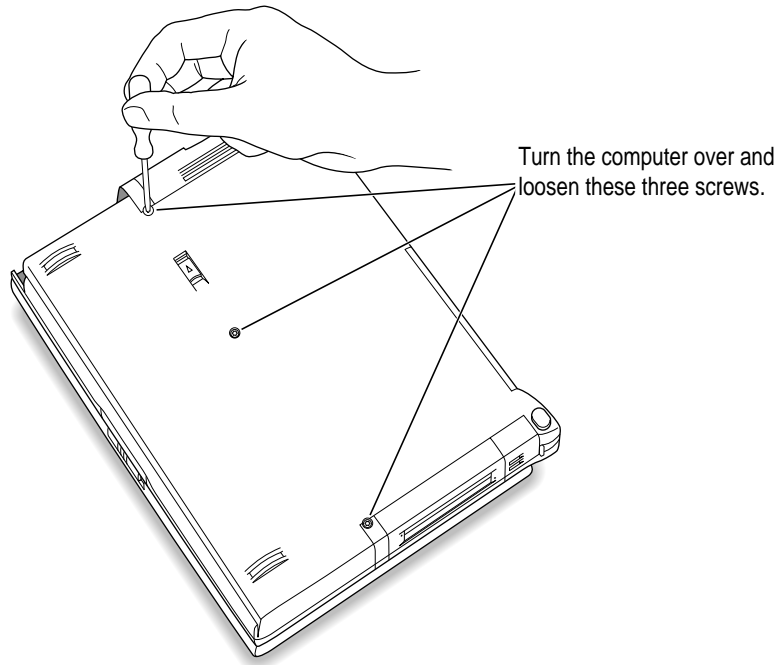


- 4 Remove the battery from the computer.**

If you're unfamiliar with this procedure, follow the instructions in “Removing and Replacing the Battery” in Chapter 6.

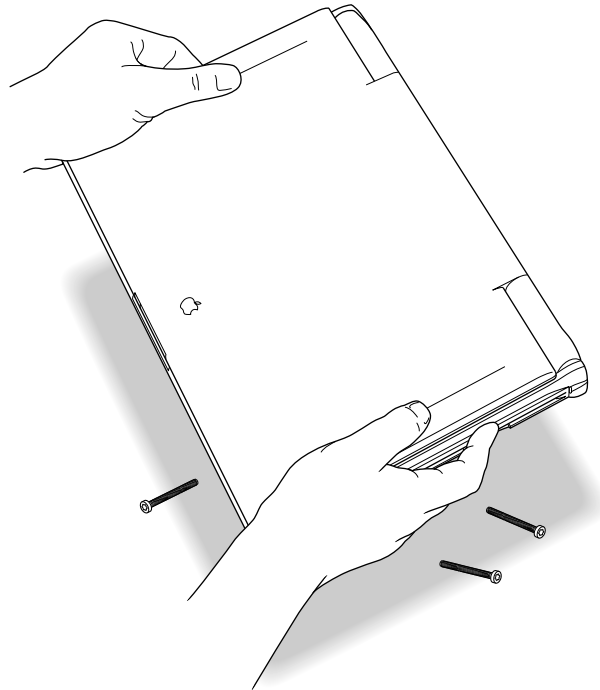
5 Turn the computer over and unscrew the three screws on the bottom of the computer.

These screws can only be loosened with a Torx T-8 screwdriver.

