



Macintosh PowerBook User's Manual

.....
*Includes setup, troubleshooting, and important health-related
information for Macintosh PowerBook 1400 series computers*

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Apple Computer, Inc.
1 Infinite Loop
Cupertino, CA 95014-2084
408-996-1010
<http://www.apple.com>

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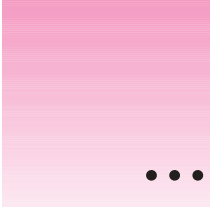
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Communications regulation information

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.

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.

Industry Canada statement

This Class B device meets all requirements of the Canadian Interference-Causing equipment regulations.

Cet appareil numérique de la Class B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

VCCI Class 2 statement

情報処理装置等電波障害自主規制について

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づく第二種情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

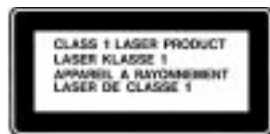
取扱説明書に従って正しい取り扱いをしてください。

Laser information

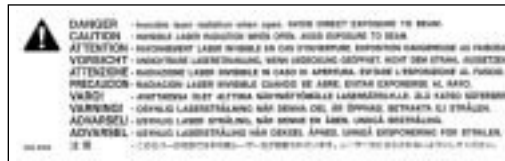
WARNING Making adjustments or performing procedures other than those specified in your equipment’s manual may result in hazardous radiation exposure.

WARNING Do not attempt to disassemble the cabinet containing the laser. The laser beam used in this product is harmful to the eyes. The use of optical instruments, such as magnifying lenses, with this product increases the potential hazard to your eyes. For your safety, have this equipment serviced only by an Apple-authorized service provider.

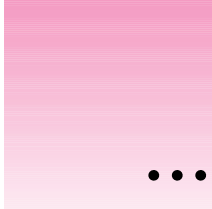
If you have an internal Apple CD-ROM drive in your computer, your computer is a Class 1 laser product. The Class 1 label, located in a user-accessible area, indicates that the drive meets minimum safety requirements. A service warning label is located in a service-accessible area. The labels on your product may differ slightly from the ones shown here.



Class 1 label



Service warning label



Welcome to PowerPC

Congratulations on the purchase of your new Macintosh PowerBook computer. Your computer is designed to give you the highest performance combined with real ease of use—it's easy to set up, easy to use, and easy to expand. This book will guide you through the setup procedure, tell you how to expand your computer, and provide many tips on using your new system.

Your computer is powered by the new **PowerPC** microprocessor (or “chip”). This microprocessor was designed by Apple Computer, Inc., Motorola, Inc., and IBM Corporation. The **PowerPC** microprocessor uses Reduced Instruction Set Computing (RISC) technology to deliver very high performance at the lowest possible cost. The **PowerPC** RISC microprocessor represents the state of the art in microprocessor design.

Your new computer will run almost all your existing Mac OS software, but for best performance and greatest speed, look for the new software programs designed especially for computers with **PowerPC** microprocessors. You'll find these programs at any software store that carries Mac OS products.

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



I
part



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

1

Getting Started



The information and illustrations in this chapter provide an overview of your Macintosh PowerBook system and get you started using the computer. To begin, take a few moments to review some important details about the computer's hardware, software, and learning materials.

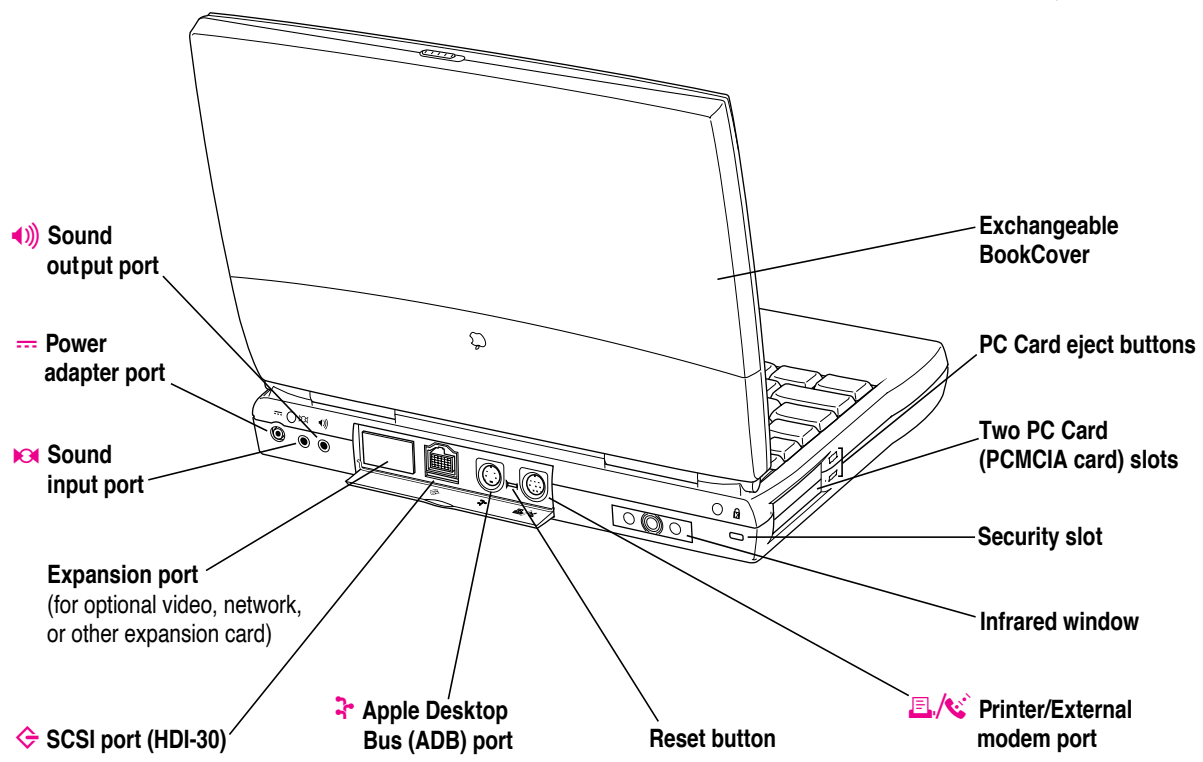
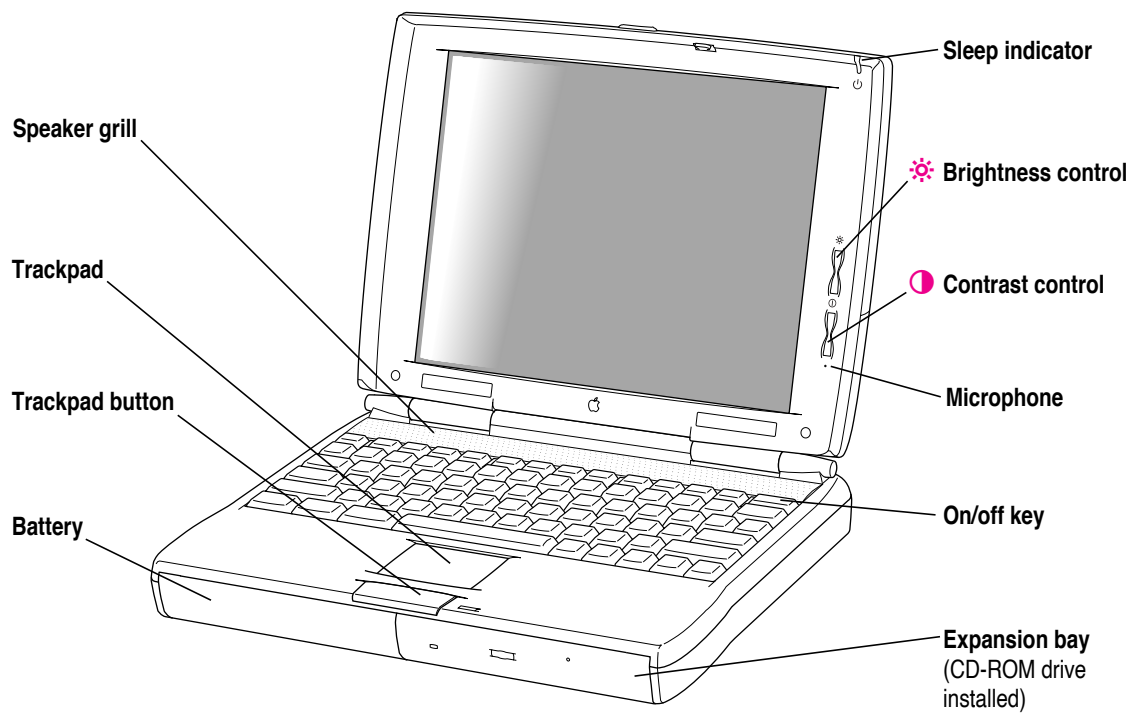
Becoming familiar with your Macintosh PowerBook

Your PowerBook is designed to keep you working productively in any location. With a PowerBook, you have

- easily expandable hardware
- specialized programs for mobile computing and versatile productivity applications, in addition to Macintosh system software
- interactive online instructions for using the computer, a manual for setting up and troubleshooting, and print and electronic manuals for application programs provided with the computer

Hardware at a glance

The illustration on the next page shows the built-in features of your computer, including the slots for PC Cards, the expansion bay for adding a CD-ROM drive or other internal device, and the ports for connecting to a network, a printer, and other external equipment.



Software for mobility and efficiency

Your PowerBook comes with a variety of applications, utility programs, and control panels that provide broad functionality and flexibility.

In the Applications folder

- Apple Internet Connection Kit, complete software for using the Internet
- Apple Telecom, software for using a modem to send faxes
- ClarisWorks, for word processing, graphics, spreadsheet, database, and telecommunications
- Claris Organizer, for managing contacts and calendar information
- PowerBook File Assistant, for synchronizing file contents when you have several versions of a file
- Apple IR File Exchange, for sending and receiving files using the computer's infrared window
- Remote Access Client, for connecting to a computer located elsewhere

In the Apple Extras folder

- MoviePlayer, for viewing QuickTime movies
- A template for making BookCover inserts to display on the computer's case
- Specialized files for use with a PC Card modem

In the Utilities folder

- Battery Recondition, for extending the useful life of batteries
- Drive Setup, for testing, formatting, and partitioning hard disk drives and drives for removable media (except PC Cards), such as optical disks
- Disk First Aid, for testing and repairing floppy disks and hard disks or removable media (except PC Cards)

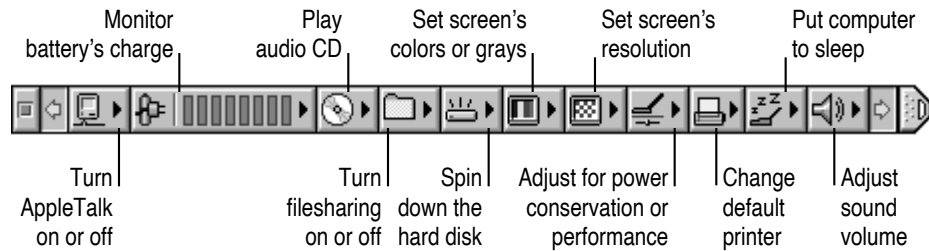
In the Control Panels folder

- Apple Location Manager, for saving groups of system settings, called "locations," that you can use in different operating environments, such as your office and home

Each folder contains other items as well.

Control Strip for quick changes

The Control Strip appears on the desktop when you start up your PowerBook for the first time. This strip lets you change common settings quickly—by pressing an icon and then choosing the option you want from a pop-up menu.



(The Control Strip on your PowerBook may not look exactly like the illustration, depending on your computer's settings.)

You can adjust the Control Strip and add or remove items from it. For instructions, see “How do I use the Control Strip?” in the “Customizing Your Computer” topic area of Mac OS Guide, available from the Guide (Ⓜ) menu.

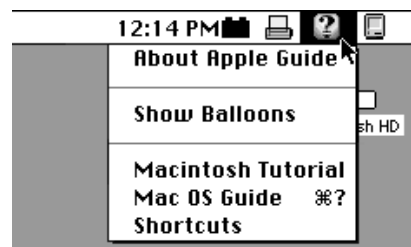
Learning materials and other information about the computer

Your PowerBook comes with a user's manual that provides the information you need for setting up the computer, caring for it, and finding solutions to problems with the hardware. Depending on the PowerBook model you have, other manuals may be included as well.

The majority of instructions for using your PowerBook are online—in the Macintosh Tutorial, which introduces new users to the computer, and Mac OS Guide, which offers step-by-step instructions for the primary tasks you perform with the computer.

The Guide menu

You use the Guide menu to open Macintosh Tutorial or Mac OS Guide.



The Guide menu contains online instructions for using Macintosh system software when the Finder is the active program. In addition to Mac OS Guide and the tutorial, the Guide menu contains an explanation for using the Guide online instructions (About Apple Guide) and a summary of shortcuts.

The Guide menu usually provides online help for other applications when they are active.

You also use the Guide menu to turn balloons on or off. When turned on, balloons display a description of the item on the screen at the pointer's location. The illustration shows the balloon for the Trash.



When you have questions about the computer

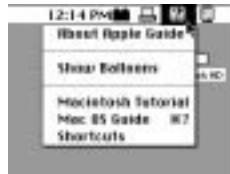
When you have questions about using your Macintosh, you can look for answers in several places. These include

- Mac OS Guide and other online instructions available in the Guide menu
- electronic manuals and Read Me documents on your computer's hard disk
- files that provide demonstrations and tours of the hardware and software (on the hard disk)
- the printed manuals that came with your computer and with any additional application programs or equipment you're using
- Apple's World Wide Web sites and other information sources on the Internet (by modem)
- the Apple support center (by telephone)


Where to find answers

The summary that follows indicates the type of information you can expect to get from each information source.

On the computer's hard disk



In the Guide menu

The Guide menu (marked with the  icon) is your main source of information about the Macintosh. You can learn basic skills in the tutorial and get interactive, step-by-step help for tasks in Mac OS Guide.



Remote Access manual

In electronic manuals

For some programs, condensed instructions and reference information are supplied in an online manual. This type of document usually contains illustrations and bookmarks you use for quick access to the items you need. You can print this manual also.



Read Me

In Read Me documents

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



PowerBook Highlights

In software samplers and tours

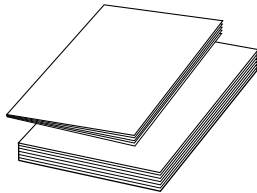
Some files on your hard disk offer a tour of the computer's features or an introduction to one or more applications.

In the printed materials



In this book

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



In other manuals

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

On the Internet



At Apple's Web sites

Apple maintains a number of sites on the World Wide Web that provide software updates, product information, and technical information. The central site is <http://www.apple.com>. Several other Apple sites (linked to the central one) provide PowerBook updates, product details, and mobile computing solutions.

Over the telephone



From Apple's customer support line

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

Preparing to set up the computer

Now that you know some essential details about your PowerBook, you're ready to set it up and begin using it.

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.

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 been drained during shipping or storage.

WARNING Use only the power adapter that came with your Macintosh PowerBook computer (model number M4896, 45W AC Adapter). Adapters for other electronic devices (including other Macintosh PowerBook models and other portable computers) may look similar, but they may damage your computer.

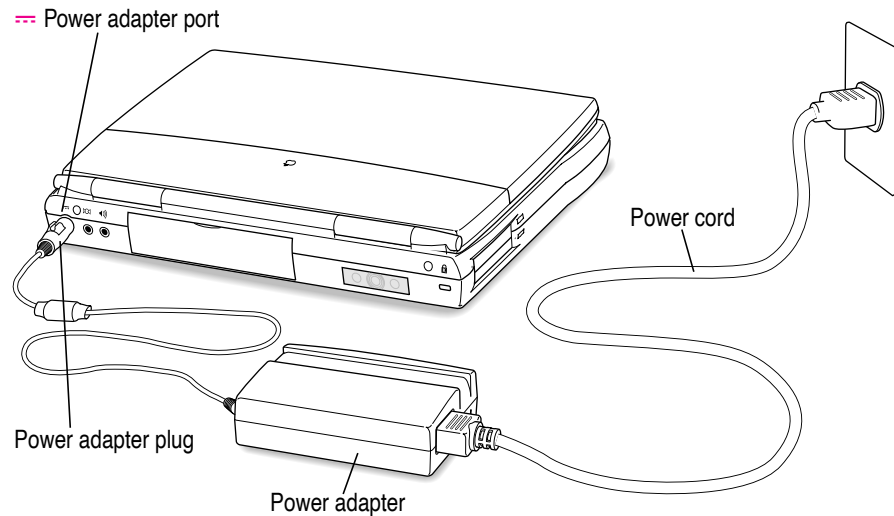
When you are ready to begin, follow these steps:

- 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.**

Note: It's important to plug the adapter into a wall outlet before attaching it to the computer.

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!

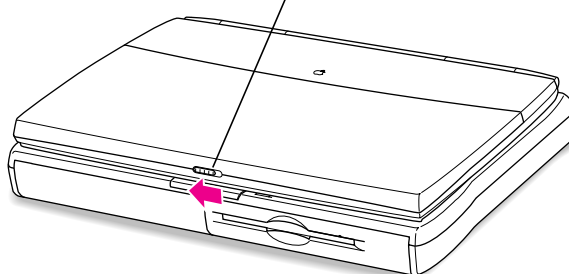
- 2 **Plug the power adapter plug into the power adapter port (marked with the icon \equiv) on the back panel of the computer.**



Opening the display

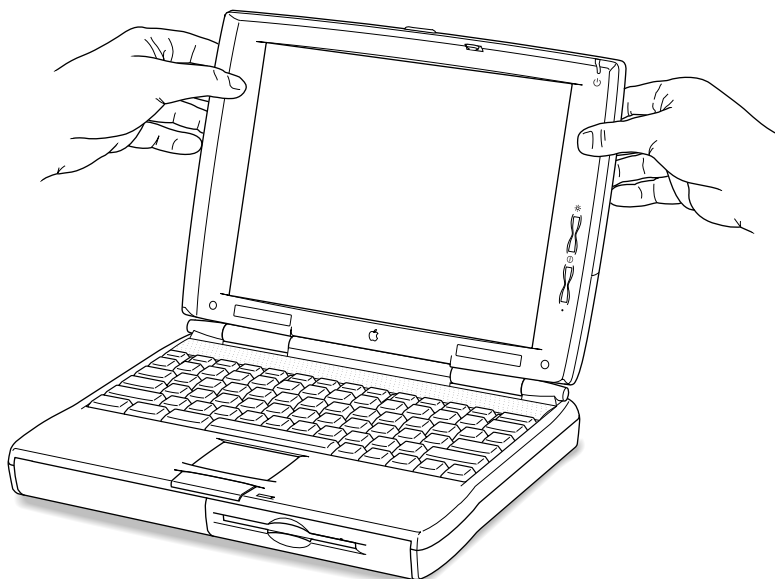
- 1 Slide the latch to the left and lift up the display.

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.

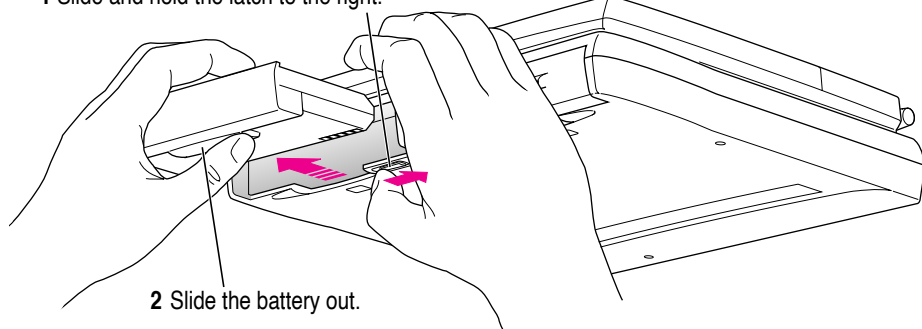


Removing the battery label (if necessary)

Most new PowerBooks are shipped with a label covering the battery to protect it from losing its charge completely. If there is a label, you need to remove it before the battery will provide power for the computer.

- 1** With the display open, peel off the part of the label on the computer's case, taking care not to tear the label.
- 2** Close the display.
- 3** Move the latch under the battery to the right and hold it in that position.
- 4** Slide the battery out of its compartment.

1 Slide and hold the latch to the right.



- 5** Carefully remove the label from the battery.

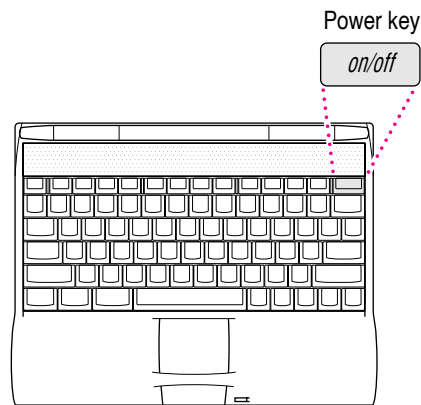
Avoid touching the battery's metal contacts as you peel off the label.

- 6** Replace the battery and open the display.

Turning the computer on

To turn on the computer for the first time:

- Press the Power key (marked with “on/off”) at the upper-right corner of the keyboard to turn the computer on.



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. In a few moments the Macintosh desktop appears, like the picture below.



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

Problems turning the computer on?

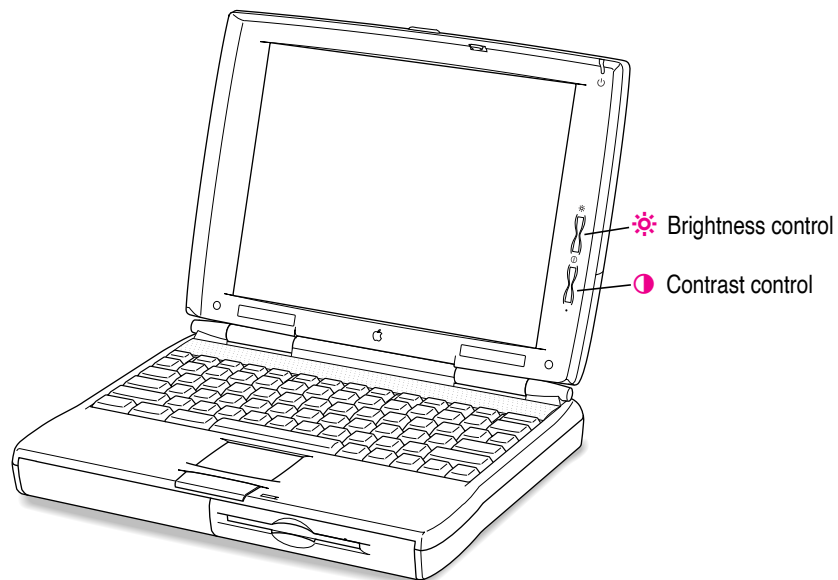
- **Nothing happened when you pressed the Power key.**

The battery may be drained. Make sure you plug 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 6.

