

The background features several large, light gray, semi-transparent graphics. On the left is a stylized outline of a computer monitor with three horizontal bars inside. In the upper right are two large arrows, one pointing down and one pointing up. In the lower right is a large, thick, light gray circular arrow indicating a clockwise direction.

# Apple Color LaserWriter 12/600 PS

.....

*Setting up, connecting, and using your printer*

## Apple Computer, Inc.

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# Communications regulation information

## FCC statement

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

## Radio and television interference

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

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

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

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

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

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

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

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

## DOC statement

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

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

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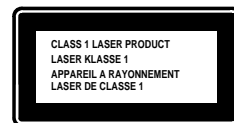
取扱説明書に従って正しい取り扱いをしてください。

## Laser information

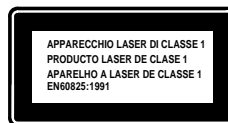
**WARNING** Making adjustments or performing procedures other than those specified in your equipment’s manual may result in hazardous exposure.

**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.

Your printer is a Class 1 laser product. The Class 1 label, located at the back of the printer, indicates that the printer meets minimum safety requirements. A service warning label is located inside the printer.



Class 1 label



Service warning label



## How Much of This Book Do I Have to Read?

.....

The manual contains all the information you need for the Color LaserWriter 12/600 PS printer, whether you're the printer administrator who sets it up or a user who wants to print some transparencies for a meeting. This preface directs you to specific chapters depending on what kind of network you have.

### Printer administrators and users: Who does what

The printer is usually set up and maintained by a printer administrator and shared by a number of users. This book is organized accordingly: Part I contains setup information for the printer administrator, and Part II contains setup and usage information for users.

Depending on the type of problem, troubleshooting can be handled by the administrator or by users. The appendixes in Part III contain additional information that administrators and users might need.

*Hint:* When you set up the printer, be sure to hang the quick reference booklet inside the printer's door. That way users have easy access to helpful problem-solving information.

## What the printer administrator should know

The printer administrator sets up the hardware, installs any options, installs the printer on the network, and helps new users get started. To accomplish these tasks, printer administrators must

- be familiar with the network connections and topology
- have access to and knowledge of the special tools required by their networks:
  - for AppleTalk networks, no special tools required
  - for Novell NetWare networks, administrative privileges and familiarity with programs like PCONSOLE
  - for TCP/IP networks with UNIX<sup>®</sup> workstations, superuser privileges and knowledge of their UNIX system's printing architecture

## Getting new users started

In almost every case—regardless of the operating system—the printer administrator is responsible for initial setup of the hardware and the network. There is a great variety, however, in how different groups get new users started. Here are the assumptions this book makes:

- **Macintosh and Windows users** install their own printer software.
- **UNIX users** have their workstations prepared for printing by the printer administrator.

# Which chapters should I read?

There are five main steps to preparing the Color LaserWriter 12/600 PS it so any user can print on it. Although you could do some steps in a different order, these steps are organized to simplify troubleshooting.

## Step 1: Set up the hardware and connect the printer.

Chapter 1 explains how to unpack the printer, install everything you need (toner cartridges, photoconductor, toner disposal box, and fuser oil), load paper, and connect the printer to your network. At the end of the chapter, you turn on the printer and it prints a startup page, assuring you that the printer engine and controller board work correctly.

## Step 2: Configure the printer for a network connection or for a direct connection.

The next three chapters (plus Appendix B) explain how to configure the printer on different networks or set it up by a direct connection:

Chapter	Computer	Network interface and cable
Chapter 2	Macintosh	AppleTalk on LocalTalk cables
		AppleTalk on Ethernet cables (EtherTalk)
Chapter 3	DOS and Windows	Apple Print Monitor for Windows or Novell NetWare on Ethernet cables
	DOS and Windows	Direct connection by a parallel cable
Chapter 4	UNIX	TCP/IP on Ethernet cables
Appendix B	Macintosh	ATPS, NetWare for Macintosh on LocalTalk or Ethernet cables

### Step 3: Set additional printer parameters.

The administrative tools provided with the printer are described in detail in Chapters 2 and 3:

Chapter	Computer	Utility name
Chapter 2	Macintosh	Apple Printer Utility
Chapter 3	Windows	Apple Printer Utility for Windows

Though the Apple Printer Utility runs on Macintosh computers and the Apple Printer Utility for Windows runs on Windows computers, both utilities can be used to set additional printer parameters that affect all users.

### Step 4: Add any hardware options.

Chapter 5 explains how to add any of the hardware options you may have purchased for the printer, including

- internal or external hard disks, for storing Macintosh and Windows downloadable fonts
- extra memory, for printing documents that contain many fonts more quickly
- paper-handling options (the 250-sheet feeder with universal cassette)

**Step 5: Help new users get started.**

Part II of the manual contains information for people who plan to use (as opposed to administer) the printer. Information about the administrator’s responsibilities is in Part I.

User's computer	Where to find information
Macintosh	Chapter 2 explains the administrator's responsibilities. Chapter 6 explains how the user gets started and how to print. Chapter 9 explains how to load paper. Chapter 10 explains routine maintenance. Chapters 11, 12, and 13 explain how to fix problems with the printer.
Windows or DOS	Chapter 3 explains the administrator's responsibilities. Chapter 7 explains how the user gets started and how to print. Chapter 9 explains how to load paper. Chapter 10 explains routine maintenance. Chapters 11, 12, and 13 explain how to fix problems with the printer.
UNIX	Chapter 4 explains the administrator's responsibilities. Chapter 8 explains how the user gets started and how to print. Chapter 9 explains how to load paper. Chapter 10 explains routine maintenance. Chapters 11, 12, and 13 explain how to fix problems with the printer.

**Solving problems**

- For paper jam problems, see Chapter 11.
- For image problems, see Chapter 12.
- For other troubleshooting, see Chapter 13 and Appendix G.





# Guide for Printer Administrators

- Chapter 1    Setting Up the Color LaserWriter 12/600 PS
- Chapter 2    Setting Up the Printer for Macintosh Users
- Chapter 3    Setting Up the Printer for Windows and NetWare Users
- Chapter 4    Setting Up the Printer for UNIX Users
- Chapter 5    Installing Options

Part I of this book provides the information you need to set up the printer for your workgroup.

If you want to use a printer that has already been set up, see Part II.