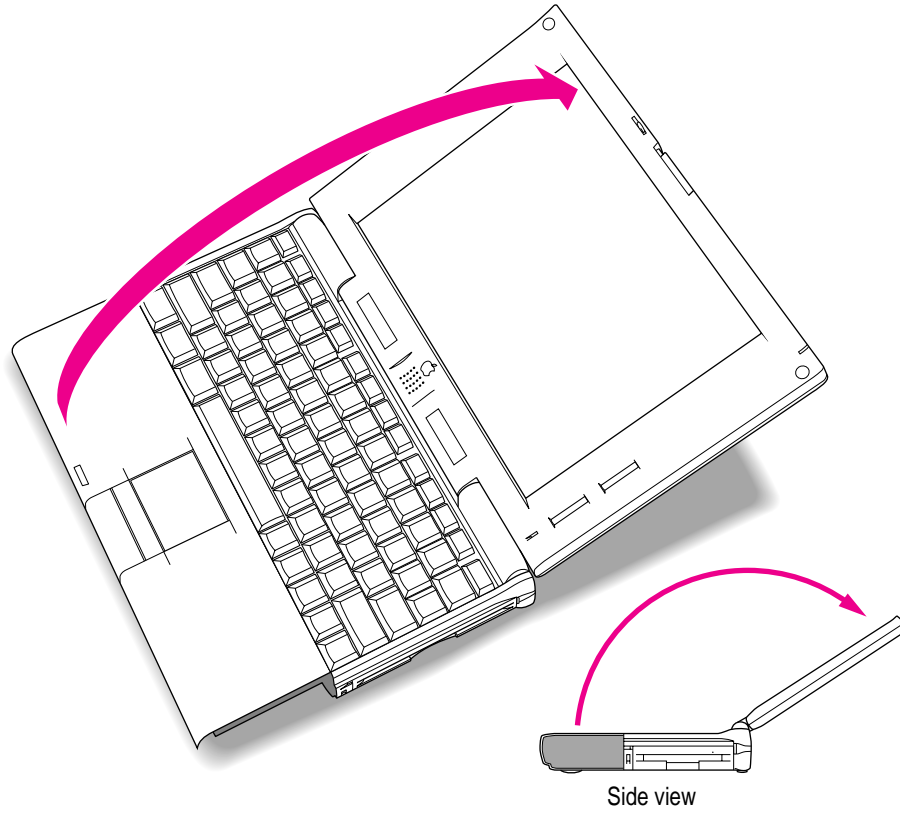


6 Lift up the computer and carefully turn it over to remove the three loosened screws.

When the screws drop out, set them aside.



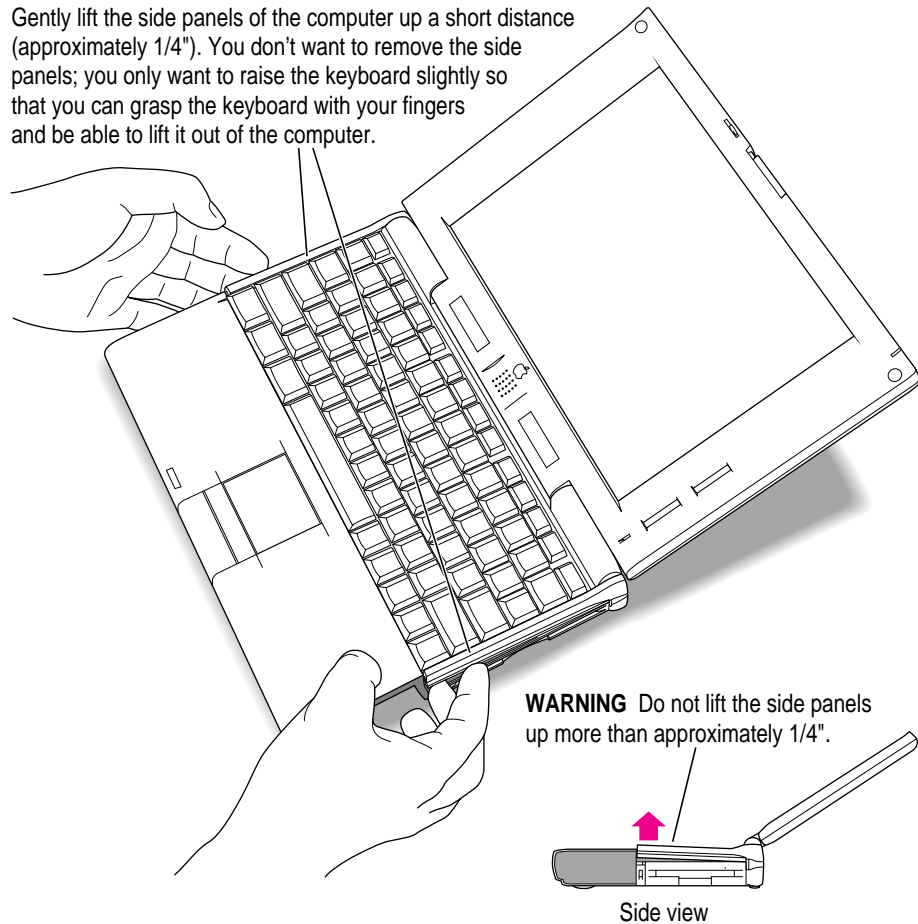
- 7 Set the computer down and open the display to its maximum angle.



8 Gently lift the side panels of the computer a short distance.

Be careful not to lift too far. A slight lift should raise the keyboard enough for you to grasp it.