- **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 the Mac OS System Software” in Chapter 7.

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 have additional equipment to connect to your computer, see Chapter 3, “Connecting Additional Equipment and Changing BookCovers,” 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 4, “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.

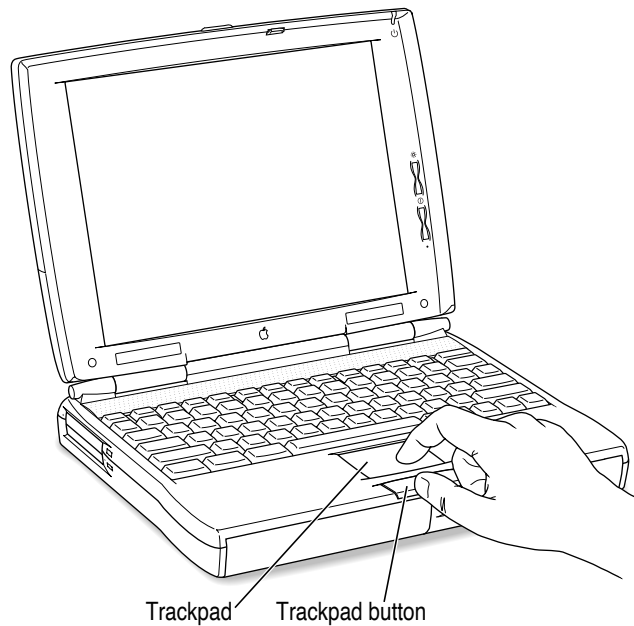
Learning the basics

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, 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, keep in mind these tips:

- Use your index finger (left or right hand). Use only one finger.
- Use only your finger on the trackpad (and be sure your finger is dry). Do not use a pen or any other object.
- 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.
- You can use the trackpad to click and drag. For instructions, see “How do I use the trackpad to click and drag?” in the “Customizing Your Computer” topic area of Mac OS Guide, available in the Guide (⌘) menu.

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.

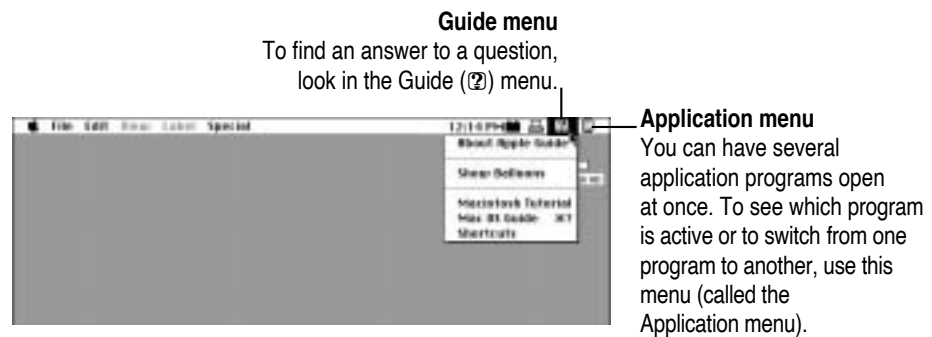
Reviewing the basics

You can use the following illustrations to review the elements you use on your screen to do work with your computer.



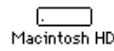
Menus

The strip across the top of the screen is called the menu bar. The symbols and words in it represent menus of commands. To open a menu, place the pointer on the symbol or word for the menu and press the trackpad button.



Icons

Icons are small pictures that represent disks, programs, documents, and folders. You can double-click any icon to open it and see what it contains.



Macintosh HD

This icon represents your computer's internal hard disk.



Application

Icons like this one represent application programs, which you use to create documents and do other work.



Document

Icons like this one represent documents, which you can create and edit.



Folder

Icons like this represent folders. A folder contains other icons.

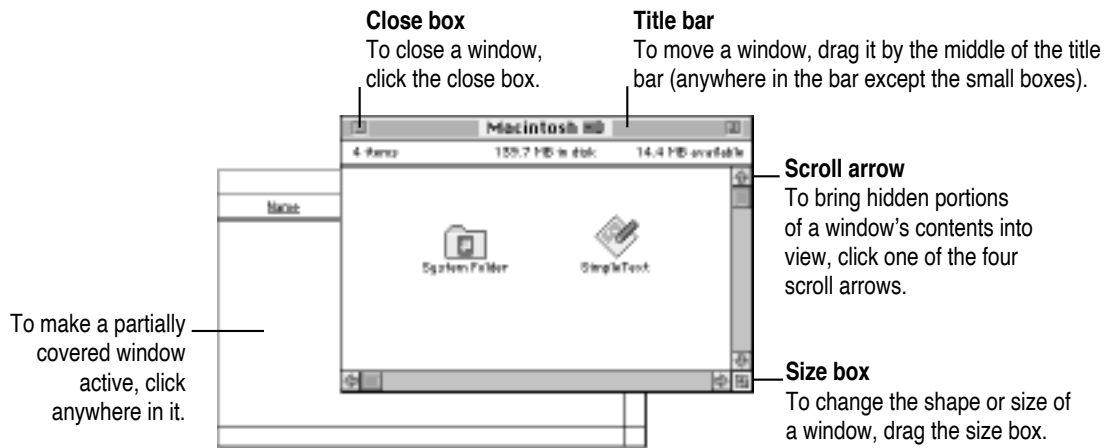


Trash

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

Windows

Windows are boxes that display text, graphics, or icons. To change the shape or position of a window, or to close the window, use the elements shown here.



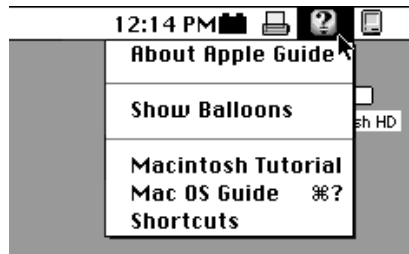
Control Strip

The Control Strip gives you a quick and easy way to monitor and update your PowerBook's power management options and other useful features. For instructions on using the Control Strip, see "How do I use the Control Strip?" in the "Customizing Your Computer" topic area of Mac OS Guide, available in the Guide (⌘) menu.



Reviewing the Guide menu

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.



Using Mac OS Guide to get answers to your questions

When you have a question while working with your computer, you can get the answer by choosing Mac OS 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.

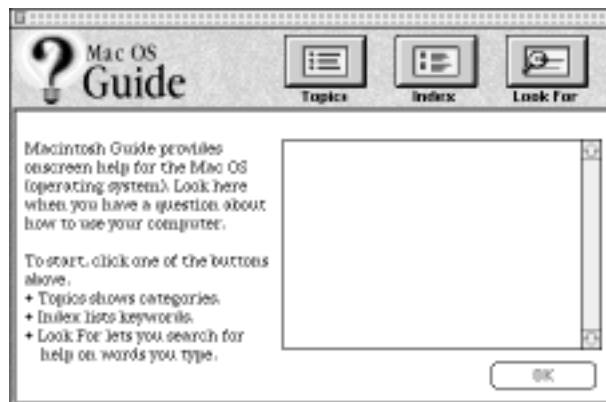


A checkmark in the menu indicates that the Finder is the active program.

- 2 Pull down the Guide menu (marked with the ⌘ icon) and choose Mac OS Guide.



The Mac OS Guide window appears.



Whenever you use Mac OS 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.



Mac OS Guide gives you three ways of finding information:

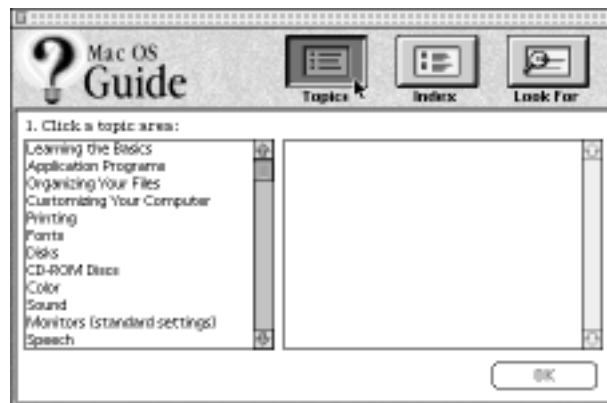
- **Topics** lets you choose from a list of general subjects; it is like the table of contents in a book.
- **Index** lets you choose from an alphabetical list of more specific subjects; it is like the index in a book.
- **Look For** lets you search for information related to a specific word or phrase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

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

Getting answers with the Topics button

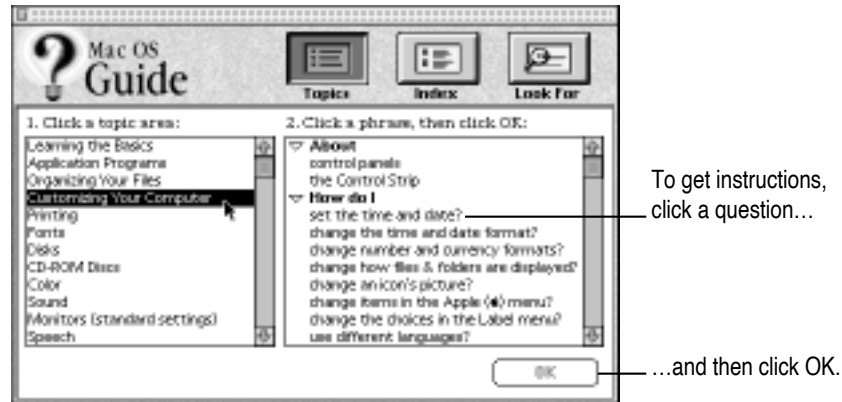
- 1 In the Mac OS Guide window, click the Topics button.

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



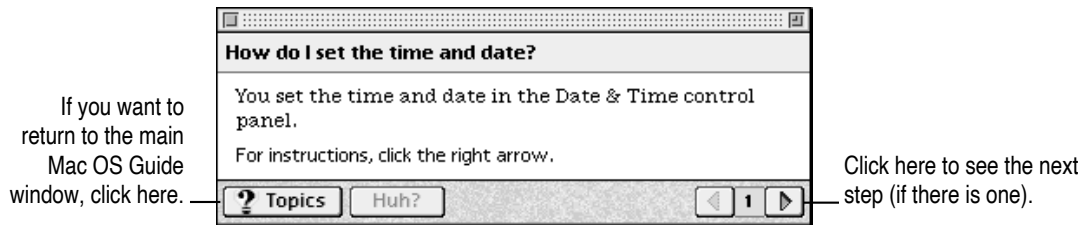
2 Click “Customizing Your Computer” in the list of topics.

When you click any topic area, a list of related questions appears on the right side of the Mac OS 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.

Mac OS 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 Mac OS Guide window.

Try the other ways of finding information in Mac OS Guide also: Use the Index button to display a list of keywords, and use the Look For button to search for a word or phrase that you enter.

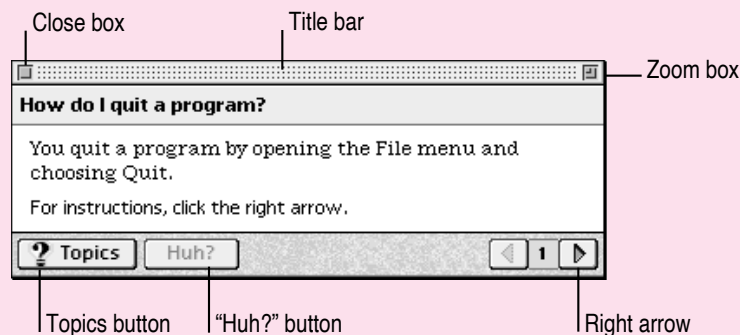
Tips for using Mac OS Guide

Here are a few tips for using Mac OS Guide effectively:

- Mac OS 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 Mac OS 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 Mac OS 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 Mac OS Guide window, click the Topics button in the lower-left corner of the Guide window.
- When you're finished using Mac OS Guide, click the close box in the upper-left corner of the window.



Turning the computer off

Always use one of the following methods to shut down the computer. If you don't, you risk losing any work you haven't previously saved on a disk. You also risk losing any open documents.

Turning the computer off with the Power key

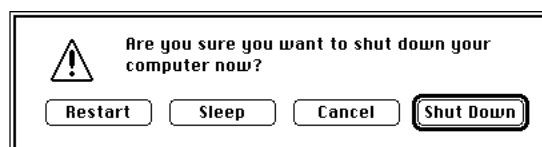
To turn the computer off, press the Power key. Detailed instructions follow.

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

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

- 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 with 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 the Power key (or any key on the keyboard except Caps Lock or the trackpad button) 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 not working in the Finder. Choose Finder from the Application menu at the far-right end of the menu bar.

- 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 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 on the back of the computer. Use this method only if you cannot choose Shut Down or Restart 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 computer is in sleep, it has a darkened screen and appears to be off. A small green light flashes on the top of the display case when the 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, do this:

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

A dialog box appears.

- 2 **Click the Sleep button.**

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

Other ways of putting your computer to sleep

- You can choose the Sleep command from the Special menu to put your computer to sleep.

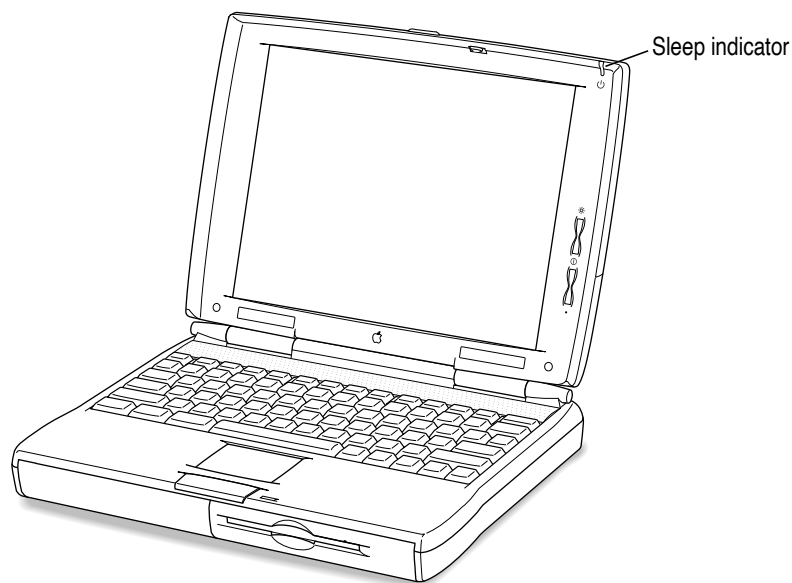


- You can also put your computer to sleep by closing the display.

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

After closing the display, be sure to check that the sleep light is blinking (at the top-right edge of the display). If you don't see the blinking light, open the display and use the Control Strip or the Special menu to put the computer in sleep.

Note: You may notice that the computer sleeps when the display is not closed completely. Sleep is initiated by a magnet-controlled switch that may engage before the display is flush with the lower part of the computer's case. Also, you may need to open the display to an angle of about 45 degrees to disengage the sleep switch. (Then press any key, except Caps Lock or the trackpad button, to wake the computer.)



For information on other ways of putting the computer to sleep, see the “Batteries & Power” topic of Mac OS Guide, available in the Guide (🔍) menu.

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 or the trackpad button). The screen reappears as it was before the computer went to sleep.

Note: If the display is partly or fully closed, open it about halfway (to an angle of 45 degrees) and press a key to wake the computer.

You can control the automatic sleep feature. For more information on sleep and automatic sleep, see the “Batteries & Power” topic of Mac OS Guide, available in the Guide (📖) menu.

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 may 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.

Follow these instructions to restart your computer:

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

A dialog box appears.

2 Click the Restart button.

You can also do this to restart:

- **Choose Restart from the Special menu.**



If the Special menu does not appear in the menu bar, you're working in the wrong program. Click anywhere on the desktop to return to the Finder.

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 on the back of the computer. Use this method only if you cannot choose Shut Down or Restart from the dialog box that appears when you press the Power key, or if you cannot choose either command from the Special menu.

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

2

Using Expansion Bay Modules and PC Cards



Using expansion bay modules

The floppy disk drive and the optional CD-ROM drive in your Macintosh PowerBook are removable modules, which you can easily switch or replace with another module. The place in your computer where modules go is called the *expansion bay*. When no module is installed in the expansion bay, you can use it to store an extra battery for your computer.

You can switch modules or remove a module while the PowerBook is turned off or in sleep. All expansion bay modules are inserted and removed in the same way.

To protect your work and to be sure that the computer recognizes which module is in use, follow these precautions for removing or switching expansion bay modules:

- Verify that the computer is in sleep or has been shut down.
- Before removing a module, first quit any programs that may be using files on the disk in that module. Then drag the disk's icon to the Trash or select the icon and choose Put Away from the File menu.

IMPORTANT Don't switch modules while the computer is starting up. Also take care not to remove a module if a floppy disk or CD-ROM disc is inserted and in use.

Removing an expansion bay module

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

- 1 Quit any application programs or files that are using the floppy disk or compact disc (CD) or other medium inserted in the expansion bay module.**

Remember to save your work.

- 2 If a floppy disk or CD 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).**

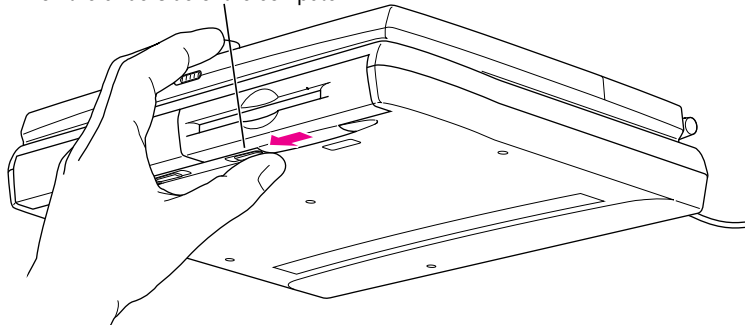
You should not remove the module if a disk is in use. If you have any other kind of optional expansion bay module, make sure you drag the icon for its media to the Trash or select the icon and choose Put Away from the File menu.

- 3 Shut down the computer or put it in sleep.**

Choose Shut Down or Sleep from the Special menu or use the Control Strip's sleep section.

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

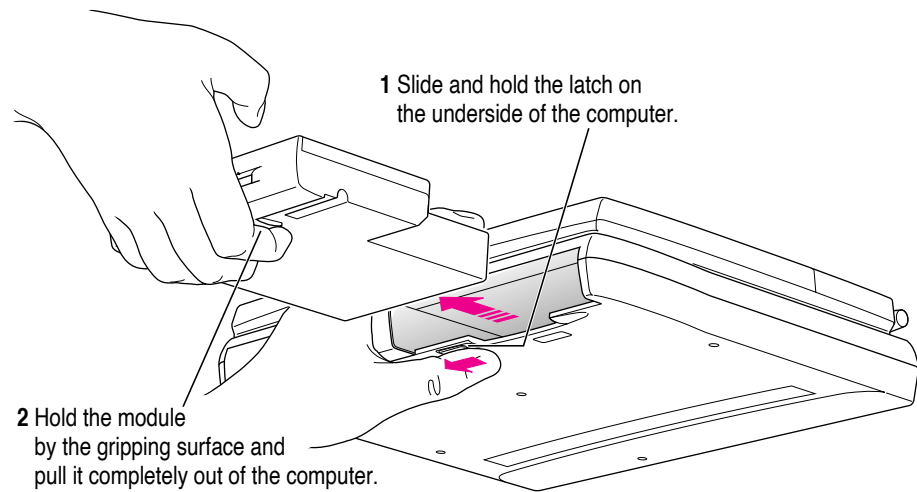
To unlock the module, slide and hold the latch on the underside of the computer.



The figure above shows a floppy disk module. Your PowerBook may have a CD-ROM drive installed in the expansion bay. (For more about the CD-ROM drive, see “Using a CD in the CD-ROM Drive” later in this chapter.)

WARNING If you remove a module while using the power adapter, be careful not to tilt the computer on end or let its weight rest on the adapter's connector.

- 5 While holding the latch open, grasp the module by its 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, quit any files or programs that may be using the floppy disk or CD (or other medium inserted in the module), and then drag the disk's icon to the Trash or choose Put Away from the File menu. Then put the computer in sleep (or shut it down) and remove the module.

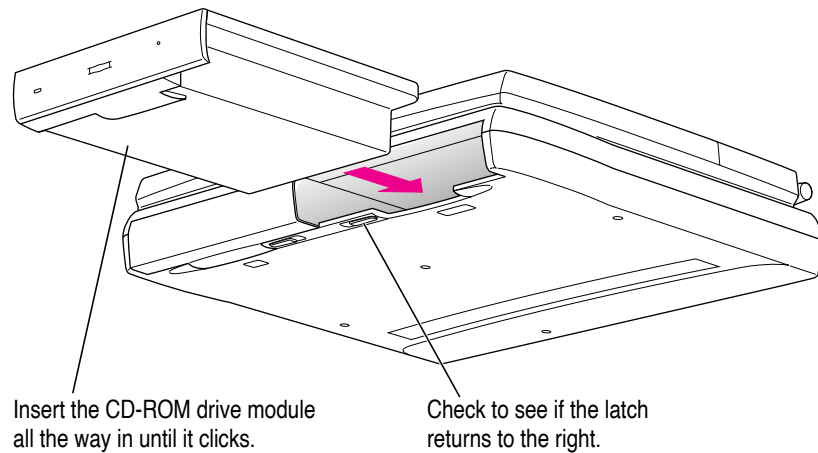
Inserting an expansion bay module

Follow these steps to insert an expansion bay module:

- 1 **Make sure the computer is in sleep or shut down.**
- 2 **Slide the module in until you hear it click into place.**

Make sure the gripping surface is facing down. Use a smooth motion but don't move the module too slowly. (The computer may not recognize the module if you insert it very slowly.)