*part*



# 1

## Setting Up the Color LaserWriter 12/600 PS

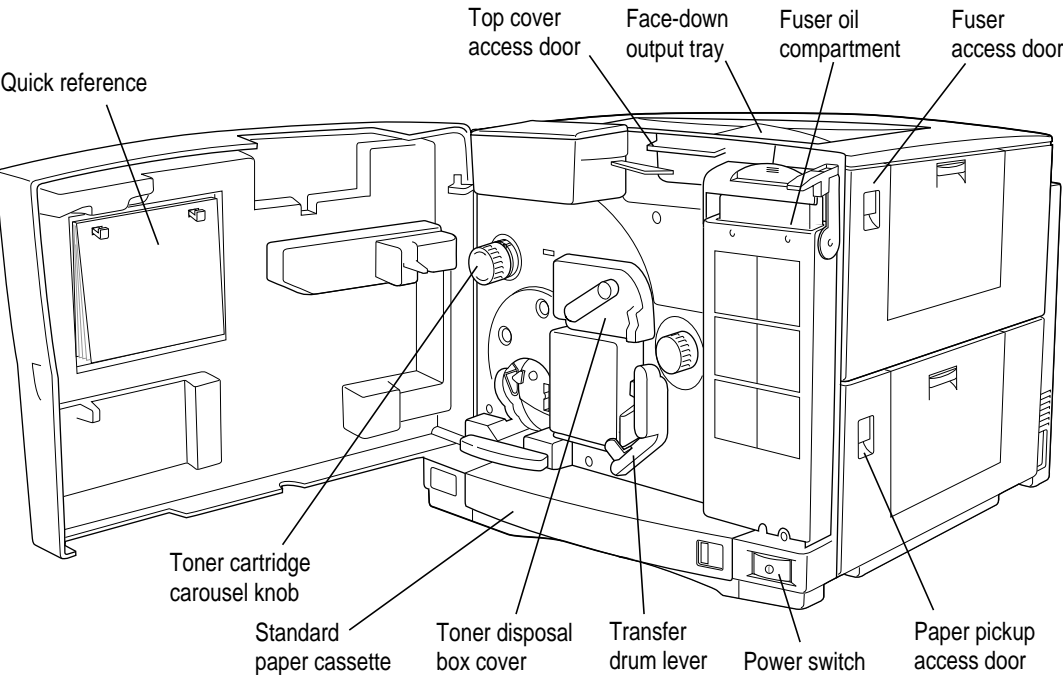
.....

### Main features of the Color LaserWriter 12/600 PS

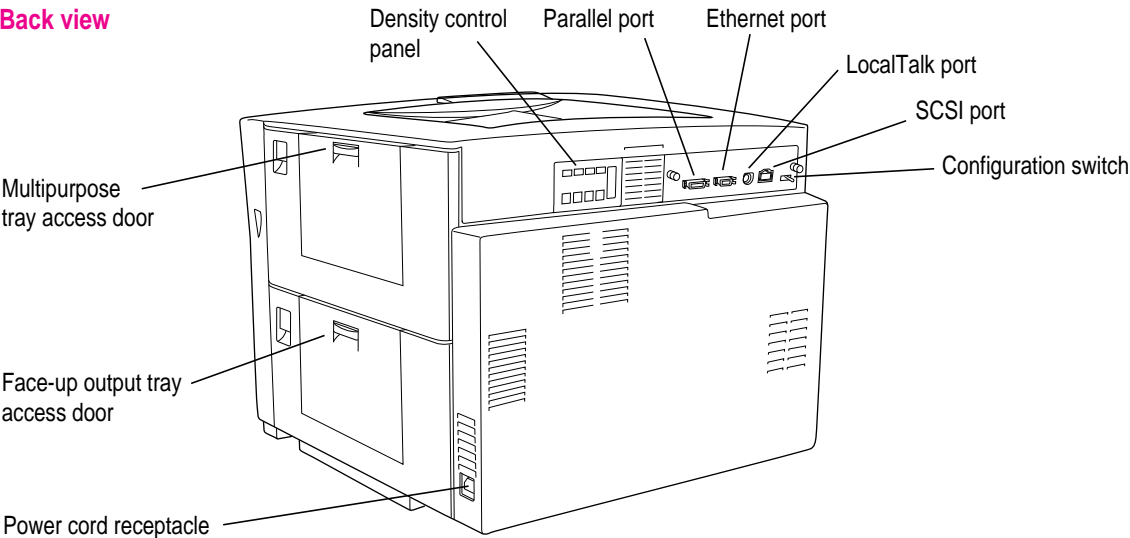
- **Print quality** The printer has a resolution of 600 x 600 dots per inch, with color PhotoGrade.
- **Speed** The printer prints up to 12 pages per minute in black, cyan, magenta, or yellow; 3 pages per minute in two or more colors; and 1 transparency per minute.
- **Multiplatform support** You can connect the printer to Macintosh, Windows, DOS, and UNIX computers.
- **Connectivity** The printer offers LocalTalk, Ethernet, and parallel connections.
- **Automatic traffic control** Without any user intervention, the printer can accept jobs simultaneously from AppleTalk, TCP/IP, and NetWare networks and from the parallel port.
- **Fonts** The printer supports both TrueType and PostScript™ fonts. The printer has 39 built-in PostScript fonts.
- **Energy savings** The printer can automatically lower its power consumption when it's not being used.
- **Hard disk option** You can install an internal hard disk or attach up to six external hard disks to store downloadable fonts.
- **Flexible paper handling** You can print up to 350 sheets (250 in the standard paper cassette plus 100 in the multipurpose tray) without changing paper. You can also add a 250-sheet feeder.