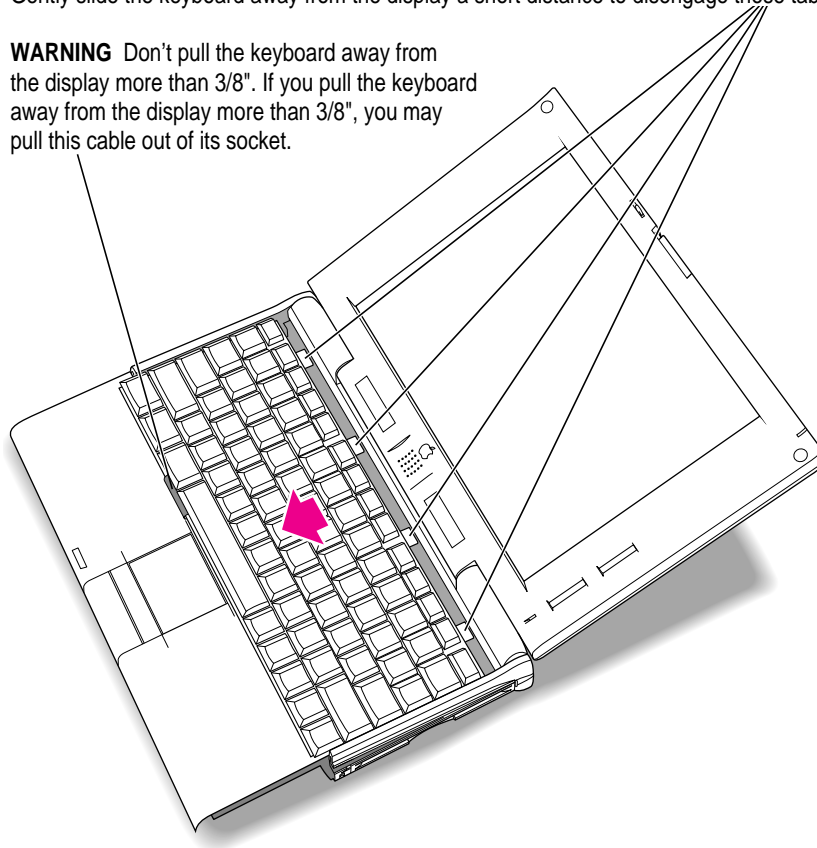
Gently lift the side panels of the computer up a short distance (approximately 1/4"). You don't want to remove the side panels; you only want to raise the keyboard slightly so that you can grasp the keyboard with your fingers and be able to lift it out of the computer.



- 9** Carefully pull the keyboard forward to loosen the four tabs at the top. Be very careful to avoid pulling the keyboard out too far. The cable attaching the keyboard to the computer is very short.

Gently slide the keyboard away from the display a short distance to disengage these tabs.

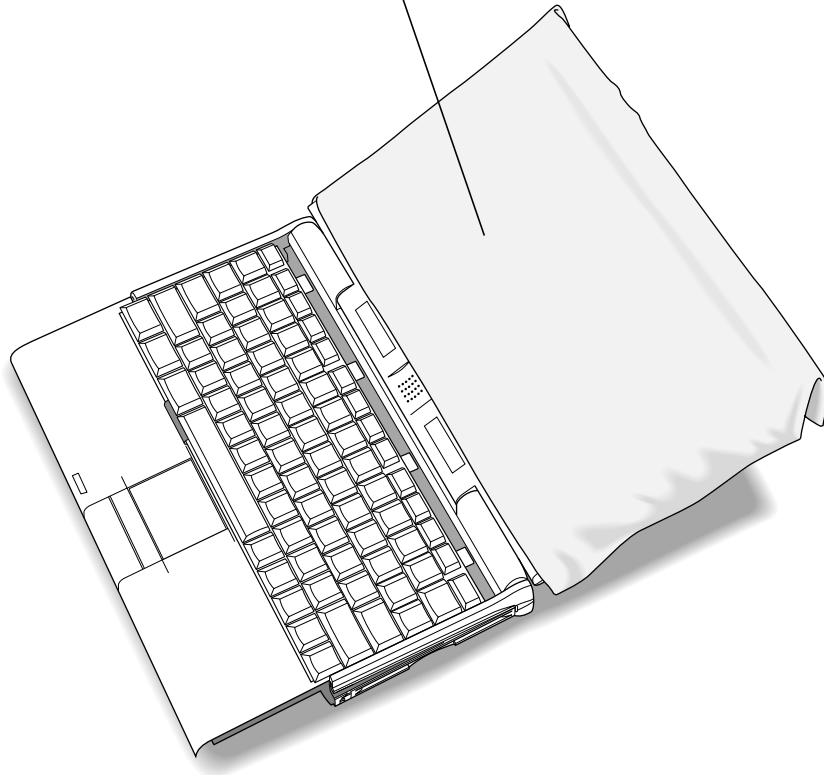
WARNING Don't pull the keyboard away from the display more than 3/8". If you pull the keyboard away from the display more than 3/8", you may pull this cable out of its socket.



This action should move the top edge of the keyboard out of its enclosure, allowing you to grasp and free the entire keyboard.

10 Place a clean, dry cloth over the display to protect it.

Place a soft, dry, clean cloth over the display to protect it from scratches.