The latch clicks closed when the module is in place.



The figure above shows a CD-ROM drive. Follow the same procedure to insert any expansion bay module.

Using a CD in the CD-ROM drive

Many PowerBooks have the optional CD-ROM drive installed in the expansion bay at the factory. If you have a CD-ROM drive, you insert or remove it in the same way as any other module.

Inserting a disc

To load a compact disc in the drive, follow these steps:

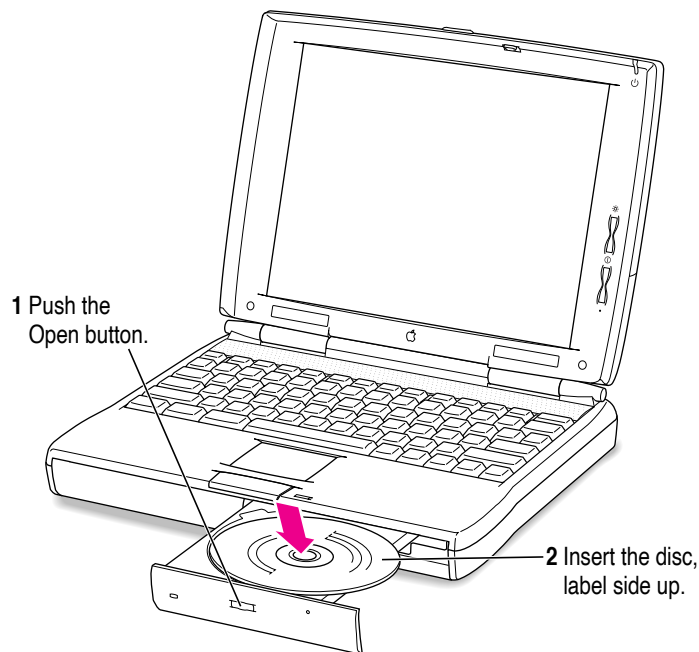
- 1 **Start up the PowerBook, if it's not already on.**
- 2 **Press the Open button to open the tray of the CD-ROM drive.**

The tray opens.

(If the tray doesn't open, a disc may already be in the drive. Drag its icon to the Trash to open the tray. You'll see a message if the disc is in use.)

- 3 **Place a CD-ROM disc in the tray, with the label facing up.**

Make sure the disc is lying flat in the tray.



- 4 **Push the tray in to close it.**

Note: When the CD-ROM drive is in use, you may notice some vibration as the compact disc spins rapidly. Certain discs can cause the drive to vibrate because they have heavily inked artwork or a label that creates an imbalance as the drive spins.

Some vibration is not unusual for a high-speed CD-ROM drive. To minimize vibration from unbalanced compact discs, do not put labels on your CDs. In addition, place the computer on a flat, solid surface when using the CD-ROM drive.

Ejecting a disc

Follow these instructions to open the tray and eject a CD-ROM disc from the drive:

1 Open the tray.

There are several ways to open the tray of your CD-ROM drive.

If a CD-ROM disc icon appears on your screen:

- Select the disc icon on your screen and drag the icon to the Trash.
- Click the disc icon and choose the Put Away command in the File menu.
- While the CD player's window is active, choose Eject CD from the File menu, or simultaneously press the ⌘ and E keys.

If no CD-ROM disc icon appears on your screen:

- Press the Open button on your CD-ROM drive.

2 Take the disc out of the tray.

Store your disc in a safe place, away from heat, dust, and moisture.

3 Push the tray in to close it.

To avoid possible damage to the tray or the drive, keep the tray closed when you are not using it.

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 communication 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 provides examples for setting up your communications software with a PC Card modem. For information on using PC Cards, see the “Using PC Cards” topic area of Mac OS 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.

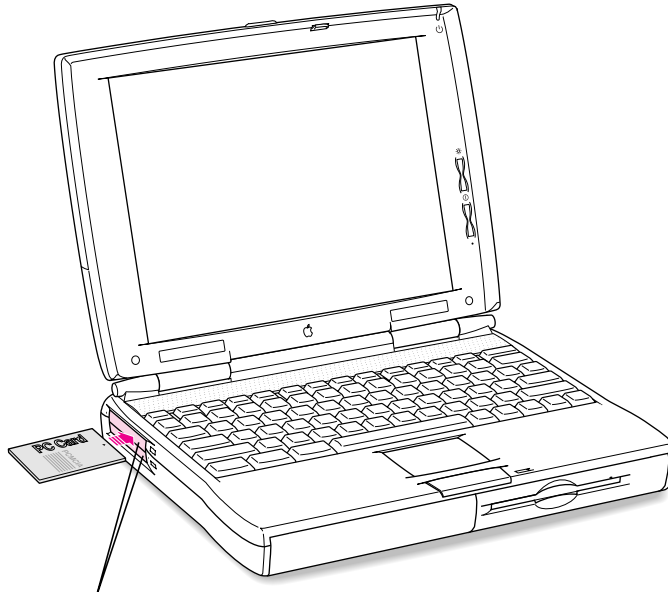
There are three types of PC Cards. The different types refer to the thickness of the card. A Type I card is 3.3 millimeters (mm) thick, a Type II card is 5 mm thick, and a Type III card is 10.5 mm thick. Make sure you check the documentation that came with your PC Card to verify that it is compatible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

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. You may find it useful to get in the habit of always using the lower slot to make sure the card you are using is properly inserted.

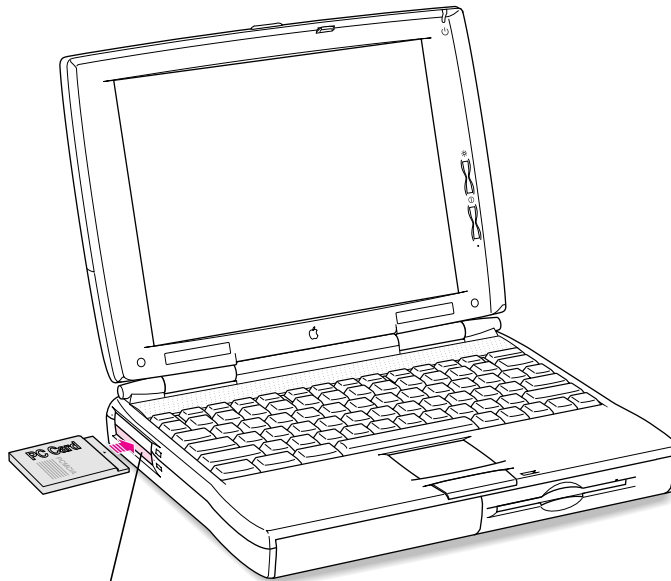
IMPORTANT You cannot use an SRAM storage card (also called a flash RAM card) as a startup disk on your PowerBook. Use SRAM cards for extra storage only. If you try to use this type of PC Card to start up the computer, you'll see an error message. If this occurs, remove the SRAM card before you restart the computer.

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. Use a smooth motion but don't move the card in too slowly. (The computer may not recognize the card if you insert it very slowly.)

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 the Power key (or any key on the keyboard except Caps Lock or the trackpad button) to wake it.**
- 2 Click the PC Card's icon to select it.**
- 3 Drag the card's icon to the Trash.**

In a few seconds the computer ejects the card partway.

- 4 Grasp the card and pull it out of the slot.**

IMPORTANT Do not pull on a PC card before it has been ejected out of the slot. Forcing a PC Card out of the slot may damage your computer or card.

Other ways to eject a card

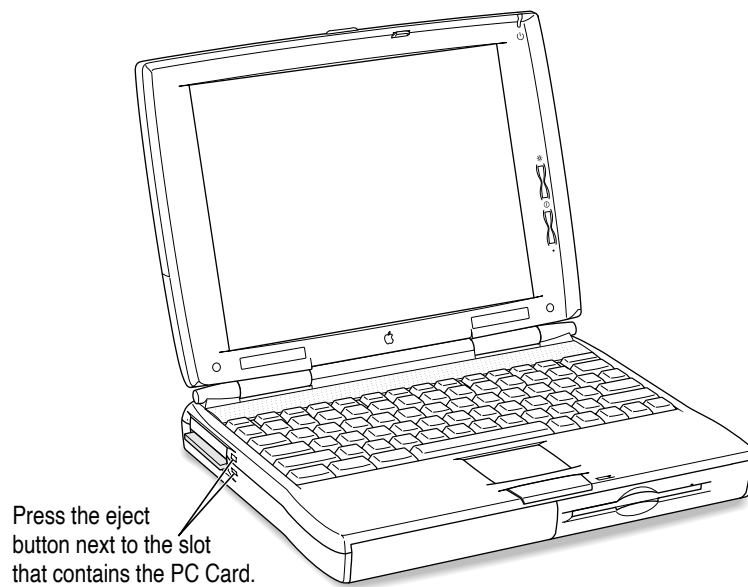
When the computer is turned on, you can also do any of the following:

- Click the card's icon to select it, 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, 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, follow these steps:

- 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.

Note: When the computer is on, this method of ejecting works for a PC Card modem only.

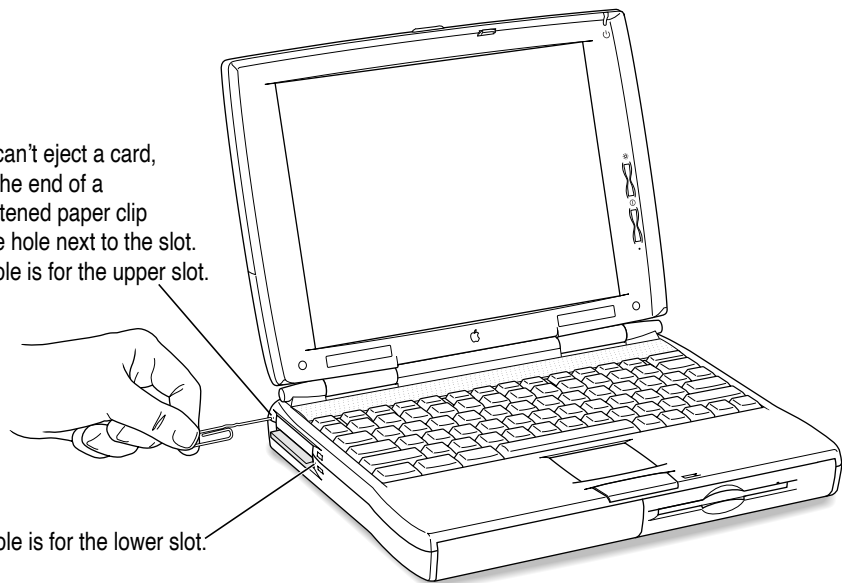


If you can't eject a card

If you are unable to eject a card, follow these steps:

- 1** Straighten one end of a paper clip.
- 2** Insert the end of the straightened paper clip into the hole next to the slot that contains the card. 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.

- 3** 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 come on your Macintosh PowerBook's hard disk or the CD-ROM disc that came with your computer. 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 instructions in these examples as guidelines for setting up your PC Card modem with other types of communications software.

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 Apple Remote Access with a PC Card modem

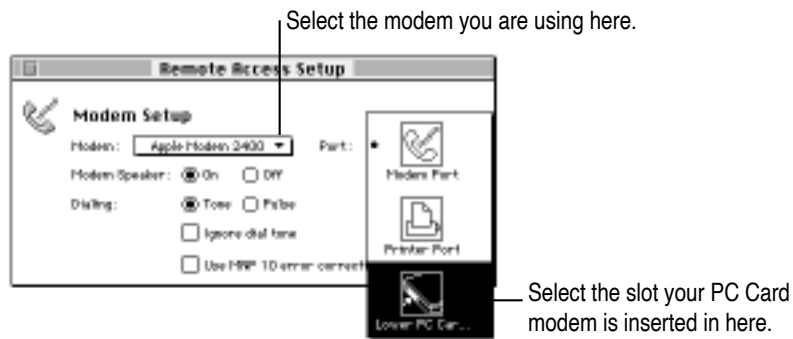
Apple Remote Access uses modem files (sometimes called connection scripts or CCLs) to get the best performance from some modems. Follow these steps to select your modem file:

- 1 **Insert your PC Card modem.**
- 2 **Open the Remote Access Client application program.**

If you need to install the software, open the Installer program or the Install Remote Access Client icon and follow the instructions on the screen.

- 3 **Open the Remote Access Setup control panel by choosing it from the Setup menu or from the Control Panels folder in the Apple menu.**

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 the upper or lower PC Card slot listed. If you don't, make sure your modem is properly inserted. If you insert the PC Card modem in the other slot, you need to reselect the modem port.

Using Apple Telecom and Fax Terminal with a PC Card modem

To use the Apple Telecom and Fax Terminal software with a PC Card modem, follow these steps:

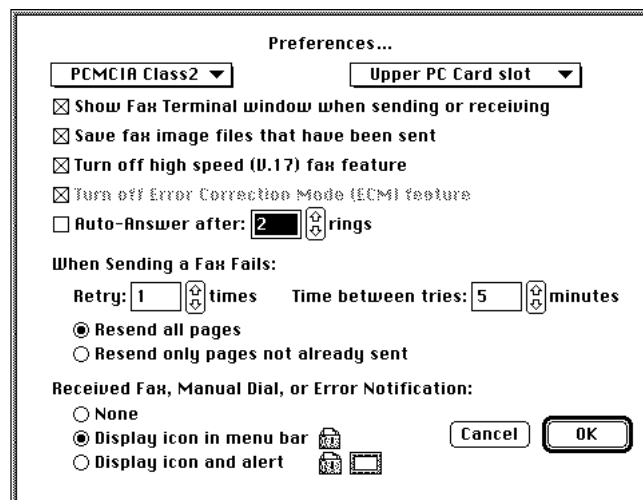
1 Insert your PC Card modem.

2 Open the Fax Terminal program by choosing it from the Apple menu.

If Fax Terminal is not in the Apple menu, you need to install the Apple Telecom software, which is on the CD-ROM disc that came with your computer.

3 Choose Preferences from the Fax menu.

A dialog box appears in which you indicate the type of modem and modem port you're using.



- 4 Choose the type of PC Card modem you have in the pop-up menu on the upper left.
- 5 Choose the slot your modem is in from the pop-up menu on the upper right.
- 6 Change any other settings you want in the dialog box and click OK.

Then prepare and send your fax.

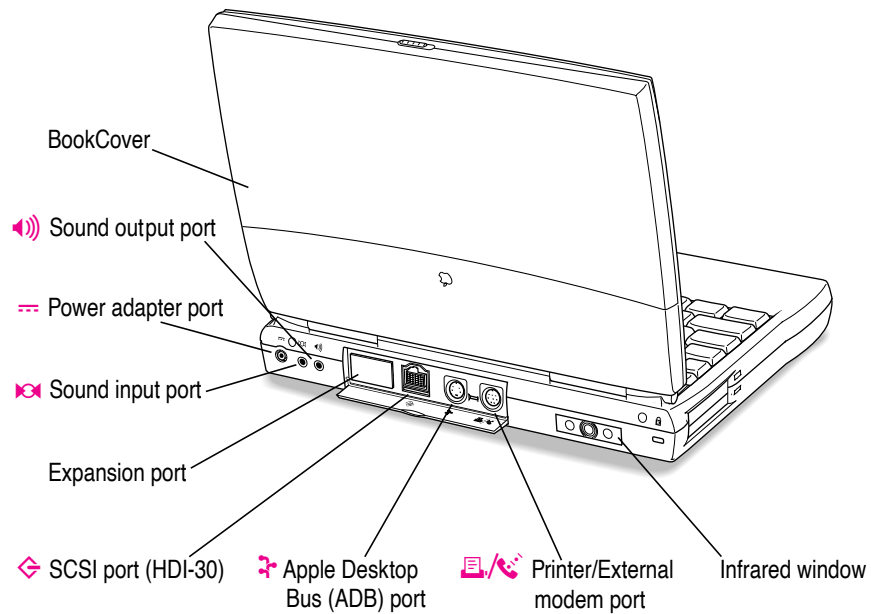
Configuring other software for use with a PC Card modem

Always be sure to specify the location of a PC Card modem when you prepare to use software with it. Many programs are preconfigured for a modem connected to the printer/external modem port, and you must change that setting before you can make a successful connection.

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

3 Connecting Additional Equipment and Changing BookCovers

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. 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 input and output devices
- a security cable and lock
- exchangeable cover panels
- additional memory

Connecting a printer

The modem/printer 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/external modem port, follow these steps:

- 1** Connect your printer as instructed in the manual that came with your printer and install any software necessary to use the printer.
- 2** Open the Chooser from the Apple () menu.
- 3** Turn off AppleTalk by clicking the Inactive button in the AppleTalk section.
- 4** On the left side of the Chooser (in the upper section if you see two areas on the left), select the type of printer you want to use.
- 5** On the right side of the Chooser, select the printer/modem port.

The printer is ready to use.

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 2 of this manual, and the "Using PC Cards" topic area of Mac OS Guide, available in the Guide (📖) menu.

You can also connect an external modem to the printer/external 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 **Make sure AppleTalk is turned off in the Chooser.**
- 8 **To use the modem with telecommunications software, be sure to indicate that the modem is connected to the printer/external modem port in that software's setup procedure.**

The external modem is ready to use.

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 six 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, is about 19 inches long, and has 29 pins in the small end that connects to the PowerBook (one “missing” corner 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 on the next page 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.

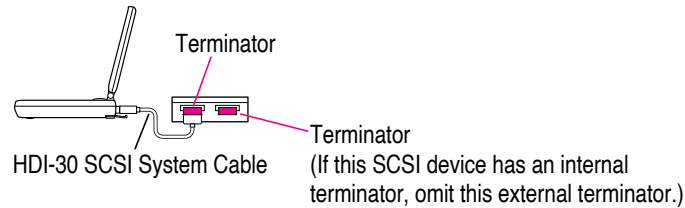
The names and the part numbers of the cables mentioned in this chapter are the following:

Type of connection	Name of part	Part number
From your computer to a SCSI device	Apple HDI-30 SCSI System Cable	M2538
From SCSI device to a SCSI device	Apple SCSI Peripheral Interface Cable	M0207
For SCSI disk mode	Apple HDI-30 SCSI Disk Adapter Cable	M2539
To connect an external monitor	PowerBook Video Adapter Cable	M3927

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.

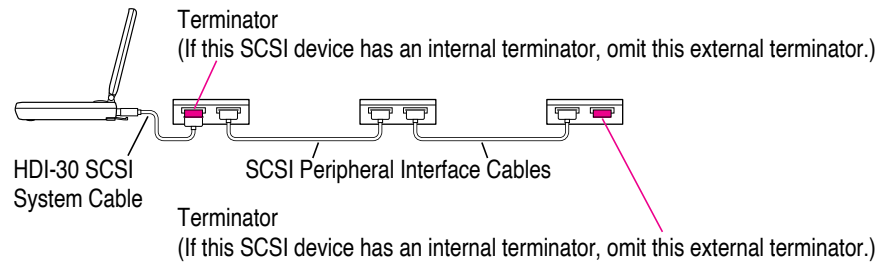
Where to add cable terminators when connecting a single SCSI device:

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 that 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 often called “SCSI disk mode.”

The Apple HDI-30 SCSI Disk Adapter cable is dark gray, is about 10 inches long, and has 30 pins in the small end that connects to the PowerBook.

WARNING Follow the steps for connecting and using SCSI devices carefully to avoid losing information and damaging 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. The ID number preset at the factory is 2. If you have another SCSI device with that number, you must change the ID number on it or in the PowerBook Setup control panel.

IMPORTANT If you want to use your PowerBook as the “controlling” computer (with another PowerBook connected as a hard disk), be sure to see the special information about SCSI disk mode in the Powerbook 1400 Read Me file on your computer’s hard disk.

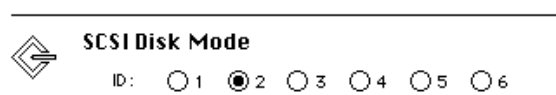
- 1 Choose Control Panels from the Apple () menu of your PowerBook.
- 2 Open the PowerBook Setup control panel.



PowerBook Setup

- 3 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.)



- 4 Close the PowerBook Setup control panel.
- 5 Press the Power (on/off) key on the PowerBook once and click Shut Down to turn the PowerBook off.

- 6 Shut down the computer you are connecting to and turn off any other devices in the SCSI chain.
- 7 Connect the small connector on the Apple HDI-30 SCSI Disk Adapter to the SCSI port on your PowerBook.
- 8 If you are connecting the Macintosh PowerBook directly to the other computer (rather than to an external device in the SCSI chain), attach a SCSI system cable to the other computer. Make sure you have a terminator connected to the SCSI cable that is attached to your PowerBook.
- 9 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 in its place.

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

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

After a few seconds a SCSI icon appears on the screen, showing the preset ID number 2 or the ID number you assigned in step 3. (In some instances the PowerBook screen may remain blank until the other computer or another SCSI device is turned on.)



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 (if you can) and then immediately disconnect your computer from the SCSI chain. (If you can't choose Shut Down, try pressing the reset button. 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 5 through 9, making sure to use the proper cables.

You cannot have password protection turned on in the Password Security control panel while using your PowerBook in SCSI disk mode. Turn password protection off if you experience problems. See “How do I turn password security on and off?” in the “Setting Options” topic area of Mac OS Guide, available in the Guide (🔍) menu.

- 11 Turn on the other SCSI devices in the chain, if any.**
- 12 Turn on the other computer.**

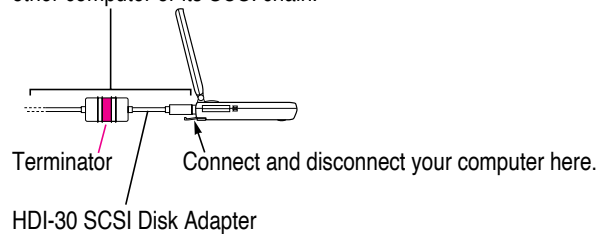
The PowerBook appears as a hard disk icon on the screen of the computer you connected it to. You can now transfer and use files as if the Macintosh PowerBook were an external disk drive.