# Anatomy of the printer

## Front view



## Back view

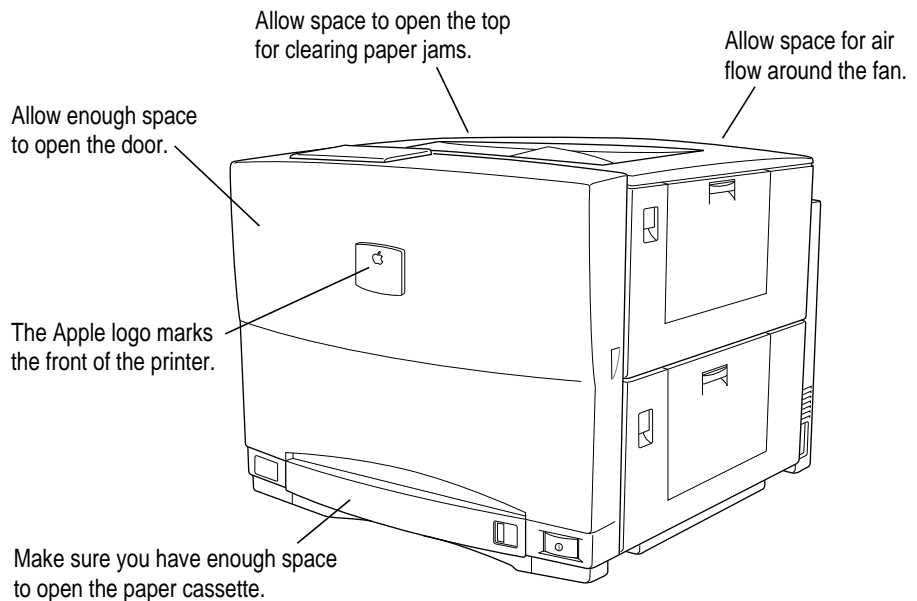


## Choosing a place for the printer

Choose a flat, stable area with adequate room around the printer. The area should be well ventilated and away from direct sunlight or sources of heat, cold, or humidity. (Abrupt changes in temperature and extremely high or low humidity can adversely affect print quality.)

Don't put the printer near devices that produce magnetic fields. Don't use ammonia-based cleaners, which can react chemically with the toner and the plastic, on or around the printer. (For instructions on cleaning the printer, see Chapter 10.)

**IMPORTANT** The printer weighs approximately 110 pounds (approximately 50 kilograms). Make sure you place it on a desk or table that's strong enough to hold the weight. Don't lift the printer by yourself. Have at least one other person assist you.



See Appendix A for more information about the physical requirements of the printer.

## Important safety instructions

Before you plug in your printer, read these important safety instructions.

**WARNING** This equipment is intended to be electrically grounded. Your printer 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!

For your own safety and that of your equipment, always take the following precautions.

If any of the following conditions exists, disconnect the power plug (by pulling the plug, not the cord):

- the power cord or plug becomes frayed or otherwise damaged
- you spill something into the case
- your printer is exposed to rain or any other excess moisture
- your printer has been dropped or the case has been otherwise damaged
- you suspect that your printer needs service or repair
- you want to clean the case (use only the recommended procedure described in Chapter 10)

Be sure that you always do the following:

- Keep your printer away from sources of liquids, such as wash basins, bathtubs, shower stalls, and so on.
- Protect your printer from dampness or wet weather, such as rain, snow, and so on.
- Do not allow children access to the fuser oil bottle, toner cartridges, or used toner disposal boxes.
- Read all the installation instructions carefully before you plug your printer into a wall socket.
- Keep these instructions handy for reference by you and others.
- Follow all instructions and warnings dealing with your system.

**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.

## Unpacking the printer

**IMPORTANT** The printer weighs approximately 110 pounds (approximately 50 kilograms). Don't lift it by yourself.

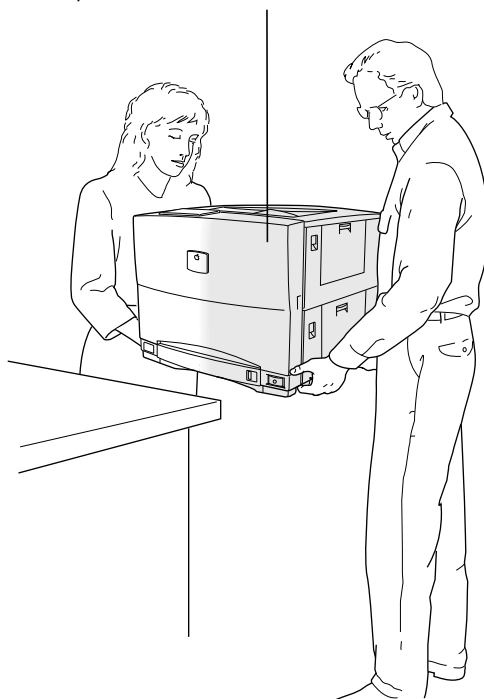
**1** Undo the clips on the outside of the printer box.

**2** Lift the box, uncovering the printer.

If possible, get another person to help you.

**3** With another person, remove the plastic bag, then lift the printer and place it in the location you've chosen.

**IMPORTANT** This side of the printer is heavier than the other side.



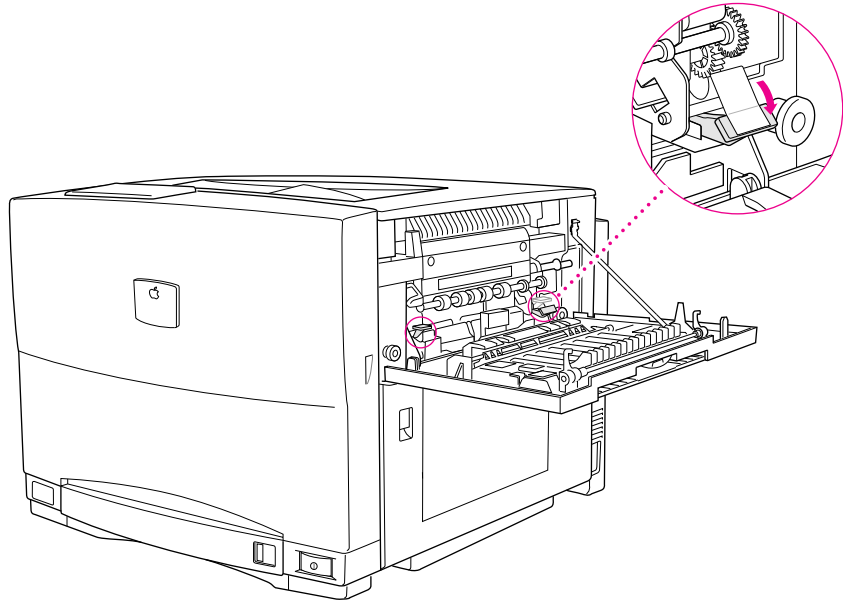
**IMPORTANT** Do not plug in the printer or turn it on until you've completed setup, including all the network connections, as explained later in this chapter. Be sure to remove all the packing materials from inside the printer.



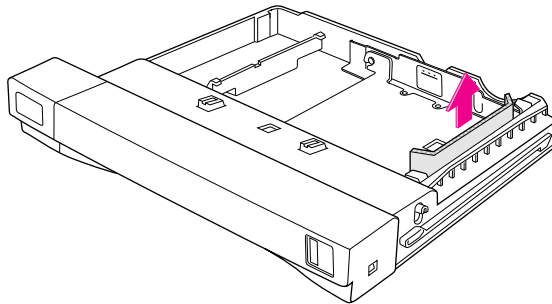
- 4** Remove the packing tape from the outside of the printer.