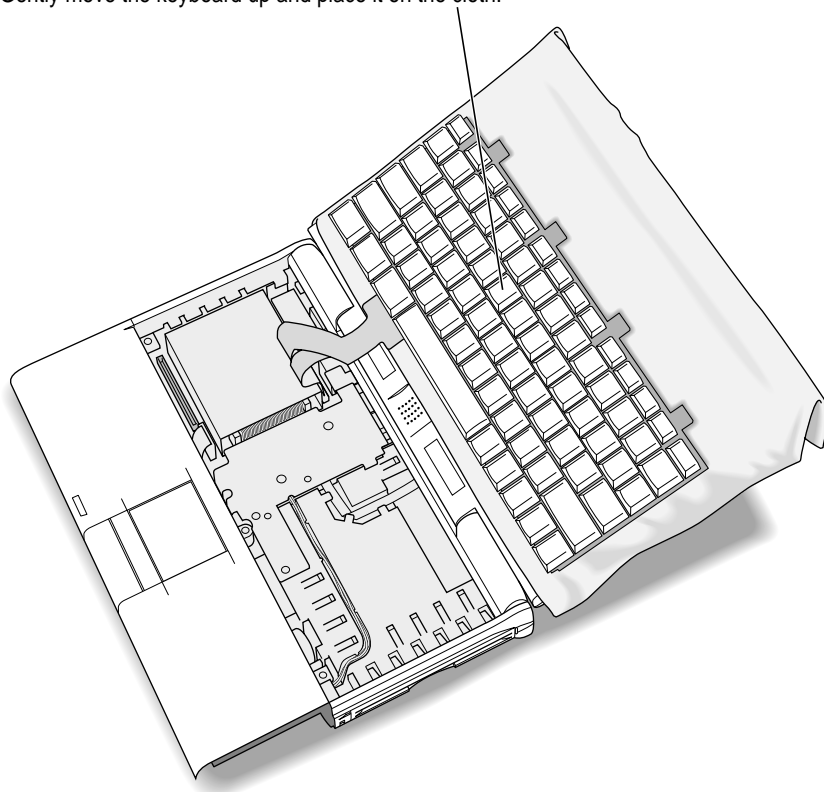


- 11** Lift the keyboard out of its enclosure and place it on the clean, dry cloth covering the display.

Again, be very careful to not to lift the keyboard too far out of its enclosure.

Don't turn the keyboard over; just slide it up on the cloth.

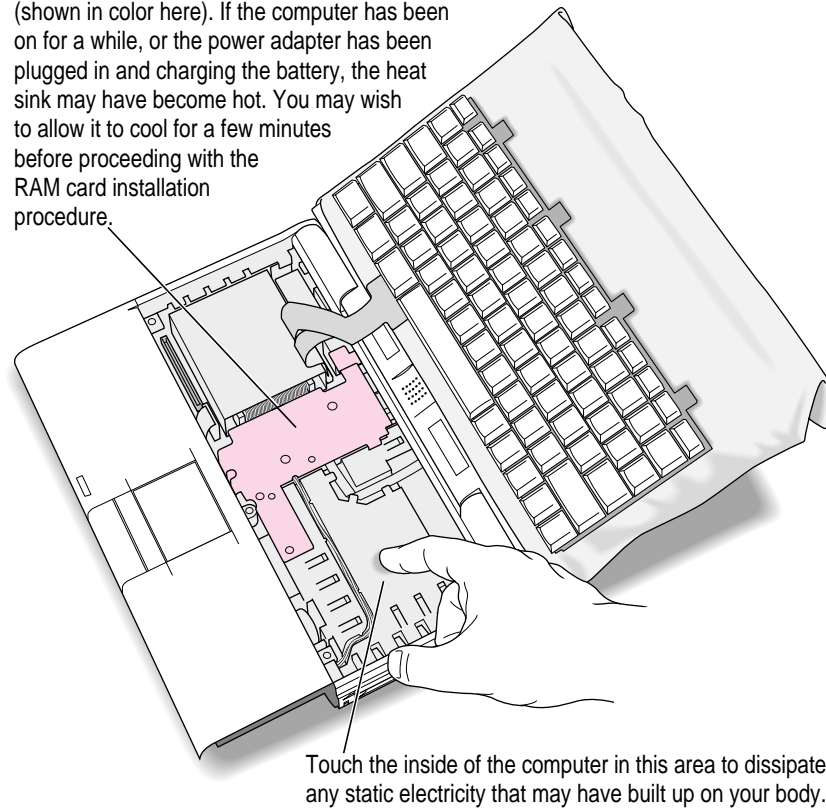
Gently move the keyboard up and place it on the cloth.



- 12 Gently touch the metal surface on the right side of the inside of the computer to discharge any static electric built up on your body.**

This protects your RAM card and PowerBook from damage.

Avoid touching the heat sink inside the computer (shown in color here). If the computer has been on for a while, or the power adapter has been plugged in and charging the battery, the heat sink may have become hot. You may wish to allow it to cool for a few minutes before proceeding with the RAM card installation procedure.



Touch the inside of the computer in this area to dissipate any static electricity that may have built up on your body.