Simplifying the connection process

If you plan to use your Macintosh PowerBook regularly as a SCSI 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 cable 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.

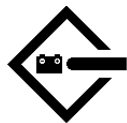
These cables can stay attached to your other computer or its SCSI chain.



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

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 next section, so you can remove the battery for recharging.

Quitting SCSI disk mode

- 1 Shut down the computer your PowerBook is connected to.**
- 2 Press the Power (on/off) key once to turn the PowerBook off.**

Occasionally the PowerBook may not shut down (the pointer freezes on the screen). If this happens, press the reset button on the back panel to turn off the computer.

- 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 may 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.

Connecting an external monitor

Your PowerBook has an expansion slot in which you can install an optional video card for connecting an external monitor.

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.

To connect an external monitor, you need to install a video card in the expansion slot. For instructions on installing a video card or other card in the expansion slot, see Appendix C.

You also need the PowerBook video adapter cable, which is available from your Apple-authorized dealer. Contact your Apple-authorized dealer to purchase a video card and adapter cable and for information on which monitors are compatible with your PowerBook.

Note: The video port transmits either 8-bit or 16-bit video signals, depending on the type of expansion card you use.

Your PowerBook also supports most VGA and SVGA monitors. To connect a VGA or SVGA monitor, you need an additional adapter cable, which should come from the same source as the monitor.

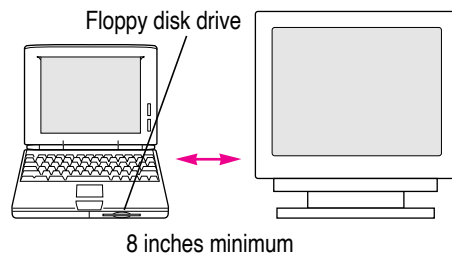
To connect an external monitor, follow these steps. Also consult the documentation that came with the monitor.

- 1 Press the Power (on/off) key once to get the Shut Down dialog box.**
- 2 Click Shut Down or Sleep.**

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

3 Place the monitor where you will be using it.

Keep the computer and the monitor at least 8 inches apart. Interference between the monitor and your computer's floppy disk drive can cause errors on your floppy disks.



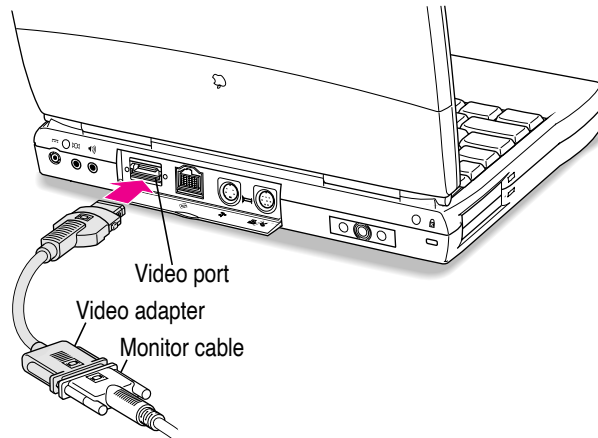
Arrange the monitor so the top of the screen is slightly below eye level while you work. Position the monitor to minimize glare and reflections on the screen from lights and windows.

4 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.

- 5 **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.**



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

The external monitor is automatically activated.

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 (on/off) 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 monitor's power cord is connected and 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

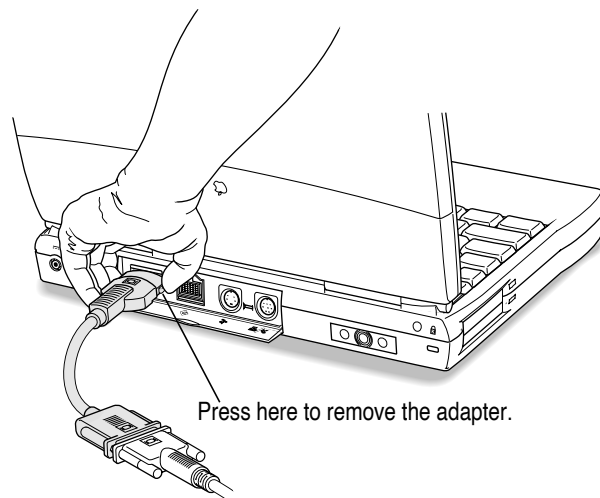
For information on displaying the menu bar on the external monitor or using an external monitor for presentations, see the “Monitors” topic of Mac OS Guide, available in the Guide (📖) menu.

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 Mac OS Guide, available in the Guide (📖) menu.

Disconnecting an external monitor

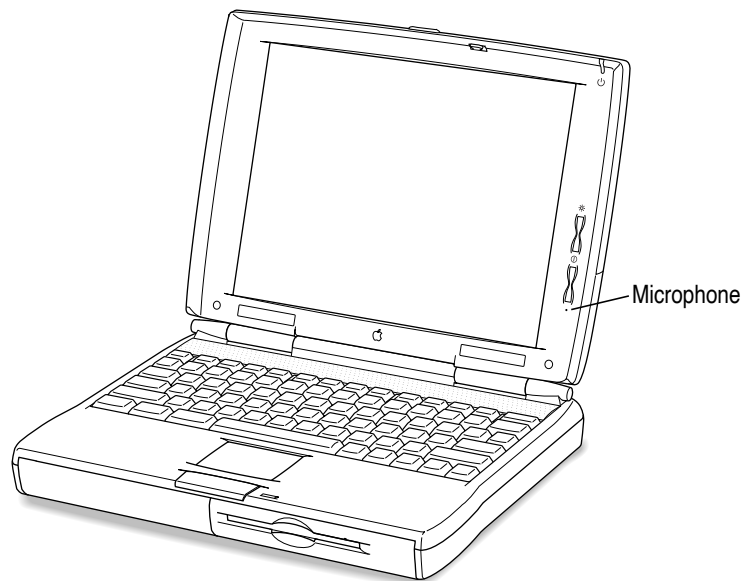
- 1 **Make sure your computer is shut down or in sleep.**
- 2 **Make sure your monitor is switched off.**
- 3 **Disconnect the video adapter from the video port on the computer’s back panel. The video port is marked with this icon: .**

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



Connecting sound input and output devices

Your computer has a built-in microphone. For information on using the microphone to record sounds, see the “Sound” topic of Mac OS Guide, available in the Guide (📖) menu.



Your Macintosh PowerBook also has a stereo sound input port (marked with the 🎧 icon) for connecting external sound input devices that provide line-level output. This port accepts a standard stereo miniplug like that used to attach headphones to a portable tape player. You cannot use the internal microphone and an external sound input device at the same time. For instructions on selecting a sound device in the Monitors & Sound control panel, see the “Sound” topic of Mac OS Guide, available in the Guide (📖) menu.

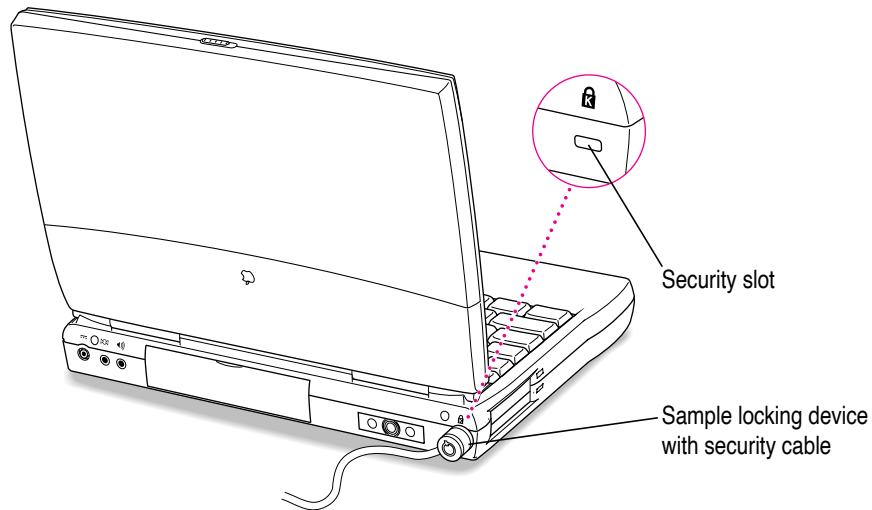
The Macintosh PowerBook also has a stereo sound output port (marked with the 🔊 icon) to which you can connect externally powered speakers, an amplifier, headphones, or other audio output devices. The sound output port accepts a standard stereo miniplug, like that used to attach headphones to a portable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

Attaching a security cable and lock to the computer

You can purchase a security cable and lock to protect your Macintosh PowerBook. With a lock, you can secure your computer to a desk or table. (Removable parts of the computer, such as the battery and disk drive in the expansion bay, are not secured by a lock attached to the security slot on the computer's back panel.)



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

Note: You can protect the contents on your hard disk by turning on password protection in the Password Security control panel. For information on using the Password Security control panel, see Mac OS Guide, available in the Guide (🔍) menu.

Changing BookCovers on the computer's case

Your Macintosh PowerBook comes with a removable panel, the BookCover, on the top of the case (behind the display when the computer is open). You can remove this panel and replace it with a different color. The computer comes with one clear panel and one graphite-colored panel.

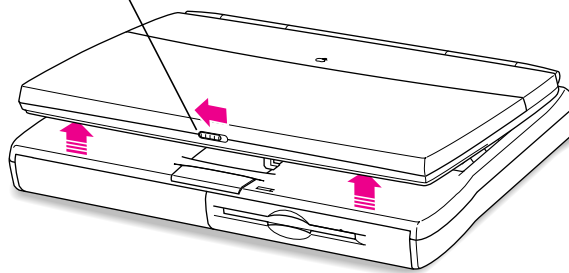
You can use the clear panel and put artwork under it to personalize your computer or to keep track of meetings and appointments. A set of BookCover inserts came with your computer—use these to make your PowerBook stand out.

Removing a BookCover

Follow these steps to remove a BookCover.

- 1** Slide the latch to the left and open the display approximately 1 to 2 inches.

Slide the switch to the left to open the display.

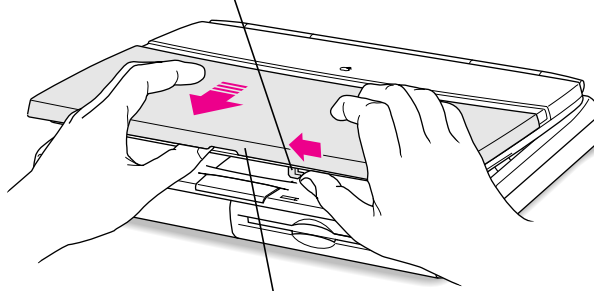


- 2 While holding the latch open by its downward-pointing hook, grasp the panel on the top with your fingers and slide it toward you until it disengages from the case.**

You can anchor one thumb (the one not holding the latch open) on the front edge of the display case and push backward with it as you pull the BookCover with your fingers.

When the panel disengages (after moving about half an inch), you can release the latch hook.

- 1 Push and hold the latch all the way to the left.**



- 2 Then slide the panel off.**

- 3 Slide the panel away from the case and set it aside.**

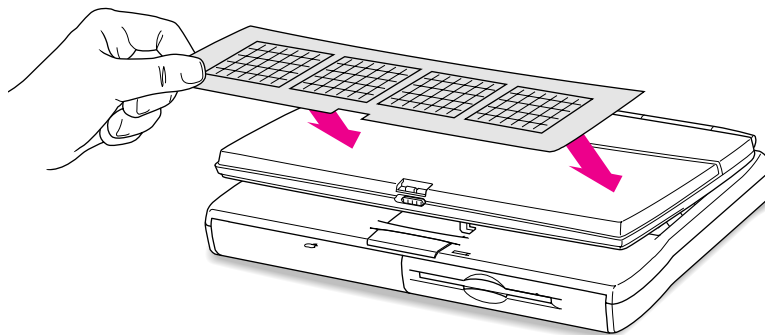
Adding an insert

Follow these steps to remove a panel and replace it with another panel.

- 1 Remove the BookCover as described in the previous section.
- 2 Place the insert on the plastic case and position it as you'd like it displayed.

Be sure the insert is not too thick for the BookCover to fit over it easily.

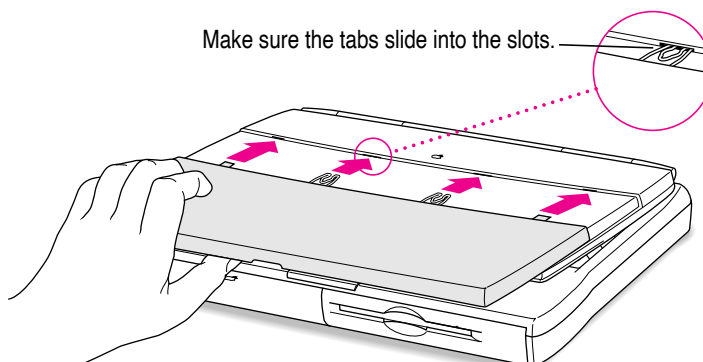
If the insert is smaller than the BookCover's area, you may want to use a small piece of tape to hold the insert in place.



Replacing a BookCover

Follow these steps to replace a BookCover.

- 1 Align the BookCover's bottom edges with the grooves in the sides of the display case and gently slide the BookCover toward the back of the computer. Stop when the two tabs at the center of the BookCover reach the rear part of the display case.

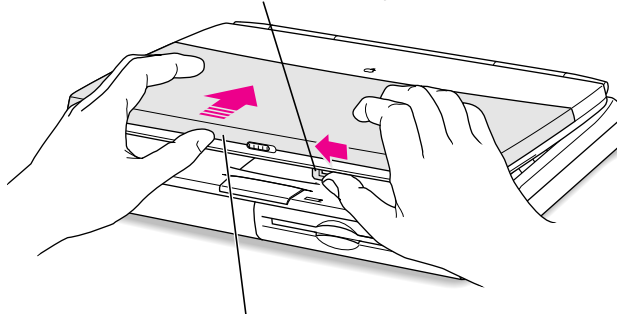


- 2 Make sure that the BookCover's center tabs and the two shorter side tabs are all positioned so that they will fit into the openings on the rear part of the display case.**

It's important to position the BookCover carefully to avoid breaking one of the tabs when the cover snaps into the case. You may want to change the angle of the display to see whether the tabs are in the proper position.

- 3 Move the latch hook to the left and hold it open with one thumb. Use your fingers to push the BookCover backward until it snaps into place.**

1 Push and hold the latch all the way to the left.



2 Then push the new panel all the way in and release the latch.

If any of the tabs is showing, hold the latch hook open and remove the BookCover. Then realign the tabs and slide the cover into place.

- 4 Release the latch hook when the cover is in place.**

Creating your own BookCover inserts

In addition to the set of printed inserts that came with the computer, you can use the template on your hard disk to create new inserts. See the instructions in the template's folder for more information about using the template.

Examples of inserts you might make with the template include

- a weekly appointment calendar and To Do lists
- your latest digital art
- a travel itinerary, with key contact information and a small map
- a cartoon or comic strip (perhaps with weekly episodes)
- notes for a presentation
- a “cheat sheet” for procedures you tend to forget, such as how to set up for sending a fax or how to connect to an information service you don't use often
- outline art for your children to color (and the finished pictures)

You're likely to find other templates for BookCover inserts on popular shareware forums or as supplements to commercial software.

Of course your inserts don't have to come from the template. All sorts of things would look good under the BookCover, including

- family pictures
- logos or insignias for your favorite club, sports team, or school
- a collage of colorful scraps and images
- assorted business cards

Adding memory to your computer

Your Macintosh PowerBook comes with at least 12 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 and comes with virtual memory turned on.

For information on using virtual memory, see the "Memory" topic area of Mac OS Guide, available in the Guide (🔍) menu.

Using infrared file transfer

Your Macintosh PowerBook has a built-in infrared (IR) window that can send and receive files. You can exchange information with another PowerBook that has IR capability or with a desktop computer that's using an external IR module.

To transfer files, your computer and the other IR device must be within 3 feet of each other, with their IR windows facing. You use the Apple IR File Exchange program, on your computer's hard disk, to send and receive files. Complete instructions for using the software are provided in the Apple IR File Exchange Guide (available in the Guide [🔍] menu when IR software is the active application).

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

4

Installing and Using Application Programs



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

- hard disk password protection
- file exchange using the infrared window
- file synchronization
- DOS and Windows file compatibility
- Internet access
- productivity programs, including ClarisWorks and Claris Organizer
- fax transmission
- remote access to another Macintosh

Some of this software is already on your computer's hard disk; some programs and additional sample files are on the CD-ROM disc that came with your PowerBook.

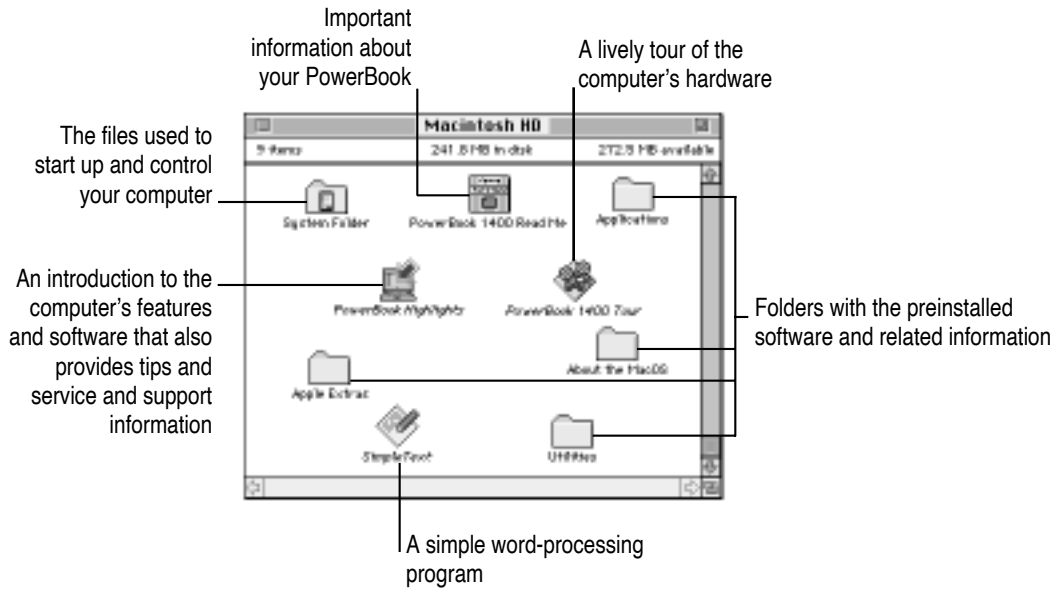
Using PowerBook Highlights

You can learn more about the software provided with your computer from an icon on the hard disk called PowerBook Highlights. PowerBook Highlights includes a short explanation of selected application programs on the hard disk, as well as tips for handling files and working efficiently on battery power.

To get started with your software, follow these steps:

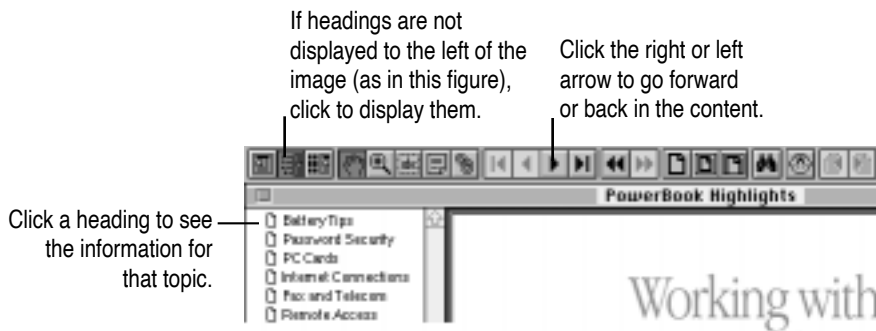
1 Open the Macintosh HD icon (if necessary).

A window similar to this appears.



2 Double-click the PowerBook Highlights icon.

If you don't see a PowerBook Highlights icon, you can find a duplicate copy on the CD that came with your computer.



Use the topic headings (on the left in the figure) to see the information you want. Use the arrows at the top of the window to move forward or back in the content.

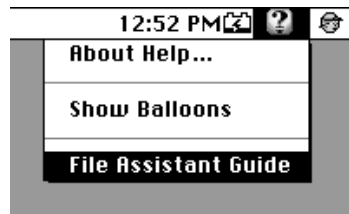
- 3 When you're finished, choose Quit from the File menu to leave PowerBook Highlights.

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

Getting help for application programs

Some application programs that come on your PowerBook (such as File Assistant and Apple IR File Exchange) 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 Open the Guide (Ⓜ) menu.



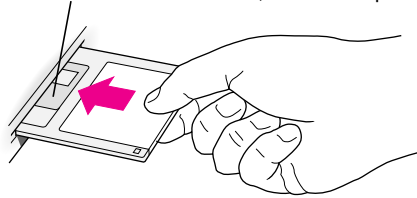
If an item appears in the Guide menu for your application program, choose it. If an item does not appear, then there is no Apple Guide online help for that program.

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 a CD-ROM disc or 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.

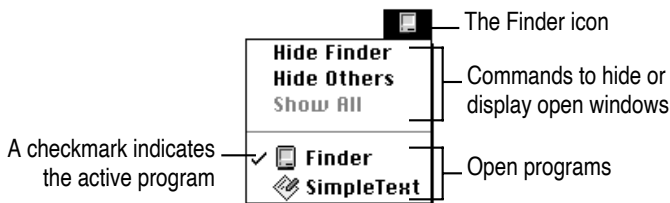


(For information about using a compact disc to install programs, see “Using a CD in the CD-ROM Drive” in Chapter 2.)

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.

Backing up and restoring system software and preinstalled programs

- You can make a set of backup floppy disks for the core system software on your hard disk by using the Floppy Disk Maker application program. This program and the disk image files it uses are in the System Backup folder, inside the Apple Extras folder on your hard disk. Instructions for using Floppy Disk Maker are in Appendix D.
- The CD-ROM disc that came with your computer contains disk images of the complete system software and all application programs that were preinstalled on your computer's hard disk. You can make backup floppy disks from these images using the Floppy Disk Maker application program. (See Appendix D for instructions on making backup floppy disks.)
- If the System Folder on your hard disk is damaged, you can reinstall that essential software from disk images on the hard disk or on the CD that came with your computer. See “Reinstalling the Mac OS System Software” in Chapter 7 for instructions.
- The CD that came with your computer also contains a program for restoring the complete system software and all preinstalled application programs from the disk images on the CD. See the document “CD – Important Information” on the CD for instructions.