There are five pieces of tape attached at various points on the printer.

- 5** Open the fuser access door and remove the two orange spacers from inside.



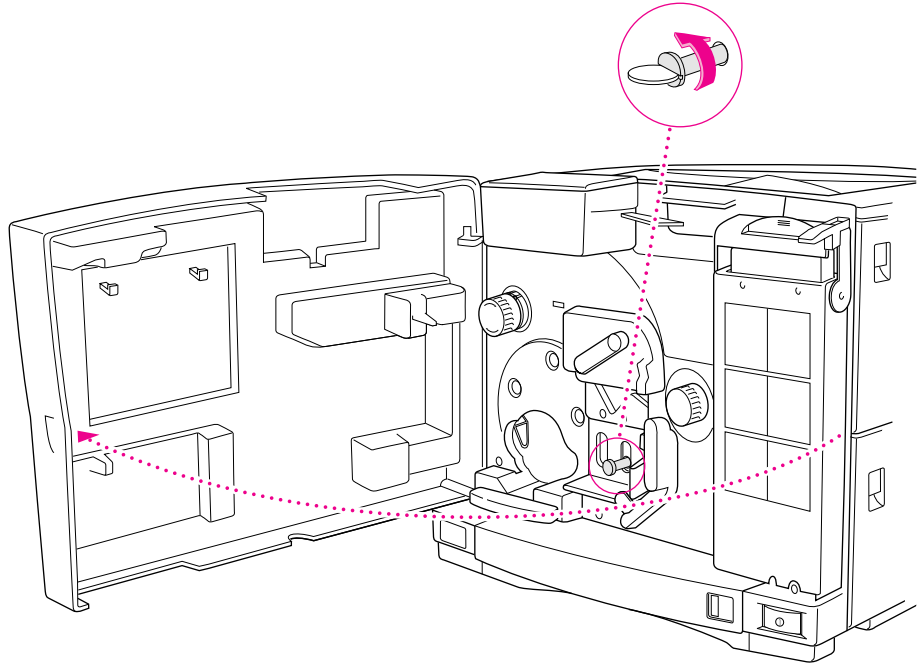
- 6** Open the paper cassette and remove the cardboard packing material.



**7** Slide the paper cassette back into the printer.

**8** Open the front door and remove the shipping screw.

The screw is encased in an orange plastic sheath. Turn the screw, using a coin or Phillips screwdriver, and pull it out. Put the shipping screw in a safe place in case you ever need to ship the printer to a new location.



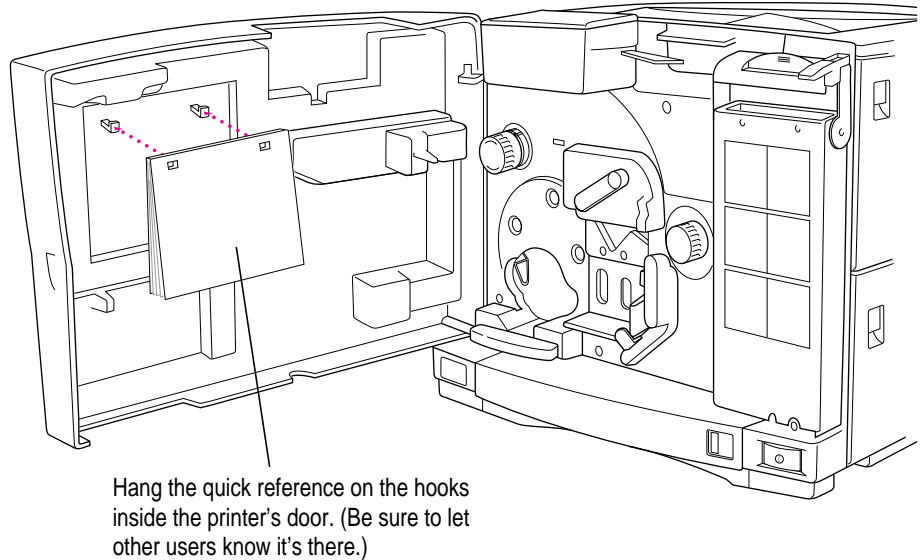
Leave the printer's door open. The next few sections contain instructions on installing other items from the printer setup kit.

It's a good idea to save the shipping carton and other packing materials in case you need to transport the printer at some time.

## Installing the quick reference booklet

The quick reference booklet helps users solve some problems with the printer. For example, the quick reference tells users how to clear a paper jam and load paper into the paper cassette. It should always be inside the printer, available to users who don't have this manual.

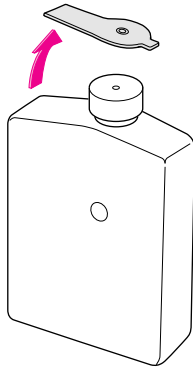
Take the quick reference out of the printer setup kit and hang it inside the printer door.



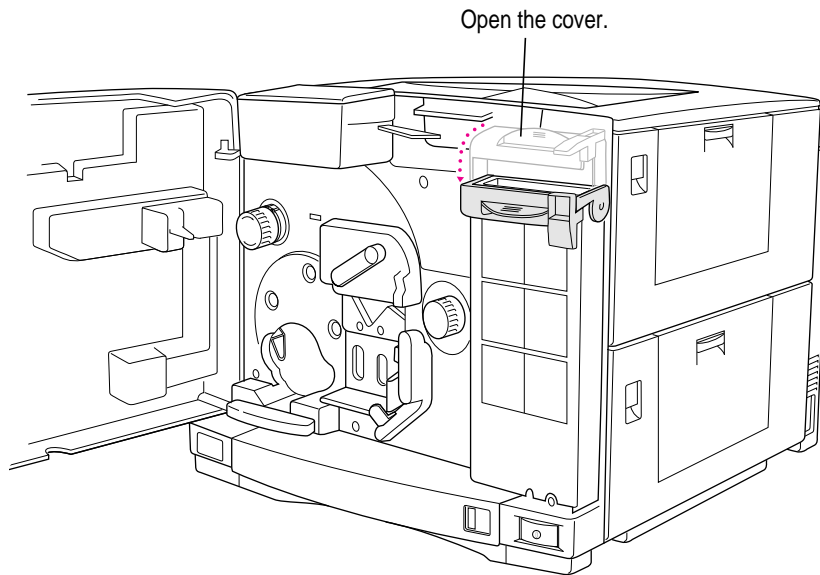
Hang the quick reference on the hooks inside the printer's door. (Be sure to let other users know it's there.)