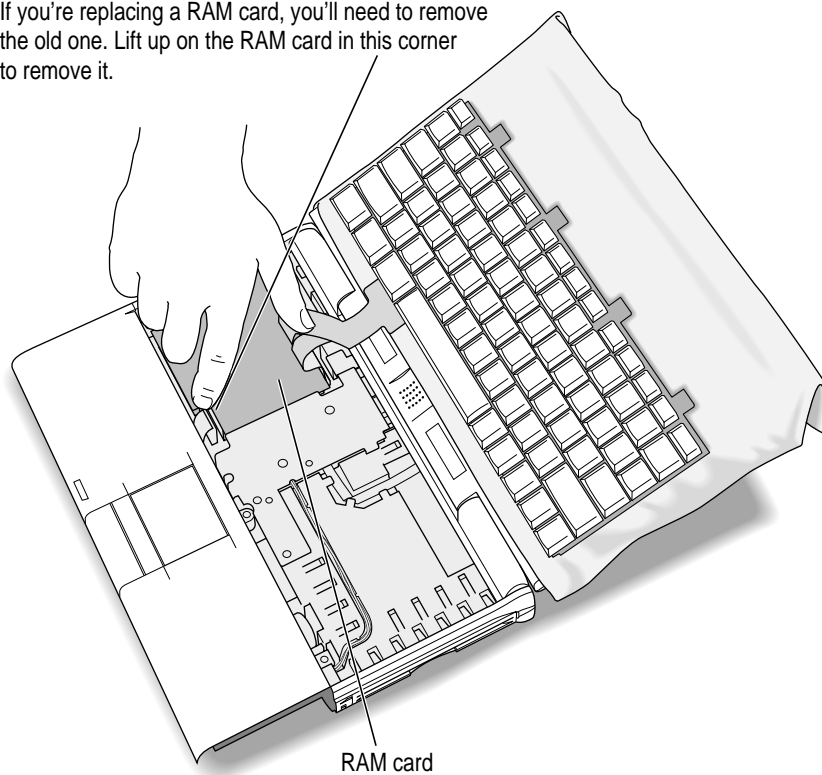
Don't walk around while you're installing the card. If you do, make sure you touch the metal surface again before continuing.

Installing the RAM expansion card

Continue with the steps in this section to install your RAM expansion card.

- 1** If you are replacing a RAM card, lift the corner of the RAM card you are replacing to remove it.

If you're replacing a RAM card, you'll need to remove the old one. Lift up on the RAM card in this corner to remove it.



Be careful not to touch other parts of the computer's interior when lifting the card. Some parts may be hot if the battery has been charging or the computer has recently been used.

- 2 Remove the RAM card from its protective package, if necessary, and position it for installation.**

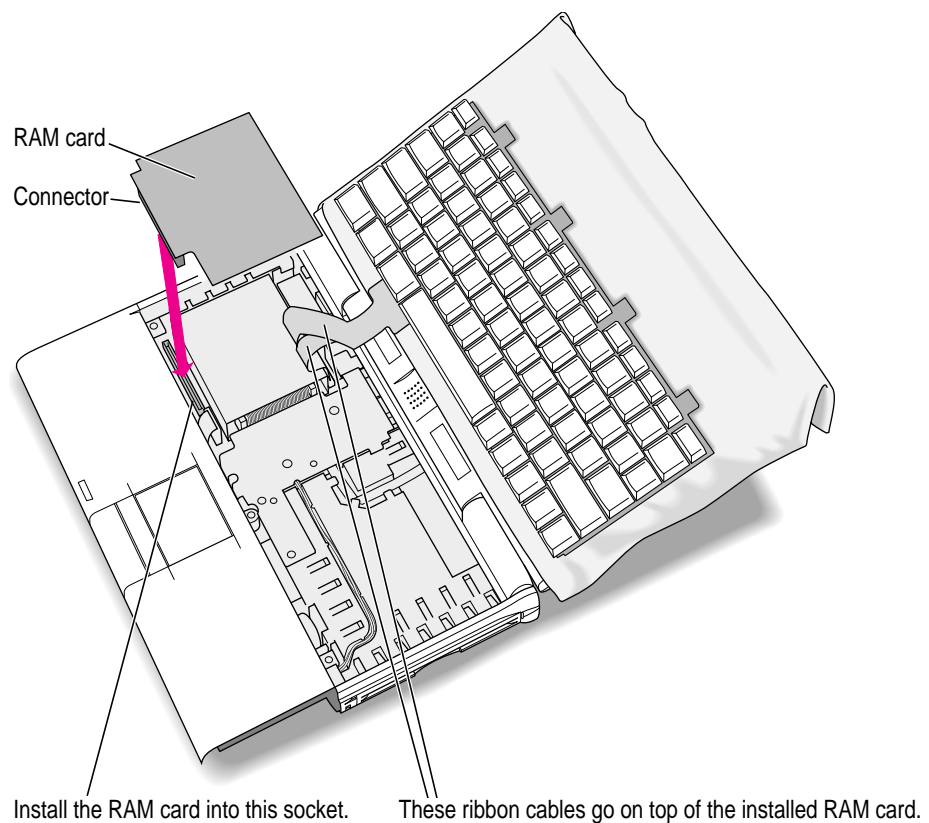
Hold the card by its edges. Don't touch the chips, wires, or metal parts of the card. Orient the card so that the connector is on the left side.

IMPORTANT Use a RAM card with TSOP low-profile RAM chips only. Installing a card with high-profile chips may damage your computer.

Save the protective package in case you want to remove the card later.