Tips for backing up all types of files

- 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 the “Connecting SCSI Devices” section in Chapter 3 for more information on this procedure.)

Using “native” application programs

Your computer is compatible with nearly all application programs intended for use with Macintosh computers. But certain programs are designed especially for computers with PowerPC microprocessors. (These are sometimes called “native” applications.) You’ll find that these programs take best advantage of your computer’s speed.

Special memory requirements

Some native programs may be slightly larger than other programs and may take up more memory. If you find that you are running out of memory when you use programs designed for PowerPC microprocessors, you can use space on your computer’s hard disk as additional memory. This feature is called *virtual memory*. Your computer was developed to take advantage of the virtual memory feature and comes with virtual memory turned on. For instructions on how to use or increase hard disk space as memory, see the “Memory” topic of Mac OS Guide, available in the Guide (🔍) menu.

You can also add more memory to your computer, as described in Appendix C.

Shared libraries

Native programs use special files called *shared libraries*. These files help the programs to run more efficiently and can be used by more than one native program simultaneously. Any necessary shared libraries are installed automatically in the System Folder when you install native programs.

If a native program requires a shared library and there is not enough memory available for the shared library, you'll see a message that the program could not be opened because of insufficient system memory. If this happens, see the "Memory" topic of Mac OS Guide, available in the Guide (📖) menu, for instructions on turning on virtual memory.

If a required shared library is missing, you'll see a message that the program could not be opened because the shared library could not be found. If this happens, follow the directions that came with your program to reinstall the program. If the shared library is still missing, contact the program's manufacturer for assistance.

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

5

Power Management



Power sources

Your computer can draw its operating power from two sources.

- **Main battery** Your computer came with a nickel-metal-hydride (NiMH) battery. This battery typically provides power for 2–4 hours of work time. Exact work time depends on the Macintosh PowerBook model you have and the battery conservation features you use.
- **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:

- See low-power messages on your display.
- Look in the battery monitor portion of the Control Strip.
- Look at the battery level icon next to the clock in the menu bar.

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 the following:

- **Plug in the power adapter, or**
- **Save your work and put the computer to sleep. *Then***
- **Replace the empty battery with a charged one within two minutes.**

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 and the screen dims further.

The second message is followed by a third and final message indicating that the computer is about to put itself to sleep or shut down. 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.

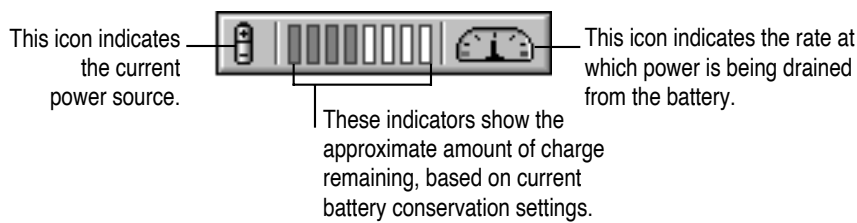
If you continue working until the computer goes to sleep automatically, you can wake it again as soon as you plug in the power adapter or replace the battery with a charged battery.

If you can't plug in the power adapter, the contents of RAM are retained in sleep for about a day (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 Mac OS Guide, available in the Guide (🔍) menu.

Using the battery icon

The battery icon in the menu bar tells you the charge left in your battery.

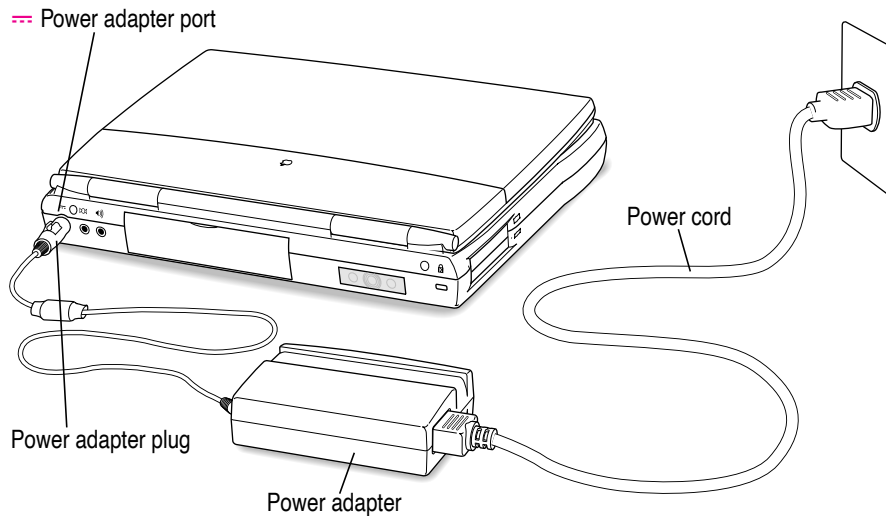
 The amount of black in the icon indicates the charge level.

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

Recharging the battery

To recharge the battery, plug in the power adapter. Do not use an external recharger designed for another Macintosh PowerBook model.

Use only the power adapter that came with your computer or a recharger designed specifically for this model.



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 is recharged regardless of whether you are using the computer or the computer is off or in sleep, so long as you use the adapter that came with your computer.

Note: A battery recharges only in the battery compartment, on the left side of the computer's front panel. Although you can store a battery in the expansion bay (on the right side of the front panel), the battery cannot be charged there.

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.

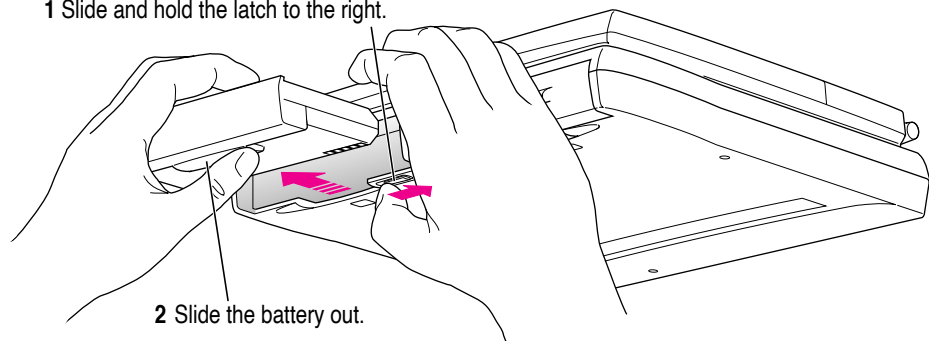
The correct power adapter for your PowerBook 1400 series computer supplies 45 watts of power (model number M4896). Adapters for older models of the PowerBook provide lower wattages.

Removing or replacing the battery

To remove or replace the battery, follow these steps:

- 1 Save your work and then shut down the computer, put it to sleep, or plug in the power adapter.
- 2 Close the display.
- 3 Push and hold the latch beneath the battery.

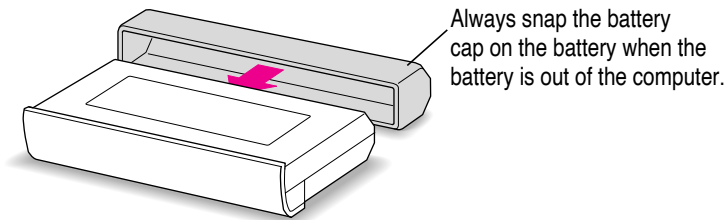
1 Slide and hold the latch to the right.



2 Slide the battery out.

- 4 While holding the latch open, pull the battery out of its compartment.

- 5 Put the battery cap on the battery to protect the battery contacts.



WARNING Always put the battery cap over the metal contacts when the battery is not in the computer. If the battery's metal contacts are not covered, a short circuit could occur, creating a safety hazard.

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

You can replace the battery with another NiMH battery. Make sure you only use a battery that is designed for your Macintosh PowerBook. Store the battery cap in case you want to remove and transport the battery later.

You can store an extra battery in the expansion bay if no module is installed there.

- 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 Nickel-metal-hydride 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 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 typically provides 2–4 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.

Models with a CD-ROM drive are likely to get less total work time from the battery than models without that drive.

Note: The CD-ROM drive consumes slightly less power if a compact disc is in the drive when the drive is not in use. This is because the computer continually checks the empty drive, which uses a small amount of power.

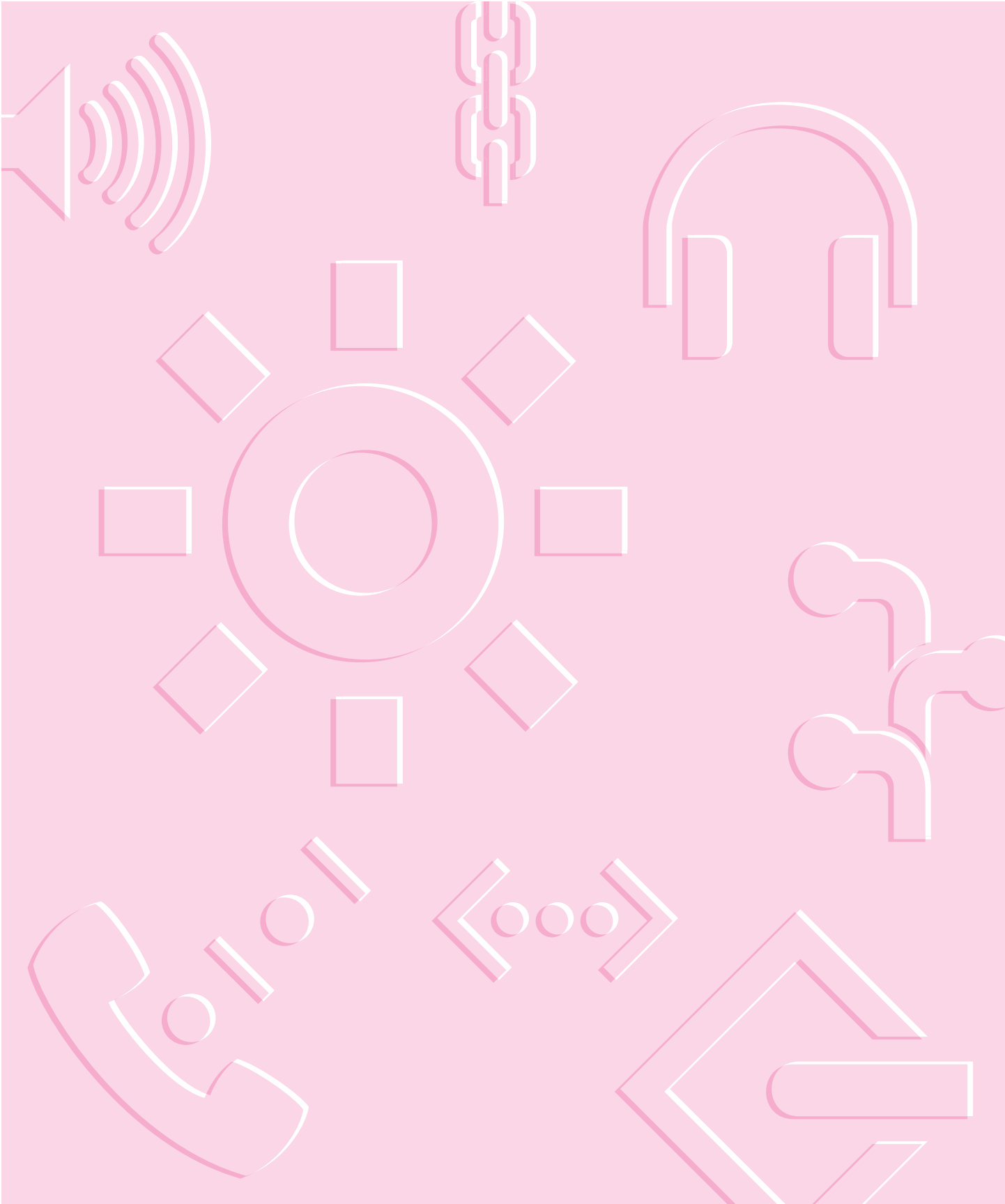
For battery conservation tips, see the “Batteries & Power” topic of Mac OS Guide, available in the Guide (🔍) menu.

Chapter 6 Tips and Troubleshooting

Chapter 7 Diagnostic Techniques



II
part



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

6

Tips and Troubleshooting



When you have questions

If you want to know how to do a particular task with your computer, refer to Mac OS Guide in the Guide (🔍) menu. For instructions on using Mac OS Guide, see Chapter 1 of this manual. If the suggestions in this chapter and Mac OS Guide don't solve the problem, go to Chapter 7 for instructions on some general diagnostic techniques.

When you run into trouble

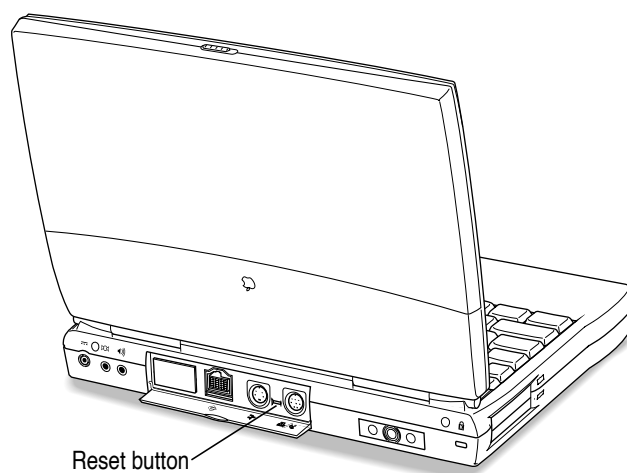
While you're using your computer, you may see a bomb icon or an error message, or you may have a problem such as the pointer (⏏) "freezing" on the screen. If you have trouble with your computer, take a few minutes to read the information in this chapter and Chapter 7. If your problem is related to a particular procedure, you should also look for information on that procedure in Mac OS Guide, available in the Guide (🔍) menu. If you are unable to access Mac OS Guide (for example, if your screen is "frozen"), refer to this chapter to see if you can resolve the problem.

This chapter and Chapter 7 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 telephone 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 on the back panel.



The computer makes an unusual sound at startup.

- If you hear four tones, 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 7.
- There may be a problem with the information stored in the area called parameter RAM (PRAM) and nonvolatile RAM (NVRAM).

Resetting the PRAM and NVRAM erases the contents of your RAM disk, if you have one. It also reverts the settings on most of your computer's control panels to their defaults (original, standard settings). You may want to check the settings in your control panels for memory, networking, and monitors, and any aspect of your work that seems affected after you reset the PRAM and NVRAM.

Follow these steps to reset the PRAM and NVRAM:

1. Shut down your computer.
2. Make sure the Caps Lock key is not engaged.
3. Position the fingers of your left hand on these keys: Command (⌘), Option, and R. Locate the P key, so you can find it quickly for step 4.
4. Press the Power key (marked with "on/off") to turn on your computer. Immediately after you hear the startup sound, press and hold down the Command (⌘), Option, and R keys at the same time as you press and hold down the P key.
5. When you hear the startup sound repeat twice, release the keys, then immediately press and hold down the Shift key to start up with your Extensions turned off. Release the Shift key when you see the message "Extensions Disabled" during startup.

If you don't see the "Extensions Disabled" message, wait until startup is complete, then press and hold down the Shift key while you choose Restart from the Special menu. Continue to hold down the Shift key until the message appears.

6. Open the System Folder, then open the Preferences folder.
7. Drag the Display Preferences icon to the Trash.



Display Preferences

8. Restart your computer *without* holding down the Shift key.
The computer starts up with your Extensions turned on again.
9. When the computer has finished starting up, restore any custom control panel and network settings.
 - If you hear eight tones, 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 doesn’t appear.

- The screen brightness may be turned down. Adjust the brightness control (☼) and contrast control (●), located to the right of the display.
- There may be a problem with the display of the windows. Restart the computer and hold down the Option key until the desktop icons appear. (When the desktop appears, all windows will be closed.)
- The computer may be trying to start up using an external hard disk that does not contain the correct system software. Shut down, 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 Chapter 7 and try the steps given in the section “Checking Your System Software Extensions.”

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 the Mac OS System Software" in Chapter 7.

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. If the computer is connected to any external hard disks, make sure they are turned on. Then restart the computer. If the problem recurs, the hard disk or its system software may be damaged. See Chapter 7.
- 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 Computer" 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 Computer" 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 Chapter 7.

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 some of the system software extensions from the Extensions folder (inside the System Folder).

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 your current documents will be lost.) Immediately save all open documents, quit all other open programs, and restart the computer.
- Press the reset button 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," in the section "Problems Starting Up the Computer" earlier in this chapter.) If the problem still occurs, see Chapter 7.

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 feature 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.

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 the 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 7.

A program won't open.

- The application program may already be open. Check the Applications 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, or it may not be compatible with PowerPC technology. Check to make sure the software is PowerPC compatible, and install it 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," next.
- 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 use the Restart command, 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 remove or reduce the size of your RAM disk.
 - 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 use the Extensions Manager control panel to turn off all extensions except the Macintosh Easy Open control panel before you follow the steps given above to rebuild 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 and 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 the Power key (or any key except Caps Lock or the trackpad button) on the keyboard 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.

The computer won't wake from sleep when I press a key.

- If the display is closed or partly closed, open it to an angle of at least 45 degrees. Then press any key (except Caps Lock or the trackpad button) to wake the computer.
- You may be pressing a key that doesn't wake the computer—the trackpad button or Caps Lock key. Try pressing a different key.

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 before you 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.
 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. Select the file's icon, choose Get Info from the File menu, and click the Locked checkbox to remove the X. You can delete locked files that are in the Trash 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.
- Open the Easy Access control panel (if it is installed on your computer) and check whether any features are turned on.
- Select a different system sound in the Monitors & 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.

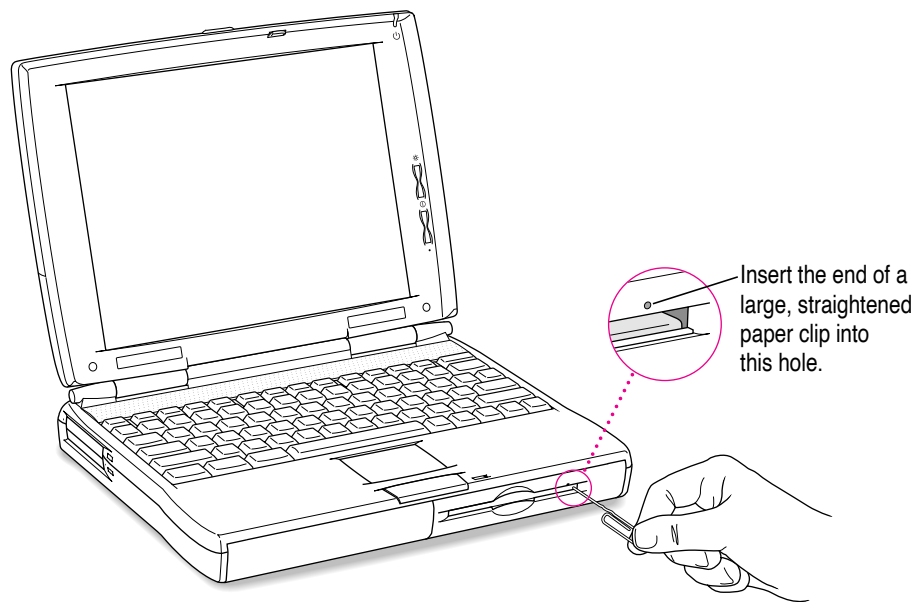
- All computers set aside some memory for system overhead. Macintosh PowerBook 1400 series computers set aside about 300K of RAM.
- If you want to open more programs than memory allows, you can use the Memory control panel to decrease the size of the disk cache, or remove or decrease the size of the RAM disk (if you're using one). You can also have a memory expansion card installed in your computer.

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 it with Disk First Aid (on the *Disk Tools* disk that came with your computer).

Hard disk drive

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 "Problems with Equipment Connected to Your Computer," later in this chapter.
- There may be a problem with your startup disk or with its system software. See "Testing Your Hard Disk" in Chapter 7.
- Try resetting the PRAM to reestablish the original startup settings for the computer.

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 pad and that your finger is dry.

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.
- Open the Easy Access control panel 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 or the trackpad button) 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 (⦿).
- Open the Monitors & Sound 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 (listed in the resource materials that came with your computer).

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.
- Use the Monitors & Sound control panel to display an identification number on the monitor. If no number appears, there may be a problem with the connection, or the monitor may need repair. (See the "Monitors" topic area of Mac OS Guide for instructions on using the Monitors & Sound control panel.)

The external monitor does not show the menu bar.

- Use the Monitors & Sound control panel to designate the monitor that you want to display the menu bar. (See the "Monitors" topic area of Mac OS Guide for instructions on using the Monitors & Sound control panel.)

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 & Sound control panel. Open the Monitors & Sound 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. (See the “Monitors” topic area of Mac OS Guide for instructions on using the Monitors & Sound control panel.)

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 windows.
- Check the connections between your computer and the printer, including relevant sections of the network if appropriate. (See "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.

- You cannot use password protection with your PowerBook in SCSI disk mode. Turn password protection off in the Password Security control panel.
- 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 3.

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 cannot use password protection with your PowerBook in SCSI disk mode. 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 press the reset button on the back panel to 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 10 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 10 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. For more information, see “Connecting SCSI Devices” in Chapter 3.

When I try to shut down with the computer in SCSI disk mode, the pointer freezes and the computer doesn’t shut down.

- Press the reset button on the computer’s back panel to turn off the computer.