## Installing the fuser oil bottle

- 1 Take the bottle of fuser oil out of the printer setup kit.
- 2 To remove the seal from the bottle, pull the orange tab.



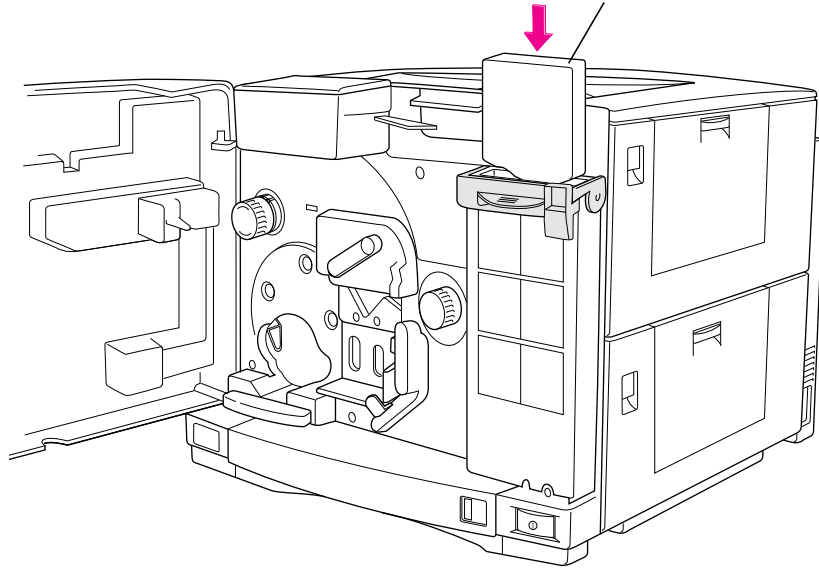
- 3 Open the cover of the fuser oil compartment.



**4 Install the oil bottle.**

Gently tip the bottle upside down and slide it into the compartment.

Press the bottle down. (This opens the mechanism in the lid so the oil can flow into the compartment.)



**IMPORTANT** If any fuser oil spills on the floor, clean it up immediately with paper towels. The oil is very slippery.

**5 Close the cover over the fuser oil bottle.**

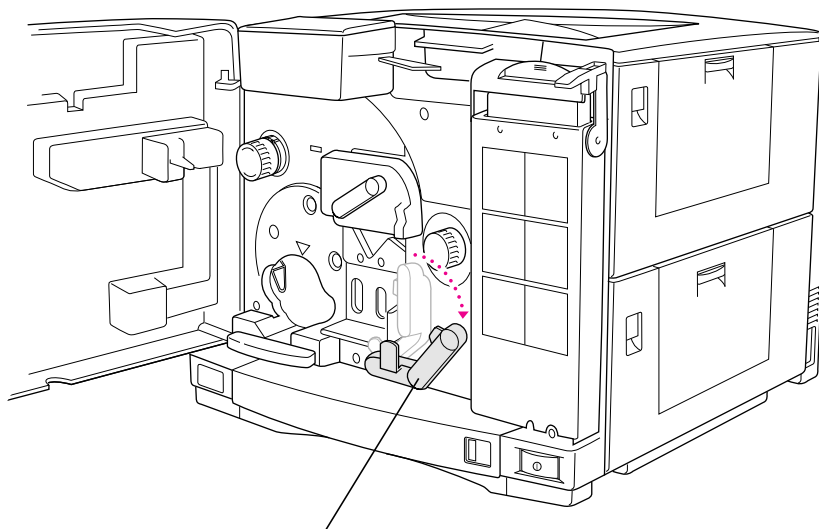
## Installing the photoconductor cartridge and toner disposal box

The photoconductor is a photosensitive device that captures an image in toner and transfers it to the paper. The toner disposal box is where the printer deposits any excess toner powder. You'll find a photoconductor cartridge and two toner disposal boxes in the printer setup kit.

**IMPORTANT** The photoconductor is sensitive to light. Do not open the package until you are ready to install the photoconductor cartridge. Inside the foil bag, the photoconductor cartridge sits in an orange protective tray designed to make installation easy and to protect the photoconductor from being touched or exposed to light. Do not take the photoconductor cartridge out of the tray. If you scratch the photoconductor, the marks can appear on every page you print (until you replace the photoconductor cartridge). Prolonged exposure to light shortens the life of the photoconductor.

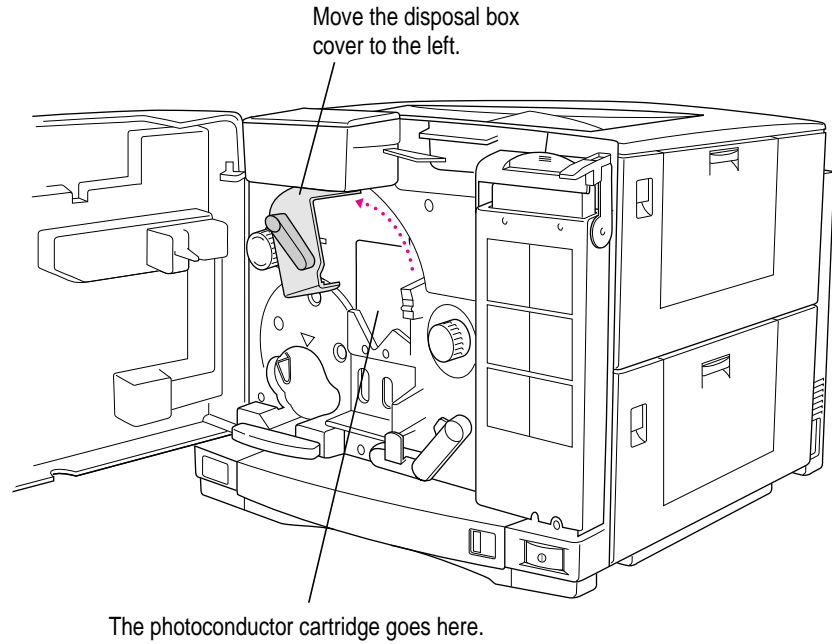
- 1 Push the transfer drum lever down and to the right.**

This releases a locking mechanism.