- 3 Lower the card into the computer and align its connector with the socket on the main circuit board.**

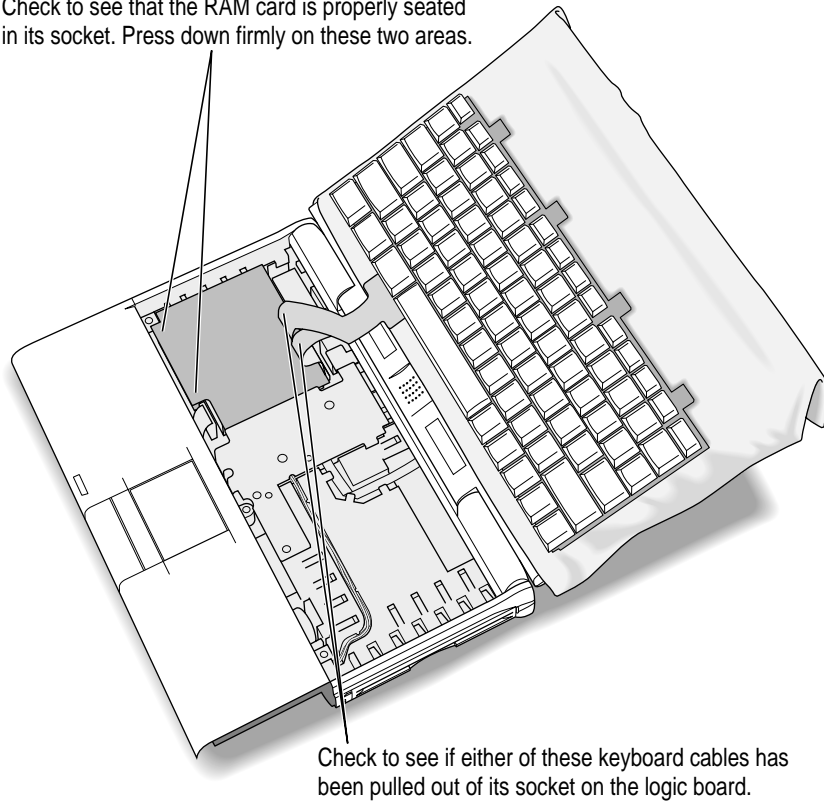
It's easiest to align the card if you hold it at an angle, with the right side raised. Make sure the ribbon cables for the keyboard go on top of the installed card.



4 Lay the card flat, then gently press the card into the socket.

You need to exert some pressure to insert the card's connector into the socket. It's all right to wiggle the card to move it or to insert one side and then the other, but be very careful not to bend or bow the card.

Check to see that the RAM card is properly seated in its socket. Press down firmly on these two areas.



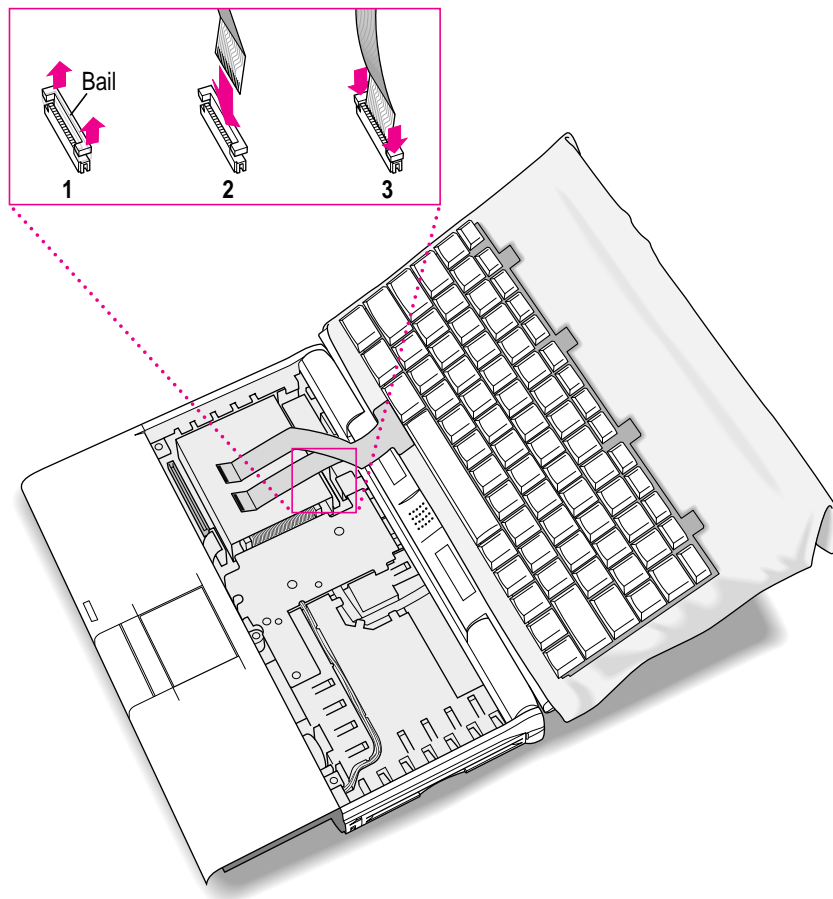
Check to see if either of these keyboard cables has been pulled out of its socket on the logic board.