Problems with equipment connected to your computer

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

- 1 Shut down or turn off 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 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 AppleTalk or TCP/IP control panel and make sure the correct network type is selected.
- Make sure that all the network software is installed. The Network and AppleShare extensions should be in the Extensions 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 should be in the Extensions folder. If any of these items is missing, use the CD-ROM disc that came with your computer to reinstall the parts of the system software you need.
- Make sure the network is working by opening the Chooser and checking for the shared disks and printers you usually use.
- Try connecting to the network from a different location, or 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 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 "Sharing Files" topic area of Mac OS 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 "Sharing Files" topic area of Mac OS 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 400K 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. (For instructions, see "The Computer Makes an Unusual Sound at Startup" in the section "Problems Starting Up the Computer" earlier in this chapter.) Afterward, make sure to turn AppleTalk back on and select the correct network type in the Network control panel.
 4. Remove the Users & Groups data file from the Preferences folder (inside the System Folder). Restart the computer.
 5. Reinstall system software.

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 of the device for more information.
- Some disk-formatting programs don't work with file sharing. If you use such a program, check with the program's 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 Installer icon in the Launcher to reinstall file-sharing and networking software. (See “Doing a Custom Installation” in the “Reinstalling the Mac OS System Software” section in Chapter 7 for more information.)

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.
- 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.
- If you are using a PC Card modem, make sure the modem file for your modem is in the Extensions folder (in the System Folder). If it is not, check to see if it's in the PC Card Modem Files folder (in the Apple Extras folder) and put the file in the Extensions folder. If you don't find the file in either location, contact the modem's manufacturer to obtain the file.
- 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 later 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.

7

Diagnostic Techniques

This chapter provides a step-by-step approach to diagnosing and solving problems involving system software and hard disks. Try the steps listed in each section in the order they are given until your problems are fixed.

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 Disabled” during startup.**

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 Reset the parameter RAM (PRAM) and nonvolatile video RAM (NVRAM) by following the steps below.**

When you reset the PRAM and NVRAM, the settings on most of your computer’s control panels revert to their defaults (original, standard settings). You may want to check the settings in your control panels for memory, networking, and monitors, and any aspect of your work that seems affected after you reset the PRAM and NVRAM.

Follow these steps to reset the PRAM and NVRAM:

1. Shut down your computer.
2. Make sure the Caps Lock key is not engaged.
3. Position the fingers of your left hand on these keys: Command (⌘), Option, and R. Locate the P key, so you can find it quickly for step 4.
4. Press the Power key (marked with “on/off”) to turn on your computer. Immediately after you hear the startup sound, press and hold down the Command (⌘), Option, and R keys at the same time as you press and hold down the P key.
5. When you hear the startup sound repeat twice, release the keys, then immediately press and hold down the Shift key to start up with your extensions turned off. Release the Shift key when you see the message “Extensions Disabled” during startup.

If you don't see the “Extensions Disabled” message, wait until startup is complete, then press and hold down the Shift key while you choose Restart from the Special menu. Continue to hold down the Shift key until the message appears.

6. Open the System Folder, then open the Preferences folder.
7. Drag the Display Preferences icon to the Trash.



Display Preferences

8. Restart your computer *without* holding down the Shift key.

The computer starts up with your extensions turned on again.

If the problem does not recur, it may involve the disk cache, virtual memory, or file sharing. 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.

3 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.

4 Turn extensions back on, one extension at a time, in the Extensions Manager control panel. Restart the computer after 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.

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 your computer from the CD-ROM disc or the *Disk Tools* floppy disk that came with your computer.**

If you're starting up from the CD, hold down the ⌘-Shift-Option-Delete keys as the computer starts up.

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 PowerBook. See "Problems with Equipment Connected to Your Computer" in Chapter 6. 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 on the CD or floppy disk.**

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



Drive Setup

Note: If you're using the CD, you can get on-screen help for the Drive Setup application program by choosing the Drive Setup Guide, available in the Guide (⌘) menu when Drive Setup is the active application. The on-screen instructions are not available when you use Drive Setup on the *Disk Tools* floppy disk.

- 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 testing indicates a repair is necessary, use Disk First Aid (available on the CD or the *Disk Tools* floppy disk) or another disk repair utility to see if it can repair the 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 the Mac OS system software

When should you install system software?

Your computer came with all the necessary Mac OS 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" 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" to reinstall system software on your startup hard disk.

What if you don't have system software disks?

Appendix D, "Making Backup Floppy Disks," describes how to make a set of system software disks in case your hard disk or some of its contents are damaged. If you cannot start up your PowerBook from its hard disk, start it up with the *Disk Tools* disk that came with your computer. Then follow the instructions in Appendix D to make a set of system software disks.

If your PowerBook includes a CD-ROM drive or you have an external CD-ROM drive, you don't have to make a set of system software disks; you can reinstall the complete system software (as well as the programs that were preinstalled on your hard disk) from the CD.

Doing a normal installation

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 new 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 initialize a disk using either the Drive Setup program or the recommended hard disk utility that came with the hard disk. Your internal hard disk was initialized at the factory.)

To do a normal installation, follow these steps:

- 1 Start up your computer from the CD that came with your computer or from the first system software installer disk you made with Floppy Disk Maker (see Appendix D).**

If you’re starting up from the CD, hold down the ⌘-Shift-Option-Delete keys as the computer starts up.

- 2 Locate the Install Mac OS icon and double-click it.**

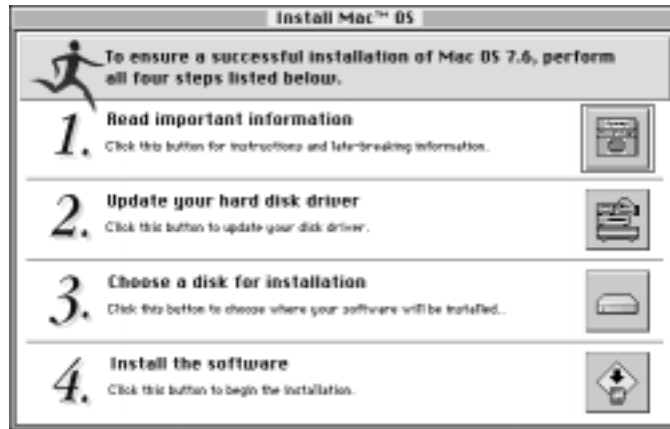


Install Mac™ OS

You see the following screen.



Next, a screen appears describing the four steps in the installation process.



Step 1: Read important information

Click the first button to read about the installation process, as well as compatibility and troubleshooting information.



Read the onscreen document that appears. Since the onscreen document was written after this book, it may contain additional information.

When you're finished reading the document, choose Quit from the File menu to return to the Install Mac OS screen.

Step 2: Update your hard disk driver

Hard disks with old drivers might cause problems after reinstalling system software. Your computer might not start up, or you might not see the hard disk icons on the desktop. To avoid these problems, it's a good idea to update your drivers.

The disk utilities that Apple provides won't update some disks. You can skip step 2 if

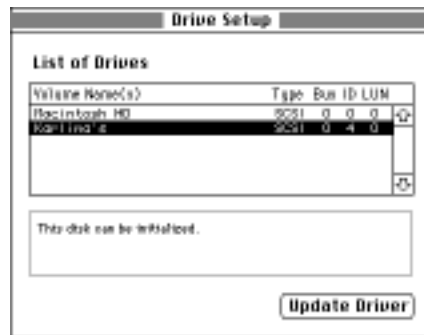
- You don't have an Apple hard disk. Check the instructions that came with your computer or hard disk to see if the manufacturer includes or recommends a disk utility, and use that utility to update the driver.
- You've previously used a disk utility from a manufacturer other than Apple to format your disk or update the driver. You'll need to use that utility again to perform the update. Make sure to get the latest version of the utility from the manufacturer. An old utility will not be able to update your disk with the most current driver.

Click the second button in the main Install Mac OS screen to update your disk drivers.



After you click the second button, you first see a dialog box asking you to confirm that you can use the provided utilities. Click Continue.

The Drive Setup window appears.



To update your disk drivers, do the following:

- 1 Select the name of a hard disk attached to your computer.
- 2 Click Update Driver.

Repeat steps 1–2 to update the drivers on any additional attached disks.

- 3 When you've finished updating the drivers on all your disks, close the window to quit the Drive Setup program.

Step 3: Choose a disk for installation

Click the third button to select the disk on which you want to install the Mac OS.



In the dialog box that appears, choose the disk on which you're going to install the software. Then click Select.



You see a message if you don't have 70 MB (the amount necessary for the standard installation) of available space on the disk you choose. Depending on the installation options you select, you may need up to 120 MB. If there isn't enough space available, you need to remove files from the disk before installing the software.

Step 4: Install the software

Click the fourth button to install the Mac OS and additional software.



1 In the dialog box that appears, select the software you want to install.

Note: Your screen may look slightly different from the picture below. Remember to check the information presented in the first step on the main Install Mac OS screen for late-breaking information. If you're installing from floppy disks, you won't see all the choices available on the CD.

Click to put an X in the box for each software product you want to install. Recommended choices are preselected.

For more information about custom installations, see "Doing a Custom Installation" later in this chapter.



You use the Options button to perform a clean installation. For information, see the next section.

In addition to the Mac OS, you can choose to install the following optional software:

- QuickDraw 3D, to view and manipulate 3D images on your computer
- MacLinkPlus translators, to easily open documents created in applications you don't have with appropriate applications you do have. (These translators work with the Mac OS Easy Open control panel.)
- Apple Remote Access, to connect to a remote computer on an AppleTalk network (such as your computer at work) using a modem
- Cyberdog, an application to explore the Internet
- Open Transport PPP software, to connect to the Internet using a modem
- English Text-to-Speech software, to have your computer read text aloud
- QuickDraw GX, for enhanced printing and typographical capabilities

Installing a customized system: The Install Mac OS program installs the software recommended for your model of computer. You can use the Customize option to choose exactly which software to install. For instructions, see “Doing a Custom Installation” later in this chapter.

2 Click Start to install the software you selected.

The Install Mac OS program checks your destination disk for any problems and repairs them, if necessary. After your disk is tested, the software you selected is installed.

If your disk has problems that can't be repaired: Use a disk repair utility to see if it can repair the disk. If you don't have a disk repair utility, or if that utility can't repair the disk either, you may need to reinitialize the hard disk. To reinitialize the hard disk, first back up your hard disk because reinitializing erases everything on the disk. Next, use Drive Setup (available on the Disk Tools floppy disk or on the CD) to reinitialize the hard disk. Then reinstall system software and your application programs.

3 When the installation is complete, restart your computer.

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.

Doing a clean installation

This section provides instructions for what is commonly called a “clean” installation of system software.

A normal system software installation replaces changed system files and adds new ones, but leaves other files alone. When you install system software using a “clean” installation, the Installer creates a new System Folder on your hard disk. The old System Folder is renamed Previous System Folder. Since your computer has a new System Folder, you must reinstall any extensions and control panels that you added or that came with utility or application programs. This can be a complicated procedure, but if you are experiencing problems or your computer seems slow, performing a clean installation may help.

Follow these steps to begin your clean installation.

- 1 Follow the instructions in the first three sections of “Doing a Normal Installation” earlier in this chapter.

You should have completed the first three steps indicated in the main Install Mac OS screen.



- 2 Click the fourth button on the main Install Mac OS screen.

The following screen appears.



3 Click Options.

4 In the screen that appears, click the checkbox next to Create New System Folder, then click OK.

Click to put an X
in this box, then
click OK.



5 Click Start.

A new System Folder is installed on your hard disk. (The old System Folder is renamed Previous System Folder.)

Reinstall extensions, control panels, and other startup items. Reinstall items from the original disks, if possible. Do not reinstall anything with the same name as an item in the new System Folder. If you don't have the original disks, you can drag items one at a time from the Previous System Folder to the new System Folder. Restart your computer after you reinstall each item to make sure the reinstalled software is compatible with the Mac OS.

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

Doing a custom installation

For most computer users, the installation procedure described in “Doing a Normal Installation” is best, because it automatically installs everything you need for your model of computer. However, if you’d like to select only the software specific to your needs, you can customize your installation. You can install or update one or more specific files, or save space on your hard disk by installing only the files you want.

You can also use the Customize option to add additional software or to install a System Folder that can be used on any computer model compatible with the Mac OS.

To install customized system software, follow these steps:

- 1 Follow the instructions in the first three sections of “Doing a Normal Installation” earlier in this chapter.

You should have completed the first three steps indicated in the main Install Mac OS screen.



- 2 Click the fourth button on the main Install Mac OS screen.

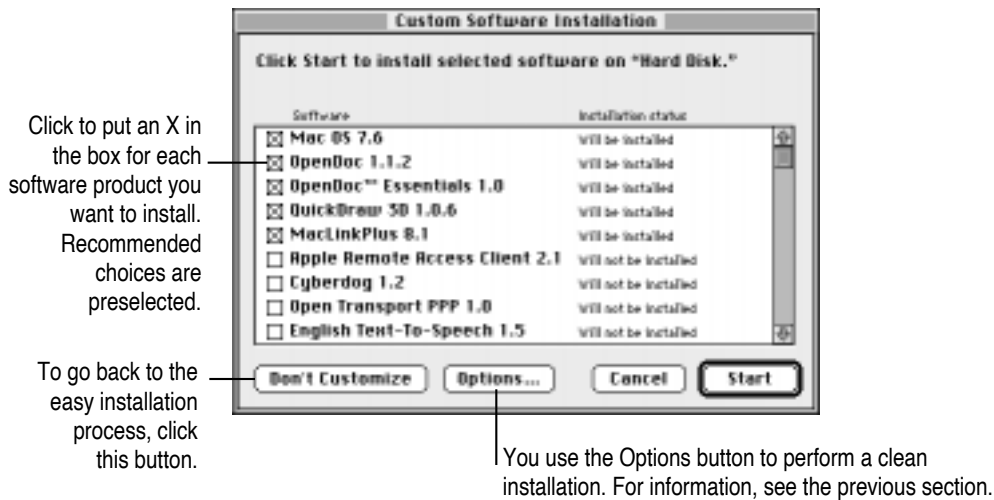
The following dialog box appears.



- 3 Click Customize.

The following screen appears.

Note: Your screen may look slightly different from the picture below. If you're installing from floppy disks, you won't see all the choices available on the CD.



4 Select the software you want to install.

You can choose to install some of the optional software described in “Step 4: Install the Software” earlier in this chapter, and you can choose which portions of the default system to install. You can choose from the following additional options:

- Mac OS, the basic system software.
- OpenDoc, which adds new functionality to your applications in the form of self-contained software “parts.” A variety of parts will be available from Apple and other sources.
- OpenDoc Essentials, a set of software “parts” to get you started using OpenDoc technology. To use OpenDoc essentials, you also need to install OpenDoc.

Note: Cyberdog software also requires OpenDoc.

The Install Mac OS program will automatically check your destination disk for any problems and repair it, if necessary. If you don’t want your disk to be checked, click the Options button. In the dialog box that appears, click the Check Destination Disk checkbox to remove the X.

To skip checking your disk, click this box to remove the X.



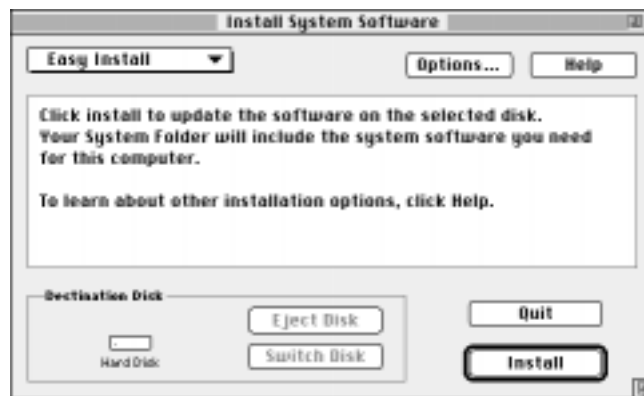
5 Click Start.

If your disk has problems that can't be repaired: Use a third-party disk repair utility to see if it can repair the disk. If you don't have a disk repair utility, or if that utility can't repair the disk either, you may need to reinitialize the hard disk. To reinitialize the hard disk, first back up your hard disk because reinitializing erases everything on the disk. Next, use Drive Setup (available on the *Disk Tools* floppy disk or on the CD) to reinitialize the hard disk. Then reinstall system software and your application programs.

The Mac OS program opens the Installer for the first software product you selected. You'll use the Installer to further specify which components you want to install.

6 When you see the Installer's welcome screen, click Continue.

The Easy Install dialog box appears.



If you want all the recommended components for this product, skip to step 9.

If you want to specify which components to install, follow steps 7–8 below.

7 Open the pop-up menu and choose Custom Install.



The Custom Install dialog box appears, listing all available components for the selected software product.



- 8 Scroll through the list of components and click the checkbox next to each component you want to install.**

To select individual items within each component, click the arrow to the left of the component, then click the item you want to install. To get additional information about a component, click the box with the letter *i* in it to the right of the component. Files that support the components you chose may also be installed.

- 9 Click Install.**
- 10 Follow the instructions that appear on the screen.**
- 11 Repeat steps 5–9 for all the software you selected.**

The Install Mac OS application automatically opens the Installer for next selected software package in the list.

- 12 After all the installations are completed, restart your computer to use your new software.**

Appendix A Health, Safety, and Maintenance Tips

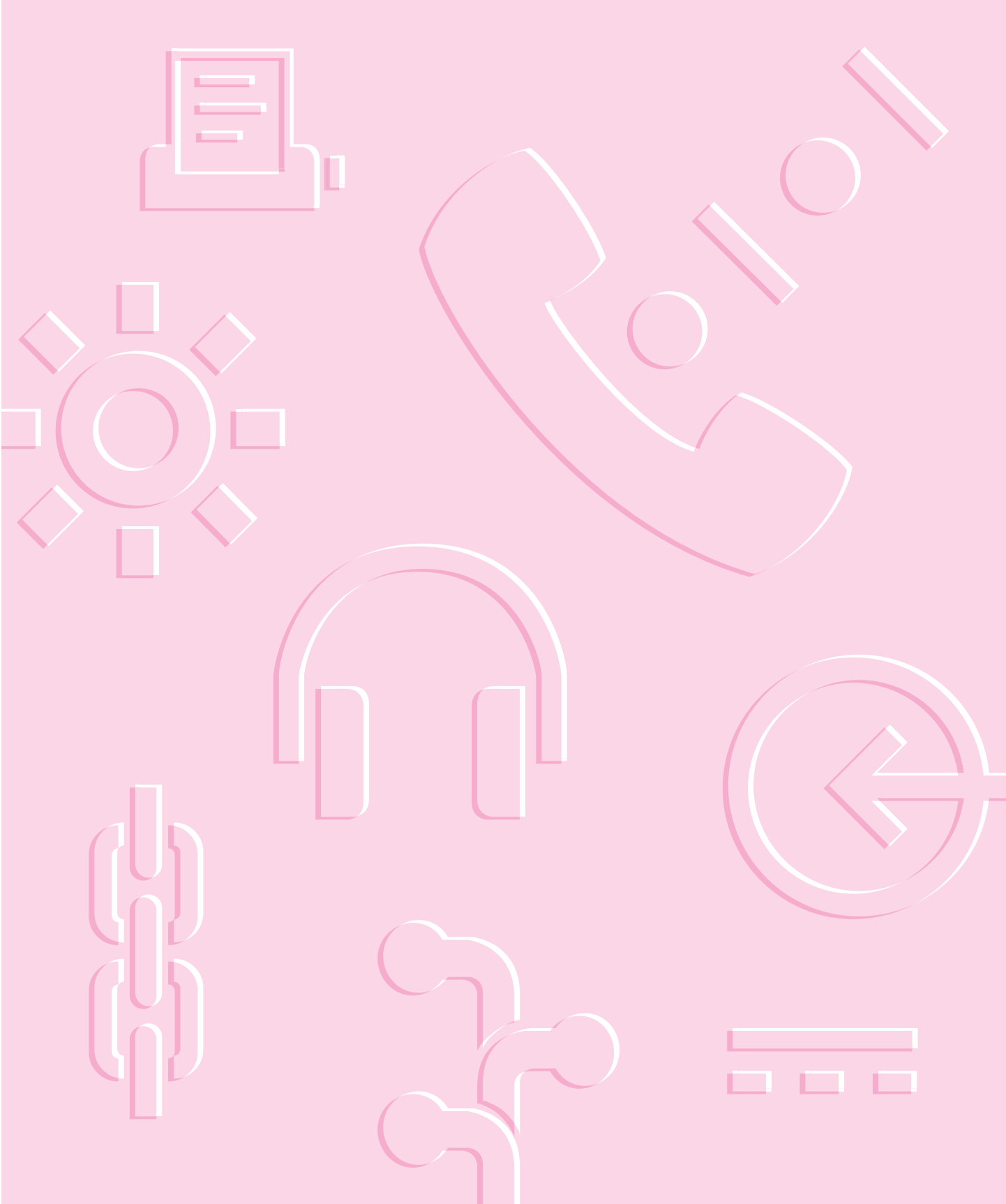
Appendix B Using Your Keyboard

Appendix C Installing Expansion Cards

Appendix D Making Backup Floppy Disks



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.

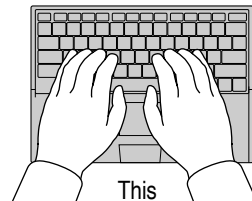
The back of the chair should support your lower back (lumbar region). Follow the manufacturer's instructions for adjusting the backrest to fit your body properly.

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.
- Change the computer's position.

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.

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.
- Transport batteries either inside the computer or with the protective cap covering the battery contacts.

Caution

- If you have a problem with your computer and nothing in the computer manual 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.

Important

- Use the computer only in environments where the temperature range is between 41° F/5° C and 95° F/35° 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.



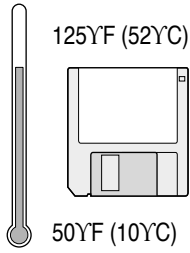
Caring for batteries

Always handle batteries carefully.

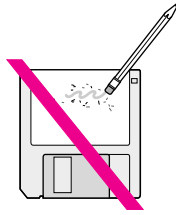
- Always put the battery cap on the battery when the battery is out of the Macintosh PowerBook. The battery contacts should not be exposed when the battery is out of the computer.
- Never get batteries wet.
- Do not short-circuit the battery terminals (that is, do not touch the terminals with a metal 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.
- Do not leave a battery in storage for longer than six 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

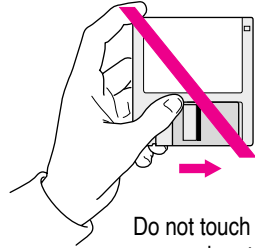
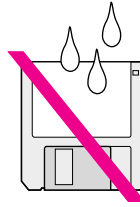
Store disks at temperatures between 50°F and 125°F.