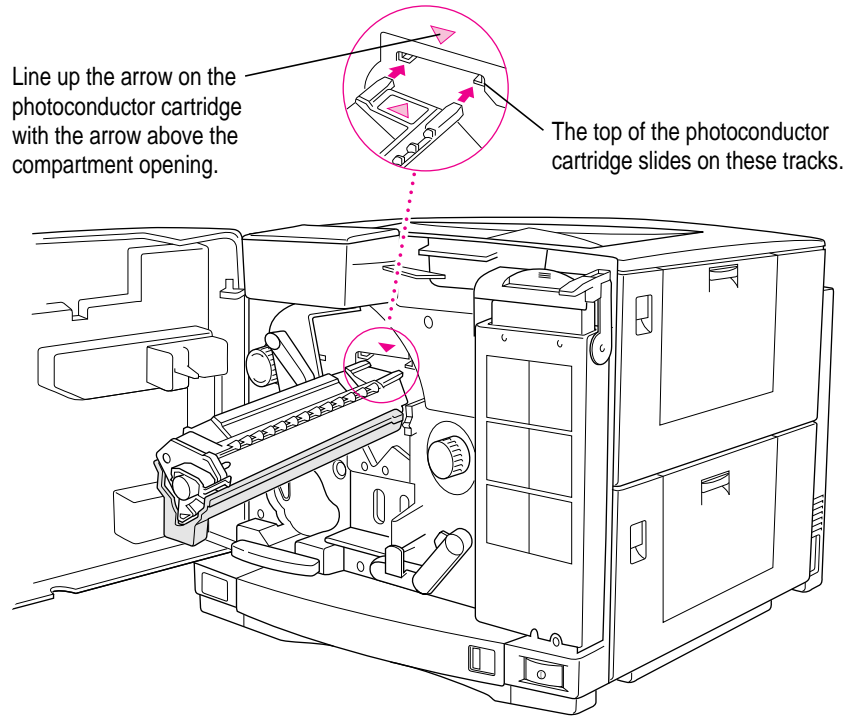


Push the transfer drum lever to the right.

**2** Open the disposal box cover.

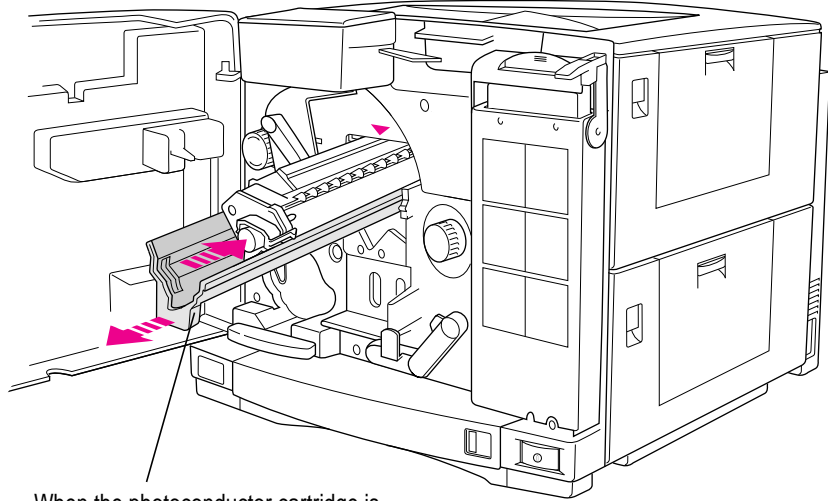


- 3** Holding the orange tray, line up the top of the photoconductor cartridge with the tracks at the top of the opening in the printer.





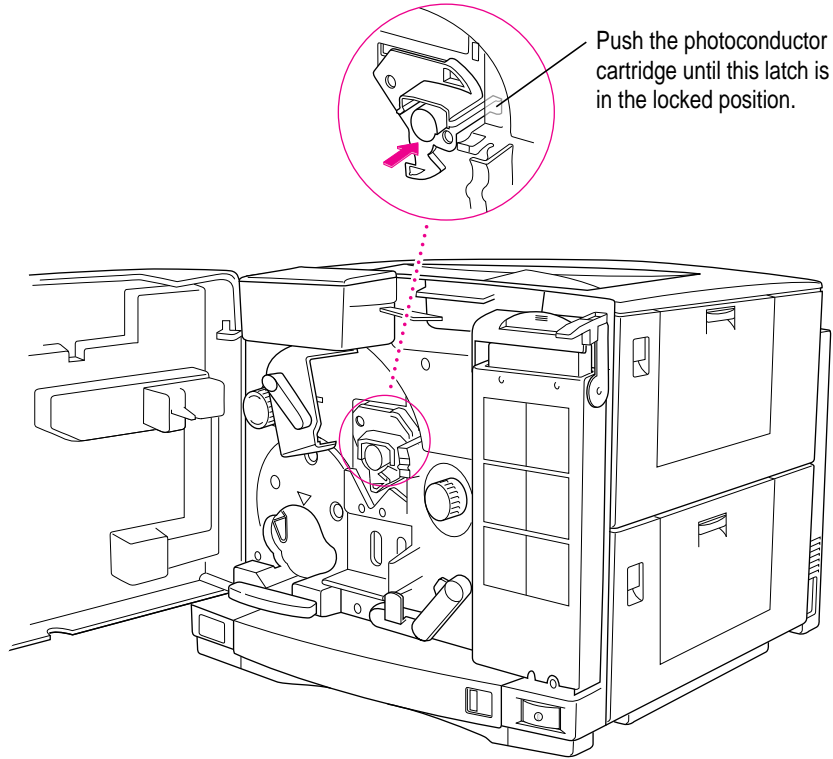
- 4** Slide the photoconductor cartridge all the way into the receptacle.



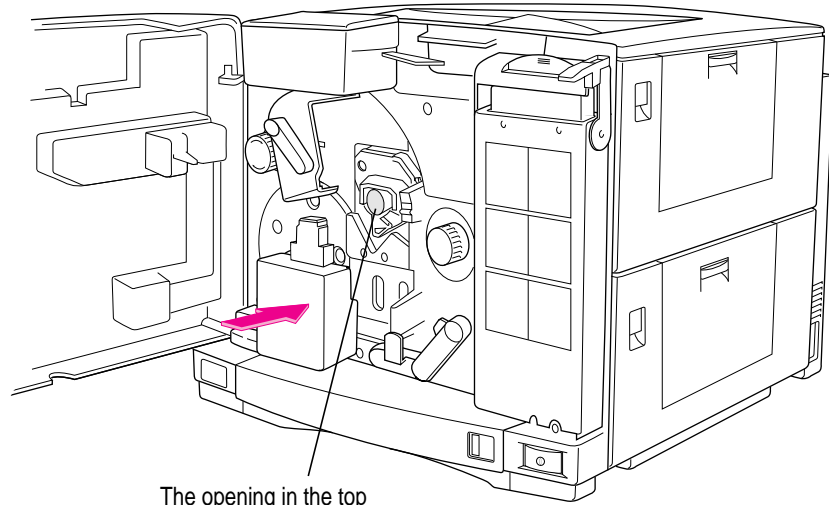
When the photoconductor cartridge is most of the way in, you can remove the orange tray.