Make sure the keyboard cables are still properly connected.

Replacing the keyboard

Before you replace the keyboard, make sure the keyboard cables are secure. If the keyboard cables are loose, follow these steps to replace the cables:

- 1 Lift the bail on the connector with a straightened paper clip or similar object.
- 2 Insert the ribbon cable into the connector.
- 3 Push down on the bail with a straightened paper clip or similar object to secure the ribbon cable.

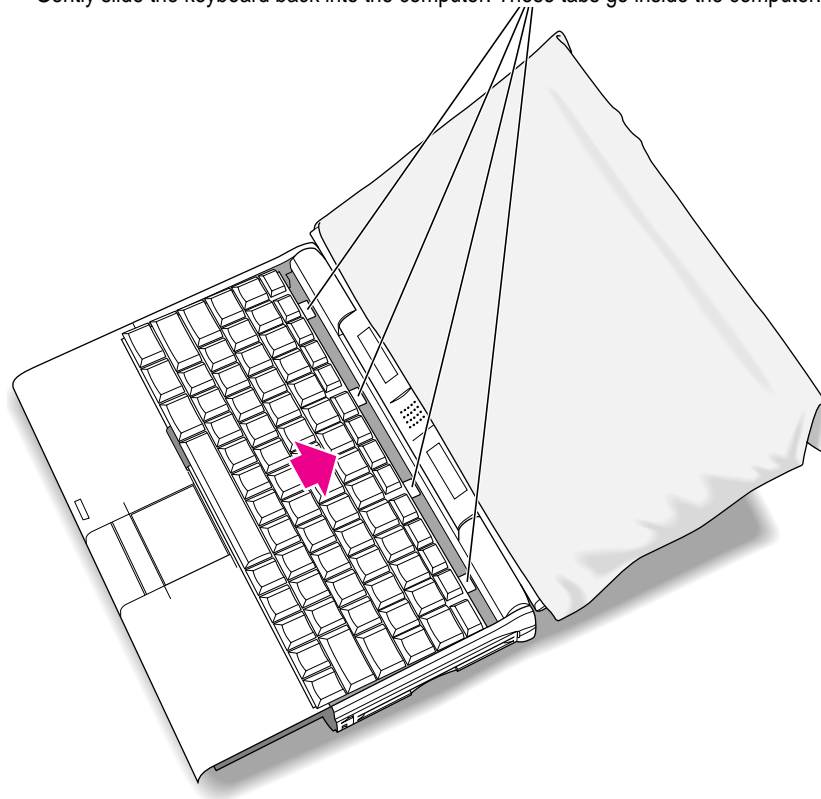


- 1 Slide the keyboard forward and position it with the tabs at the top sliding into the enclosure.**

Hold the keyboard no more than an inch above the enclosure to avoid straining the cables.

- 2 Slide the keyboard back into the enclosure. The tabs at the top should slide inside the computer.**

Gently slide the keyboard back into the computer. These tabs go inside the computer.



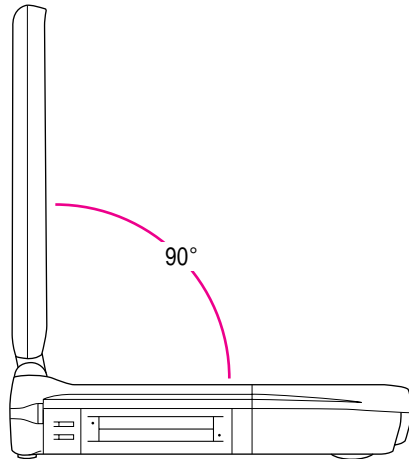
Make sure the keyboard is inserted all the way.

3 Lower the keyboard into place.

If part of the keyboard doesn't lie flat within the enclosure, gently press that area down with your hand.

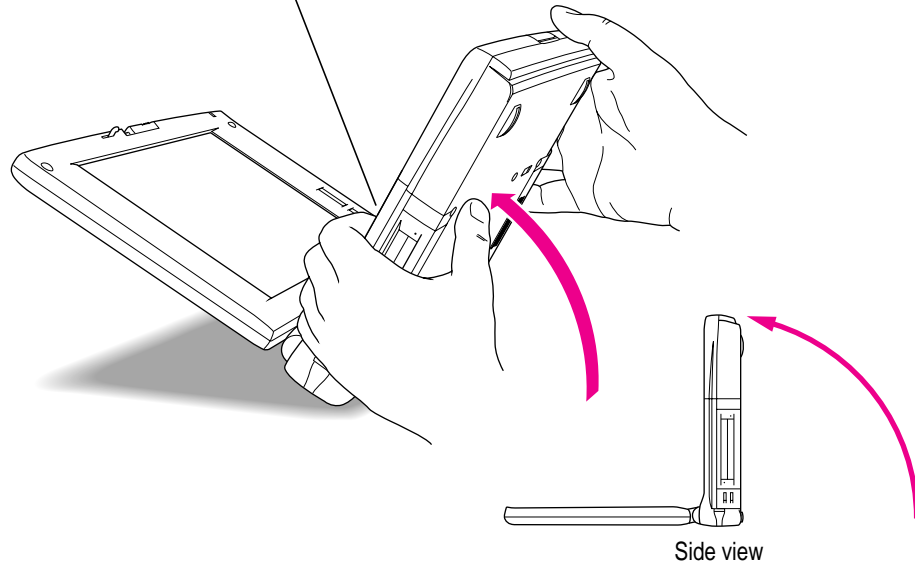
4 Remove the cloth from the display.