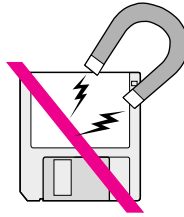
Do not use a pencil or an eraser on a disk or disk label.



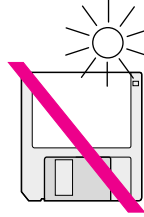
Keep disks dry.



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 CD-ROM disc or the *Disk Tools* floppy disk that came with your computer when you travel (depending on which type of disk drive you are using). If you experience system software problems while traveling, you may 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 Macintosh PowerBook. But the motors that drive the belts on some security machines have magnets that can damage your information. To avoid problems, place the Macintosh PowerBook close to the entrance of the machine and remove it as soon as possible. At most airports you can also have the computer hand-inspected by security personnel.

Metal detectors should not damage the Macintosh PowerBook.

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

Handling your Macintosh PowerBook

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

- Do not transport your Macintosh 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.
- 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 cord.) 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 (CIS), 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

International repair and service

Apple's global limited warranty covers your Apple products for one year, regardless of where the products were purchased. The 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 United States.



Storing the Macintosh PowerBook

- 1** Save your work on a hard disk or floppy disks.
- 2** Press the Power key and click shut down, or 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 -25°C and 60°C (between -13°F and 140°F). Avoid leaving the computer where temperatures may be extreme or unpredictable—in the trunk of a car, for example.

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 customer assistance.

Refer to this appendix for information on using your Macintosh PowerBook 1400 series keyboard.



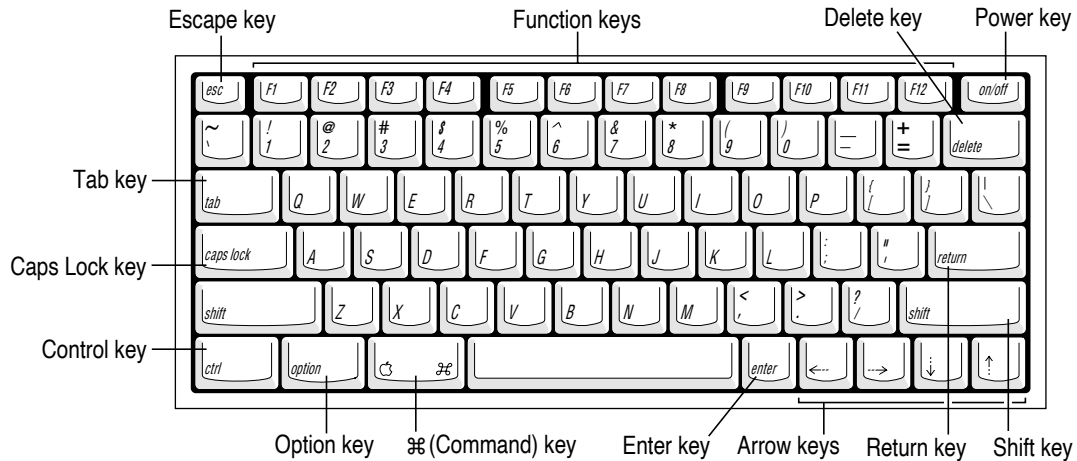
Appendix B Using Your Keyboard



The keyboard on the Macintosh PowerBook 1400 series computer 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. Many of these keys allow you to give commands to the computer without using the trackpad. For example, in many application programs, you can press the ⌘ (Command) key at the same time as the Q key to quit a program.

The illustration on the following page explains the function of all the special keys in the keyboard on the Macintosh PowerBook 1400 series computer.

Special keys on the Macintosh PowerBook 1400 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 toggle Shift key for letters only (numbers and symbols aren't affected). A small upward arrow appears in the menu bar when Caps Lock is on.
⌘ (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 and off.
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).

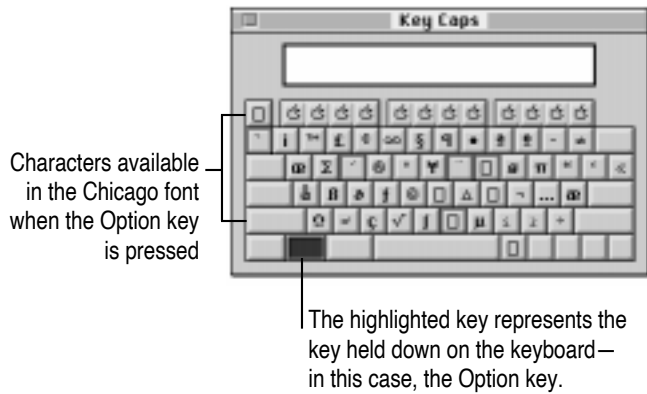
Typing special characters and symbols

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 prompt (>). To return to the desktop, press G.

Refer to this appendix for instructions on installing an expansion card in your Macintosh PowerBook.



Appendix C Installing Expansion Cards

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You can purchase cards to augment your PowerBook's operation. Two kinds of cards are available for the computer. You can install two different types of cards in the computer:

- a RAM card
- an expansion slot card with back-panel connector

You can install two RAM cards (one above the other, piggyback style) and one expansion slot card.

Note: You should attempt to install a RAM card or an expansion slot card 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).

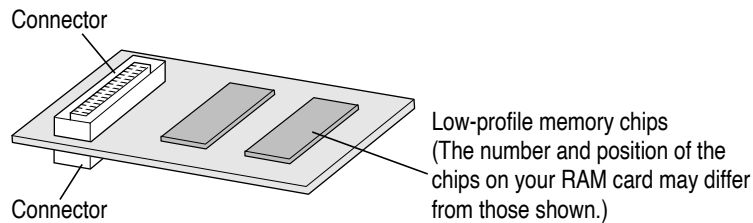
WARNING If you attempt to install a RAM card or an expansion slot card yourself, any damage you may cause to your equipment will not be covered by the limited warranty on your computer. See an Apple-authorized dealer or service provider for additional information about this or any other warranty question.

Installing a RAM card

You need the RAM card and small Phillips and flat-blade screwdrivers for the installation.

Make sure you are installing a RAM card made for a Macintosh PowerBook 1400 series computer. The RAM card must use low-profile memory chips.

The card has connectors on the top and bottom so that another RAM card can be plugged into it, piggyback style. You can install this type of card in the lower position (if no RAM card is already installed) or the upper position (if a RAM card is already installed).



To install the RAM card, follow these steps:

- 1 Check the amount of RAM currently installed in your computer by choosing About This Macintosh from the Apple () menu.**

You must be in the Finder to see About This Macintosh. If necessary, click anywhere on the desktop to make the Finder active.

Make a note of the amount of built-in memory.

- 2 Disconnect all cables from the computer, including the power adapter. Make sure the computer is turned off.**

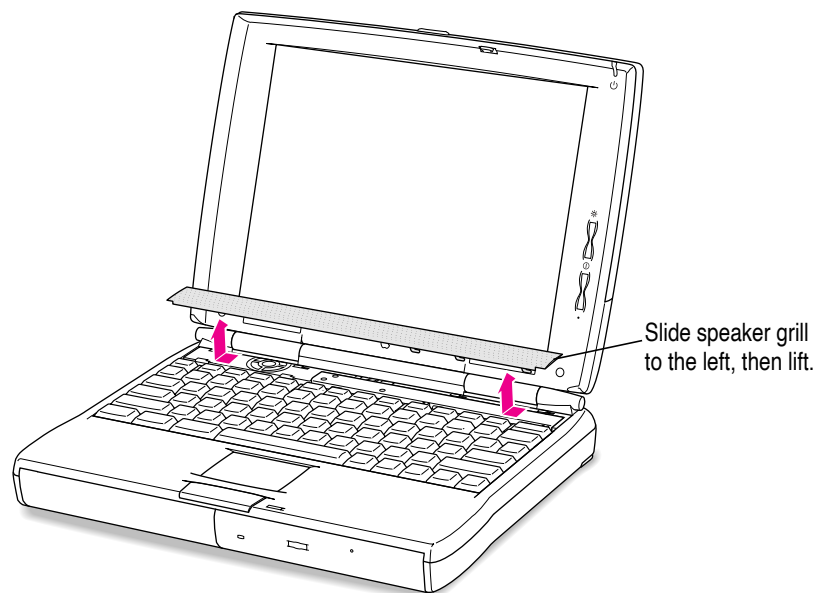
3 Remove the battery from the computer.

If you're unfamiliar with this procedure, follow the instructions in "Removing or Replacing the Battery" in Chapter 5 of this manual.

WARNING Do not install a RAM card without disconnecting the power adapter and removing the battery. Installing a card while a power source is connected could damage the computer.

4 Slide the speaker grill (above the top row of keys) to the left and lift it out of the computer.

The grill is held in place firmly and may require some force to move it sideways.

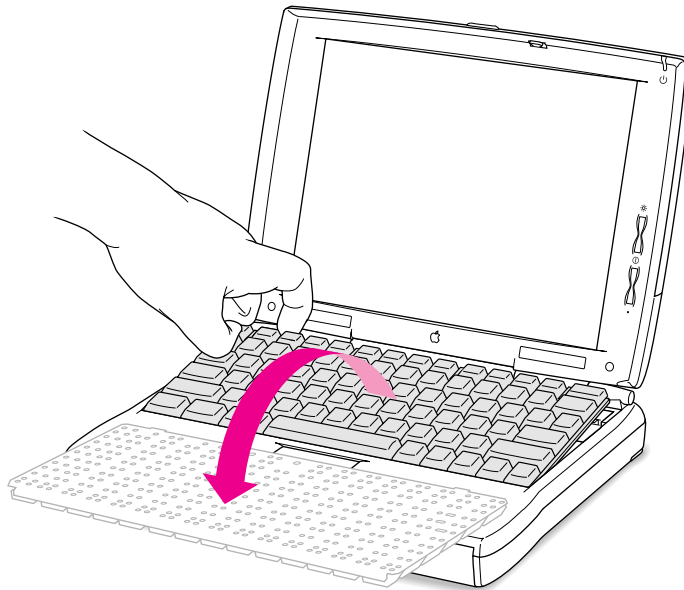


Set the speaker grill aside.

- 5 Place your finger under the top edge of the keyboard and gently fold it forward so that the keyboard rests upside down on the lower part of the computer's case.**

If you can't easily put your finger under the keyboard, carefully slide the end of the flat screwdriver under it and lift.

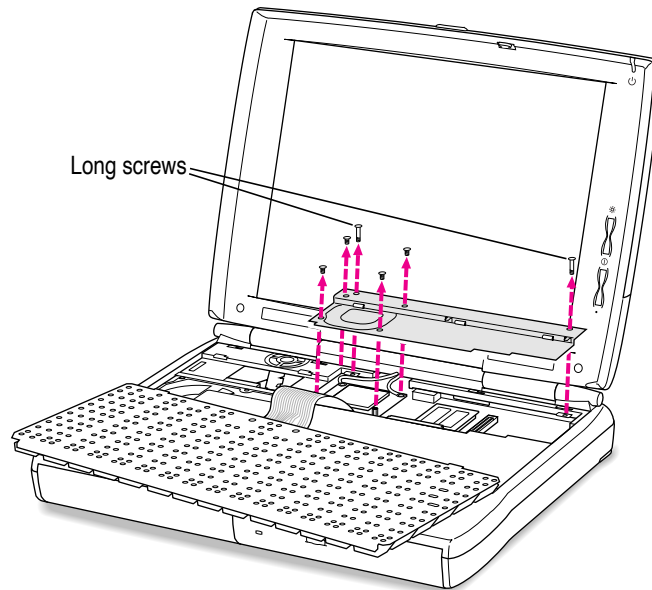
Take care not to move the bottom edge of the keyboard away from the case, to avoid straining or disconnecting the keyboard's cable.



- 6 Remove the six screws holding the metal heat shield in place. Then lift out the heat shield and set the shield and screws aside.

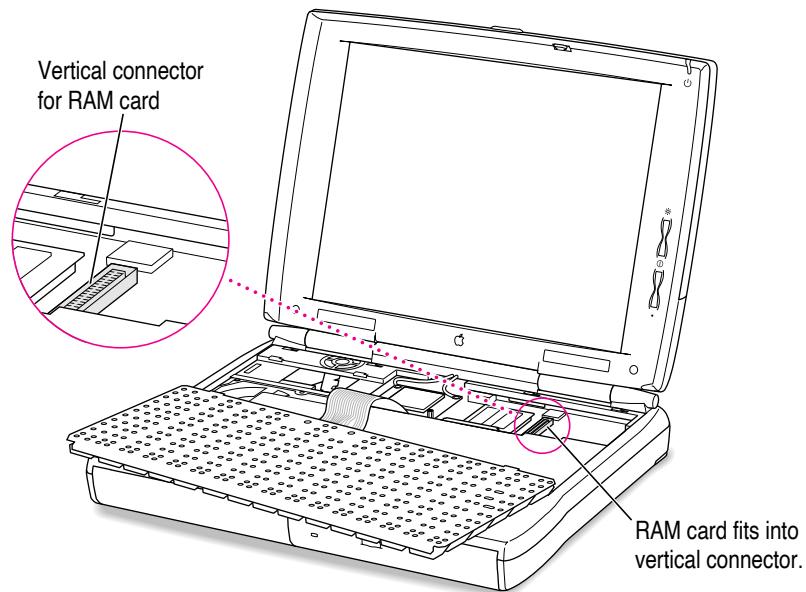
Use the small Phillips screwdriver to loosen the screws.

Note that the two screws at the rear corners of the shield are longer than the other four screws.



7 Locate the vertical connector for the RAM card near the right side of the computer.

The connector is approximately 2 inches in from the right side of the case. The RAM card's design allows for one card to be connected to the socket on top of a card that is installed on the computer's main logic board. Therefore, your computer may have a RAM card already installed; if so, you will still see the vertical connector on the top of the installed RAM card. (See the illustration at the beginning of these instructions for reference.)



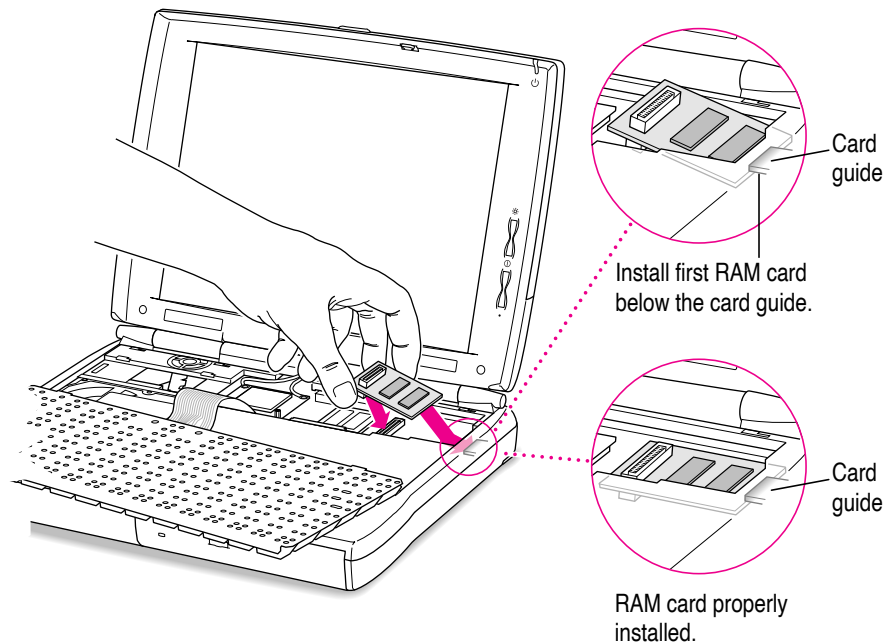
The area around the RAM card's vertical connector may be partially obscured if your computer has a card installed in the expansion card slot (the expansion card slot is not used for a RAM card).

- 8** Carefully remove the RAM card from its packaging and position it above the area for installation in the computer.

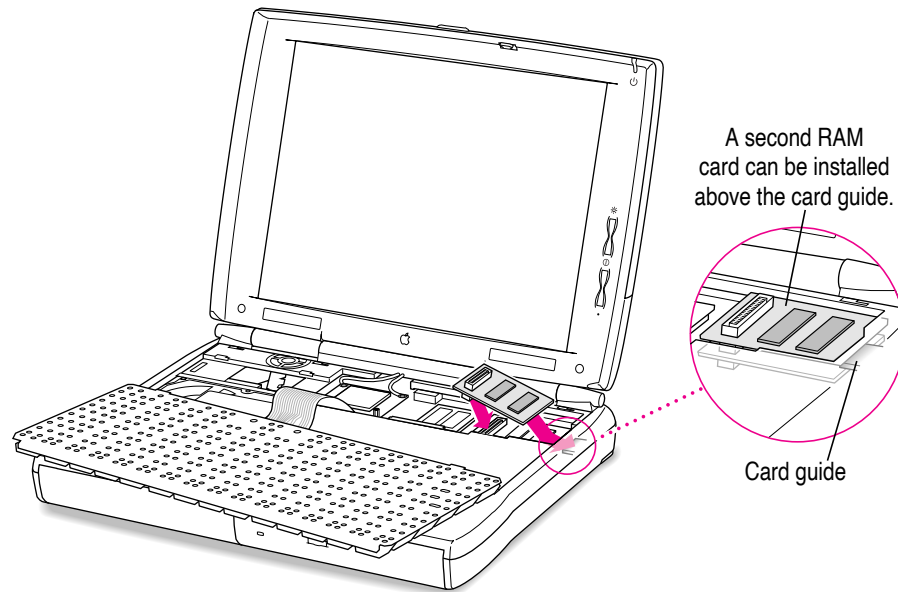
Hold the card by its edges on the left side, taking care not to touch any of the components or the wires inside the connectors.

- 9** Tilt the right side of the card so that its right edge fits under the right edge of the computer's case and slip the card's right edge into the card guide on the inside of the case.

- If a RAM card has not been installed, slide the right edge of the card below the card guide.



- If a RAM card is already installed, slide the right edge of the card above the card guide.



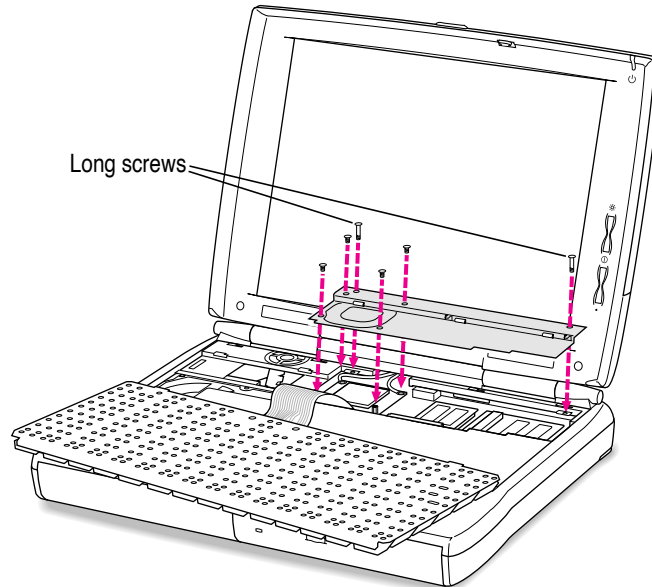
- 10 Lower the left side of the card so that its connector is aligned with the vertical connector in the computer and gently push the card down until it is seated.

If the two connectors don't join easily, detach the card and align the connectors again. Forcing the connectors together could damage the card or the socket.

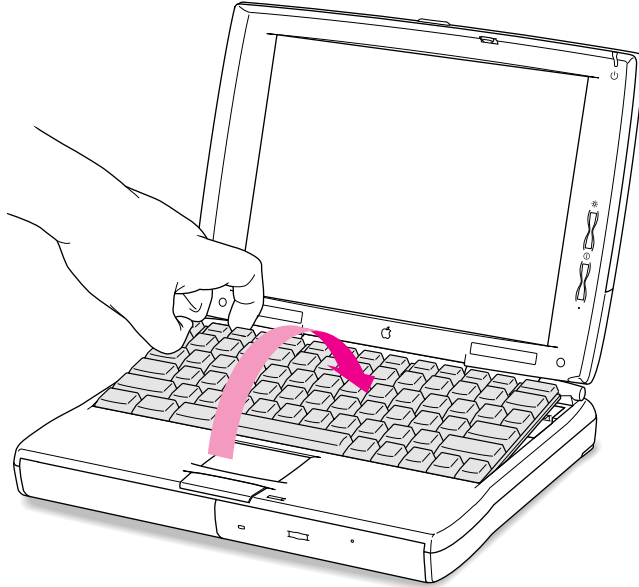
11 Replace the metal heat shield and fasten it in place with the screws.

Slide the front edge of the heat shield under the case, then lower the back of the shield.

Be sure to put the long screws at the two rear corners of the shield.

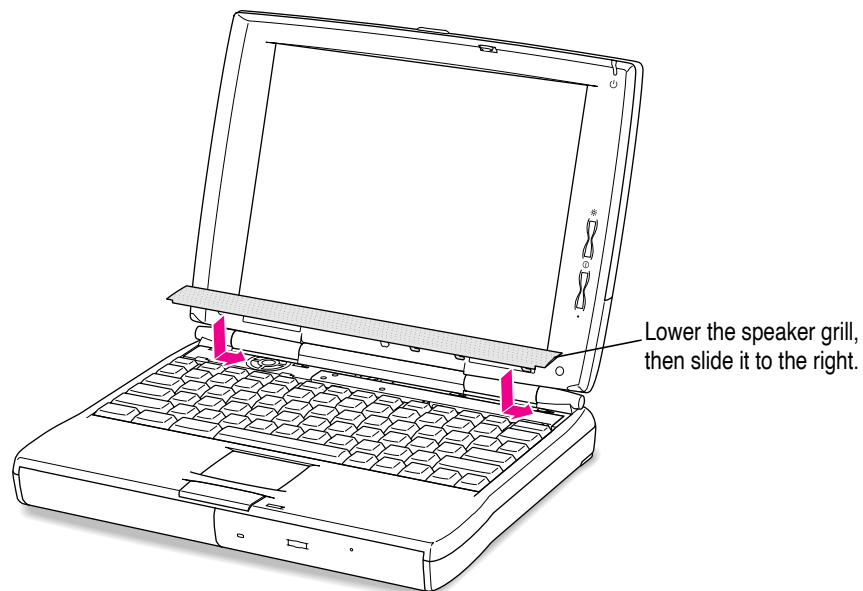


- 12 Replace the keyboard by folding it backward and lowering the top edge into place.