Save the orange tray in case you ever need to remove the photoconductor for troubleshooting.

**5** Make sure the photoconductor cartridge latch is in the locked position.

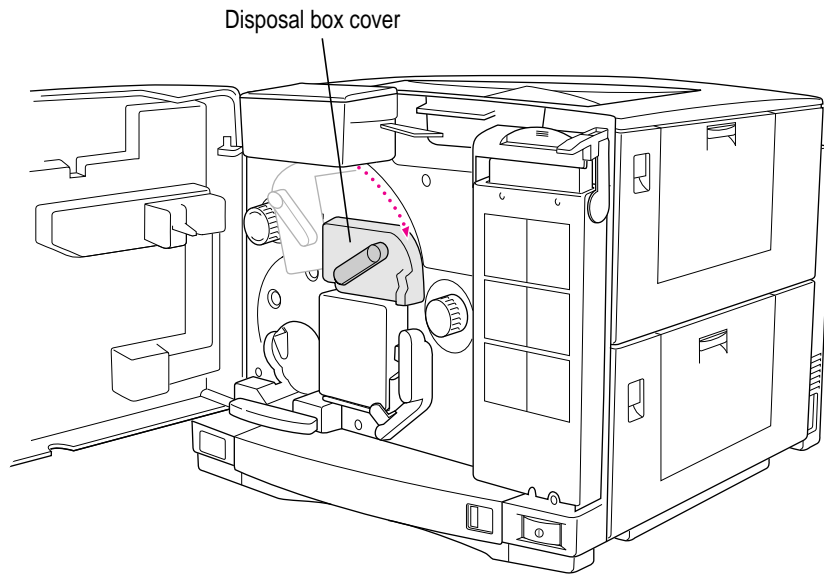


**6** Slide the toner disposal box into place.



The opening in the top  
of the box fits here.

- 7** Raise the transfer drum lever to lock the photoconductor cartridge in place.
- 8** Close the disposal box cover.



Now go on to install the toner cartridges.

## Installing the toner cartridges

You'll find four toner cartridges in the bottom of the printer setup kit. Each toner cartridge contains the dry plastic powder that the printer uses instead of ink. The first time you install the toner cartridges, follow the steps given here. After that, each time you install a cartridge, follow the instructions in Chapter 10. (Instructions also come with replacement toner cartridges.)

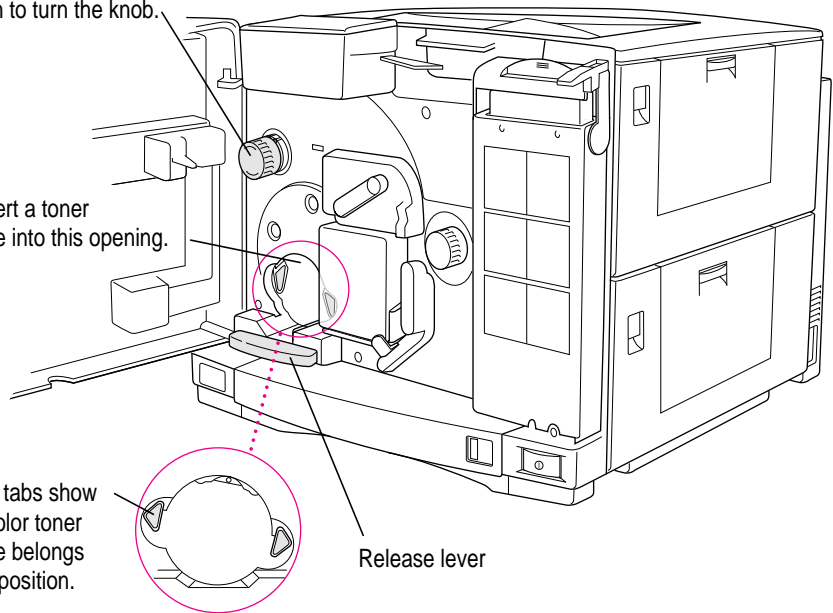
Cartridge life varies, depending on the kind of printing you do. If you use the printer to produce more graphic images than text, you may need to change cartridges more often. (For product specifications, see Appendix A.)

### **1** Before you do anything, notice some important features on the toner cartridge carousel.

You use this knob to turn the carousel.  
Notice the arrows that show the direction to turn the knob.

You insert a toner cartridge into this opening.

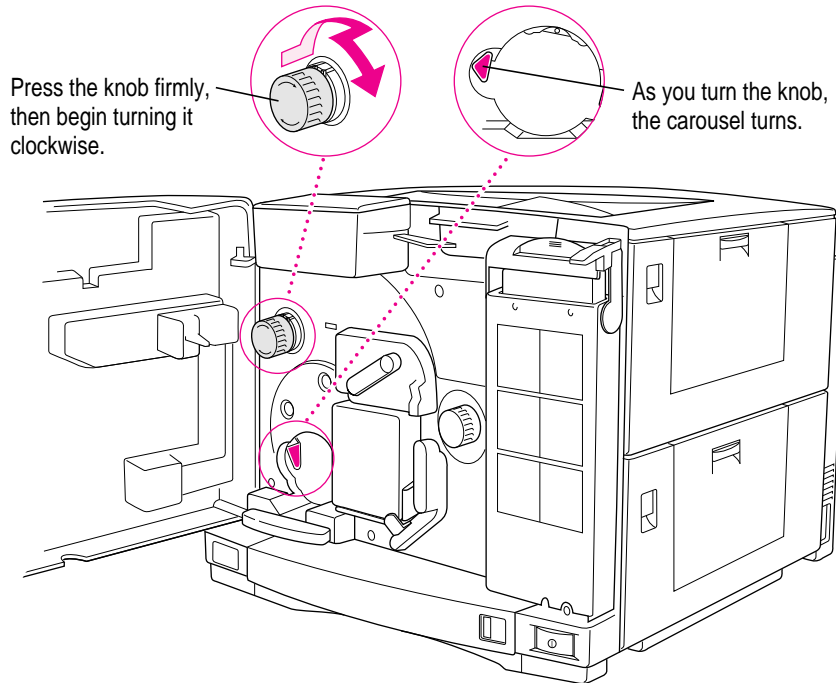
Colored tabs show which color toner cartridge belongs in each position.