5 Slightly close the display so it is at a 90 degree angle to the computer.



- 6** While holding the keyboard in place, rotate the PowerBook so the that underside faces up, with the display flat against the table surface.

While holding the keyboard in place so that it doesn't fall out, rotate the computer so that the display is flat against the table surface.

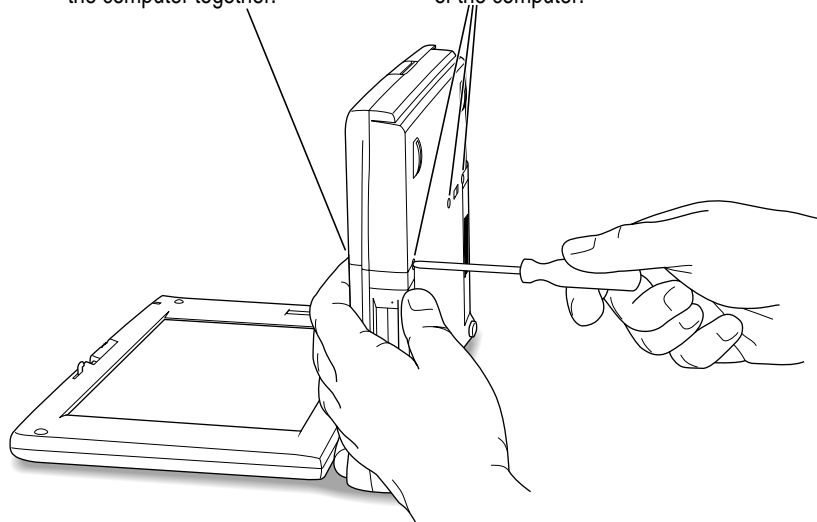


- 7 Gently but firmly hold the keyboard to the other parts of the computer.**
- 8 While holding the keyboard down, replace the three screws on the bottom of the PowerBook.**

Replace the right and left screws first, and the middle screw last.

1 Gently but firmly squeeze the keyboard and the other parts of the computer together.

2 While squeezing the parts together, reinstall the three screws into the bottom of the computer.



Not too tight: Take care not to overtighten the screws. Tighten them only until they are snug (when you feel resistance to your turning motion). It's better to leave them a bit loose than to make the screws too tight.

- 9 Turn over the PowerBook and prepare to use it.**

Replace the battery and reconnect the power adapter and any cables you removed before installing the RAM expansion card.

Checking to make sure a RAM card is properly installed

Once you have completed the process for installing a RAM expansion card, you can check to make sure the additional RAM is now available on your computer. Follow these steps:

- 1 Press the Power key to turn your computer on.**
- 2 Choose About This Macintosh from the Apple () menu.**
- 3 Look at the number of the total memory in your computer.**

Your total memory should be the built-in memory plus the amount of memory in the RAM expansion card that you just installed.

If the total memory number does not include the amount of RAM you installed, review the steps in this appendix to make sure you installed the card correctly. If you need more help, see an Apple-authorized dealer.

If you hear an unusual startup sound when the computer starts up, there may be a problem with the RAM expansion card. If you installed the RAM expansion card in your computer yourself, review the steps in this appendix to make sure you installed the card correctly. If you purchased an expansion card from a third-party manufacturer, contact the manufacturer for help.

If you can't find what you're looking for in this index, look in Macintosh Guide—available in the Guide (Ⓜ) menu on your computer.



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The Apple Publishing System

This Apple manual was written, edited, and produced on a desktop publishing system using Apple Macintosh computers and QuarkXPress. Technical illustrations were drawn in Adobe™ Illustrator; screen shots were created and modified with system software, ExposurePro, Aldus SuperPaint, and Adobe Photoshop. Proof pages were created on Apple LaserWriter printers and on QMS and Tektronix color printers. Final pages were output directly to separated film on a PostScript™-driven imagesetter.

Text type is Times®, display type is Helvetica® Narrow, and cover type is Apple Garamond, Apple's corporate font. Ornaments are custom symbols designed for Apple Computer. Some elements, such as computer voice, are set in Apple Courier, a fixed-width font.

PostScript, the LaserWriter page-description language, was developed by Adobe Systems Incorporated.

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