- 13 Replace the speaker grill by lowering it into the opening above the top row of keys. Slide the grill to the right to secure it.**

Position it so that the three downward-pointing tabs are at the right front of the grill. The tabs click into place when you slide the grill to the right.



- 14 Replace the battery and reconnect the plugs, cables, and power adapter.**

Now you're ready to use the expanded RAM in your PowerBook.

Making sure the RAM card is properly installed

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

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

Your total memory (or total built-in memory, if you have virtual memory turned on) should be the amount of built-in memory you noted before installing the RAM card plus the amount of RAM in the card that you just installed.

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

If you hear eight tones when the computer starts up, there may be a problem with the RAM card. If you installed the RAM 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.

Installing an expansion slot card

You can install an expansion slot card in your PowerBook to add a port for external connections to the computer. One type of expansion slot card available for your Macintosh PowerBook 1400 series computer provides a video connection for an external monitor.

You need the expansion slot card and small Phillips and flat-blade screwdrivers for the installation.

To install an expansion slot card, follow these steps:

- 1 Disconnect all cables from the computer, including the power adapter. Make sure the computer is turned off.**
- 2 Remove the battery from the computer.**

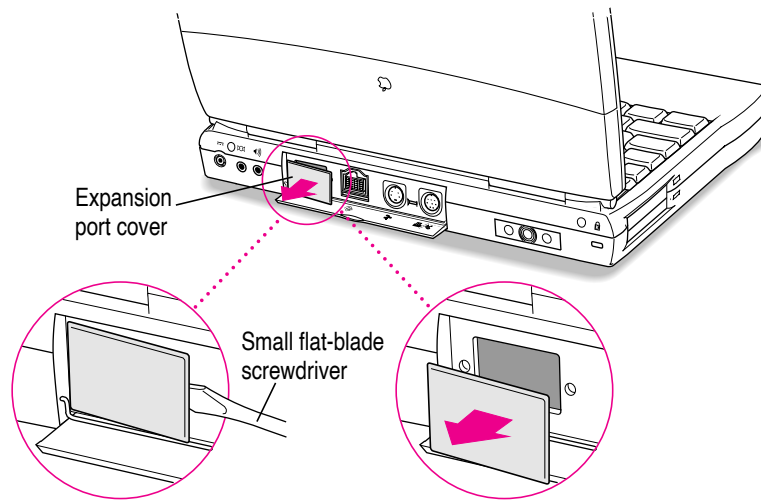
If you're unfamiliar with this procedure, follow the instructions in “Removing or Replacing the Battery” in Chapter 5 of this manual.

WARNING Do not install an expansion slot card without disconnecting the power adapter and removing the battery. Installing a card while a power source is connected could damage the computer.

- 3 Open the door that covers the ports on the back panel of the computer.**

4 Use a small flat-blade screwdriver to remove the expansion port cover.

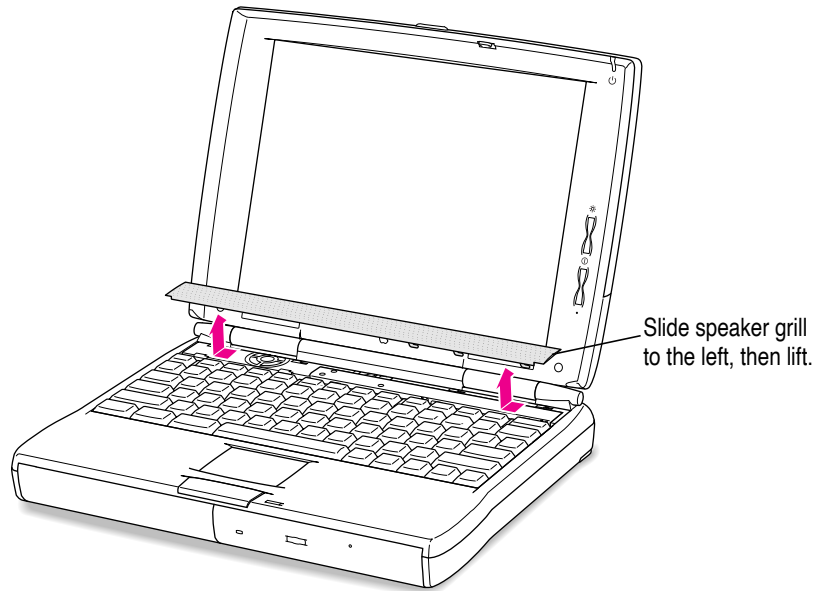
The cover is held firmly in place by small tabs. You may need to pry it off by placing the screwdriver in the small indentation at the center of the cover's right edge.



Be sure to save the cover so that you can replace it should you remove the expansion slot card later.

- 5 **Slide the speaker grill (above the top row of keys) to the left and lift it out of the computer.**

The grill is held in place firmly and may require some force to move it sideways.

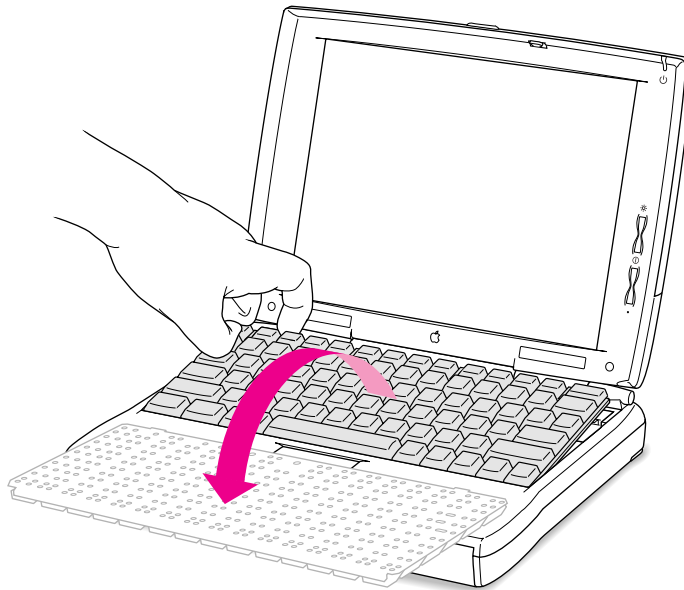


Set the speaker grill aside.

- 6 Place your finger under the top edge of the keyboard and gently fold it forward so that the keyboard rests upside down on the lower part of the computer's case.**

If you can't easily put your finger under the keyboard, carefully slide the end of the flat screwdriver under it and lift.

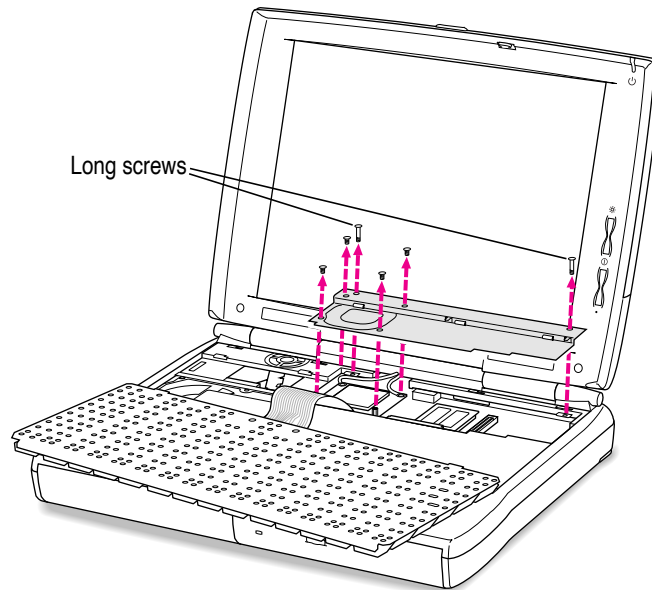
Take care not to move the bottom edge of the keyboard away from the case, to avoid straining or disconnecting the keyboard's cable.



- 7 Remove the six screws holding the metal heat shield in place. Then lift out the heat shield and set the shield and screws aside.

Use a small Phillips screwdriver to loosen the screws.

Note that the two screws at the rear corners of the shield are longer than the other four screws.



- 8 Locate the horizontal connector for the expansion slot card near the center of the computer.**

The connector is about one-half inch to the right of the keyboard cable.

If you don't see the horizontal connector next to the keyboard cable, an expansion slot card may already be installed in your computer.

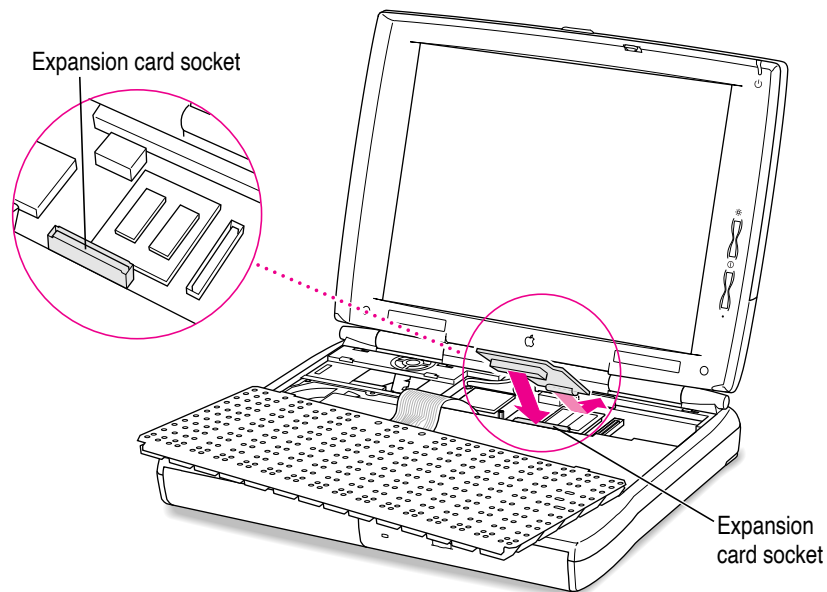
- 9 Remove the expansion slot card from its packaging and position it above the area for installation in the computer.**

Hold the card by its edges, with the connector facing down at the end closer to you. Take care not to touch any of the components or the wires inside the connectors.

The card's package should also include two small screws and a plastic cover with the center cut out. Set these aside for use when the card is installed.

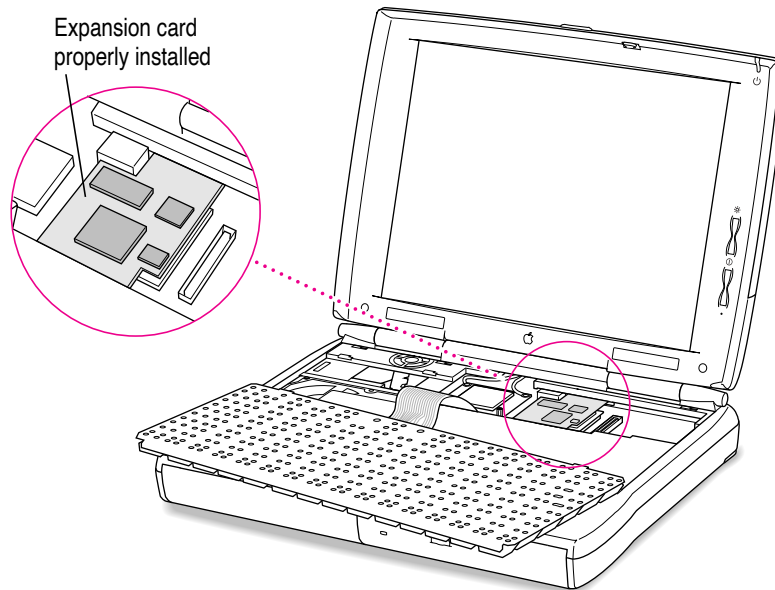
- 10 Carefully lower the card into the computer, rear edge first, and guide it into position against the back of the case.**

As you slide the card into the computer, use a slight side-to-side movement to fit it into the small space.



- 11 **Align the card's connector with the horizontal connector in the computer and gently push the card down until it is seated.**

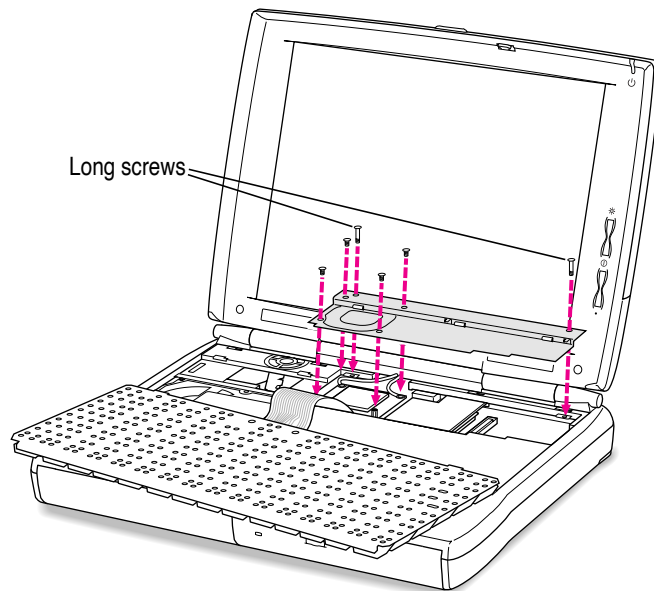
If the two connectors don't join easily, detach the card and align the connectors again. Forcing the connectors together could damage the card or the socket.



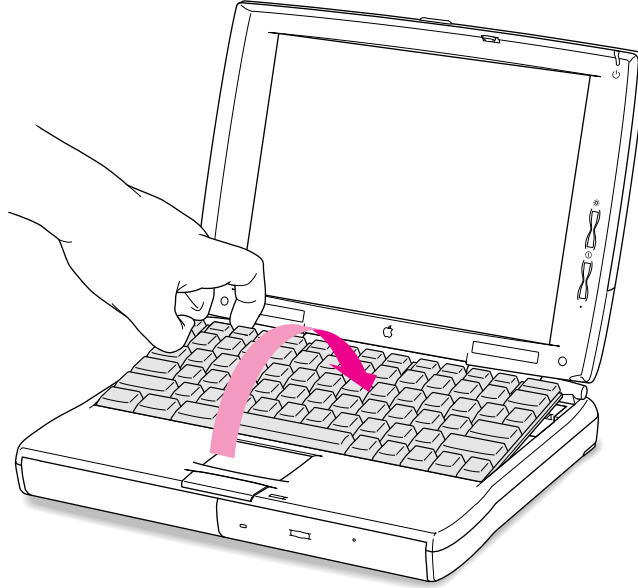
12 Replace the metal heat shield and fasten it in place with the screws.

Slide the front edge of the heat shield under the case, then lower the back of the shield.

Be sure to put the long screws at the two rear corners of the shield.

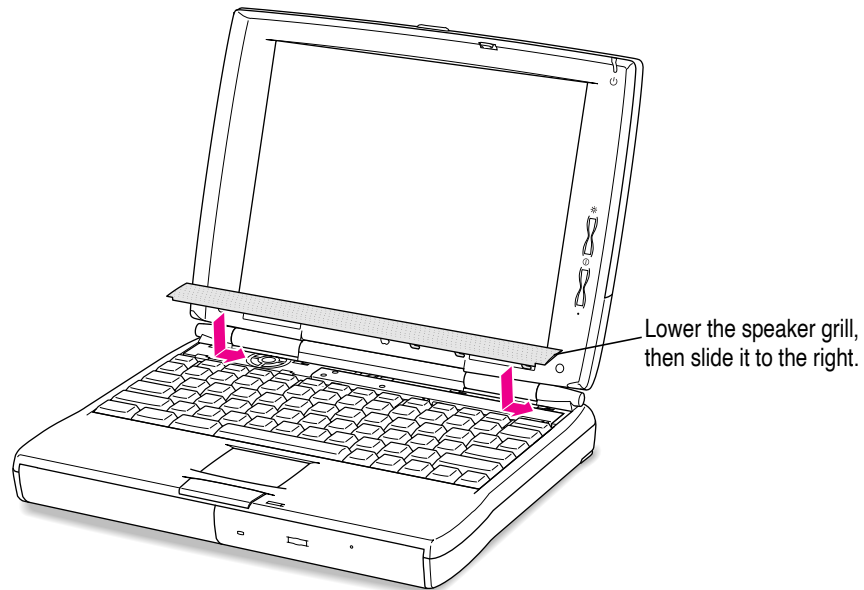


- 13 Replace the keyboard by folding it backward and lowering the top edge into place.



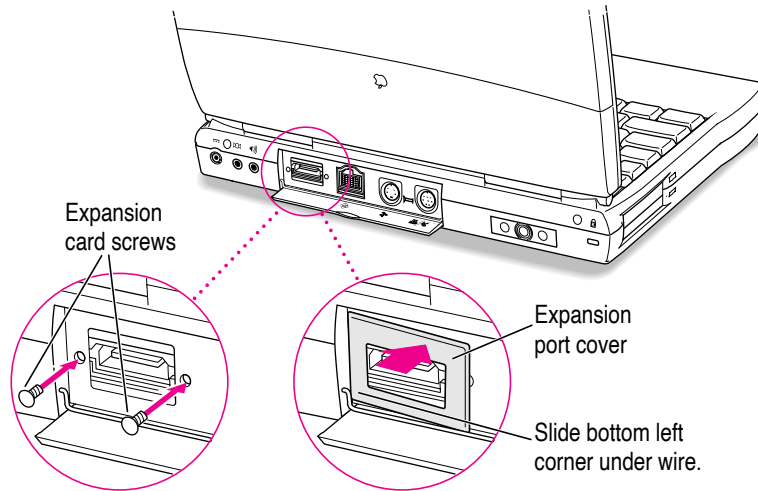
- 14 **Replace the speaker grill by lowering it into the opening above the top row of keys. Slide the grill to the right to secure it.**

Position it so that the three downward-pointing tabs are at the right front of the grill. The tabs click into place when you slide the grill to the right.



- 15 **Secure the card to the expansion port on the computer's back panel by fastening the two screws supplied with the card into the holes in the port.**

Use a small Phillips screwdriver to tighten the screws.



- 16 **Place the expansion port cover supplied with the card over the two screws and snap it into place. Be sure that the lower-left corner of the cover is under the wire hinge of the small door on the back panel.**

The cover has plastic tabs that hold it in place. You may need to push hard to attach the cover.

- 17 **If you plan to use the expansion slot card immediately, connect the cable or other device designed for use with the card through the opening in the cover.**

See the expansion slot card's manual for complete instructions.

- 18 **Replace the battery and reconnect the plugs, cables, and power adapter.**

Now you're ready to use the expansion slot card in your PowerBook.

Refer to this appendix for information on backing up system software on floppy disks.



Appendix D Making Backup Floppy Disks



It's a good idea to make backup copies of important software on floppy disks in case your hard disk or some of its contents is damaged. You can use the Floppy Disk Maker program, which is on your hard disk and on the CD that came with your PowerBook, to make a set of system software disks or to back up some key items.

Floppy Disk Maker is in the System Backup folder, inside the Apple Extras folder on your hard disk. You can use it to make backup floppy disks of the core system software from disk images that are also on the hard disk.

You can use Floppy Disk Maker with disk images on the CD to make backup disks of all system software and programs that were preinstalled on your hard disk. For more about using this backup program with the CD, see the file "CD – Important Information" on the compact disc. To use the CD, your computer must have the optional CD-ROM drive or you must have access to a CD-ROM drive.

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.

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.

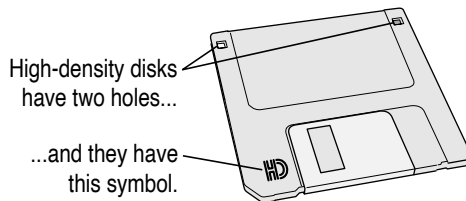
What is a disk image?

A *disk image* is a discrete electronic representation of an individual disk. The Disk Images folder in the Floppy Disk Maker folder on the CD contains the disk images you need to create installer disks for both your system software and the other software that was installed on the hard disk at the factory. 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.

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 most of the other software that comes on your computer. When you make a minimum set, you’ll make just the core system software disks. It is best to make a full set, so you’ll have installer disks for your system software and most of the other software that comes 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 make backup copies of system software, follow these steps.

- 1 **Locate the System Backup folder on the hard disk or the Disk Images folder on the CD-ROM disc and open it.**
- 2 **Open the Floppy Disk Maker program.**

The program's welcome screen appears.



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

If you are using the disk images on the hard disk, you cannot make a full set of floppy disks. You must use the CD for a full disk set.

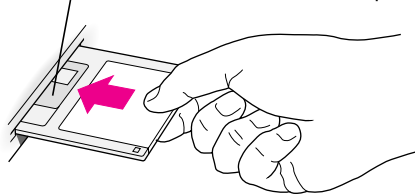
If you are making a minimum set, you can press the Return key. You can make a minimum set first so you have a set of system software disks, and then use Floppy Disk Maker to make the other disks later. (See “Making Individual Disks,” later in this appendix, for instructions when you want to make the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

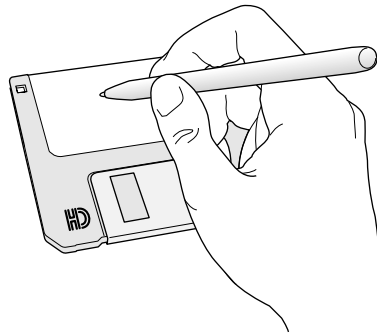
4 Follow the instructions on the screen until a message tells you that you're finished.

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

Insert the disk metal end first, label side up.



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



5 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.

- 6 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 software 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.**
- 2 **When the Floppy Disk Maker dialog box appears, click **Custom**.**

The following appears on the screen:



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

If you want to make one 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.

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

4 Click Add.

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.

5 Click Copy.

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



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