**IMPORTANT** The toner cartridge carousel inside the printer has a specific place for each color. You cannot place colors in the wrong location.

**2 Press the knob that rotates the carousel and turn the knob clockwise.**

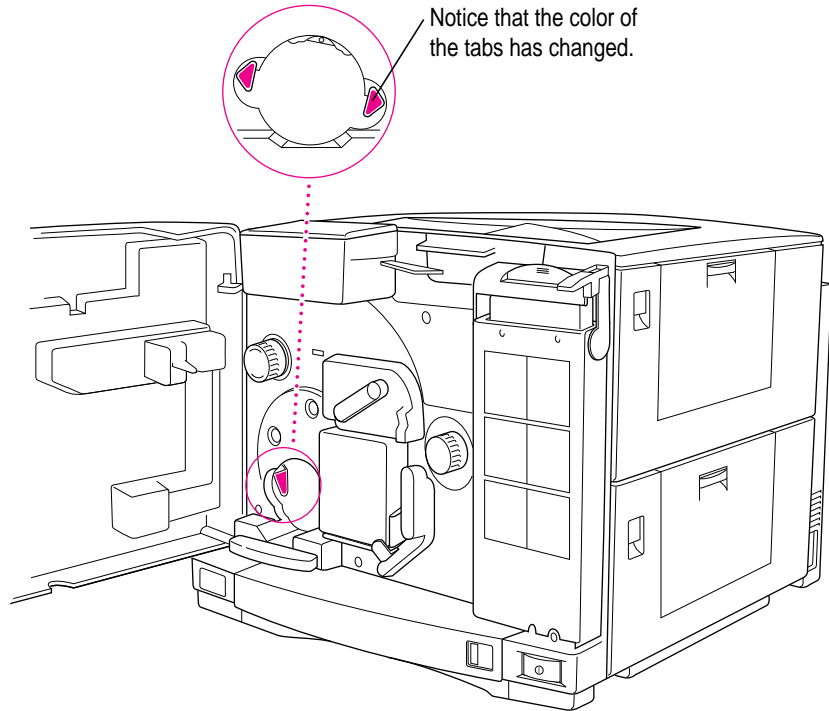
Pressing the knob releases the locking mechanism so the carousel can turn.



*Problem?* If you try to turn the knob, but it won't turn, you haven't pressed the knob far enough to release the carousel.

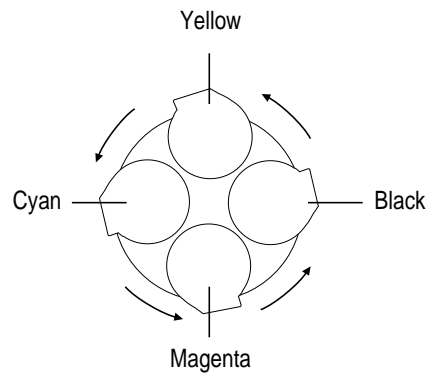
As soon as the carousel starts to turn, you can stop pressing on the knob. Release the pressure and continue turning.

- 3** Turn gently until the carousel locks into a new position.



As you rotate the carousel through all four positions, the tab colors cycle from magenta (pink) to cyan (blue) to yellow to black.

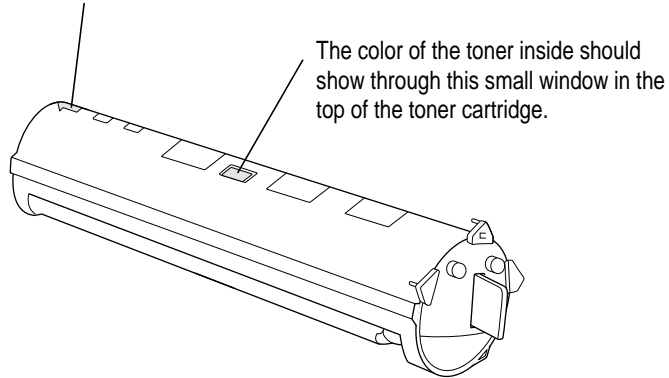
**Cartridge carousel cycle**



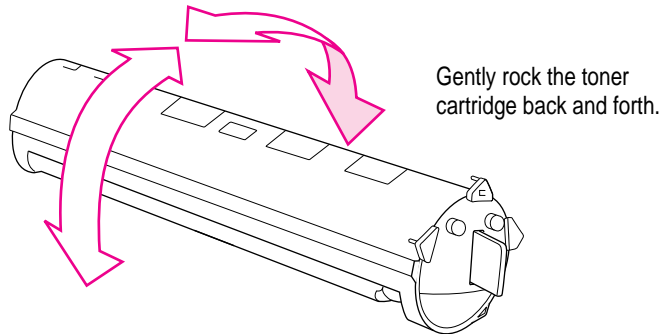
**4 Take the toner cartridge out of its packaging and remove the two pieces of packing tape.**

Choose the toner color that matches the colored tabs beside the opening in the carousel.

Notice the arrow embossed on the toner cartridge.

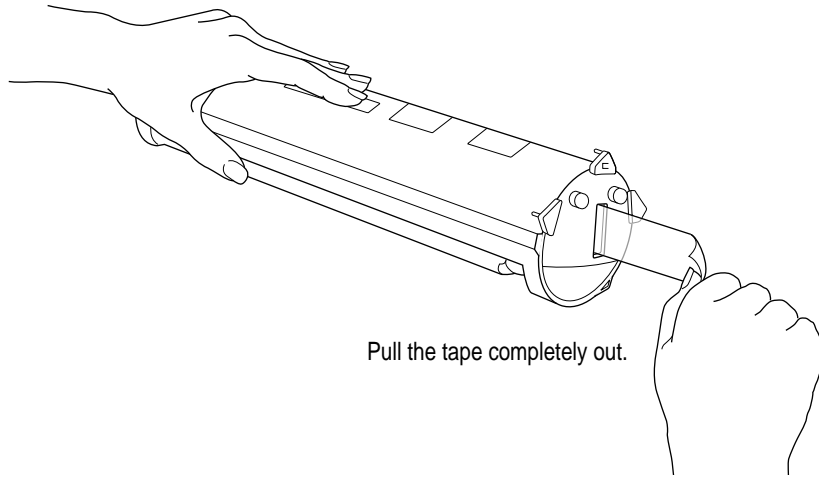


**5 Distribute the toner powder.**



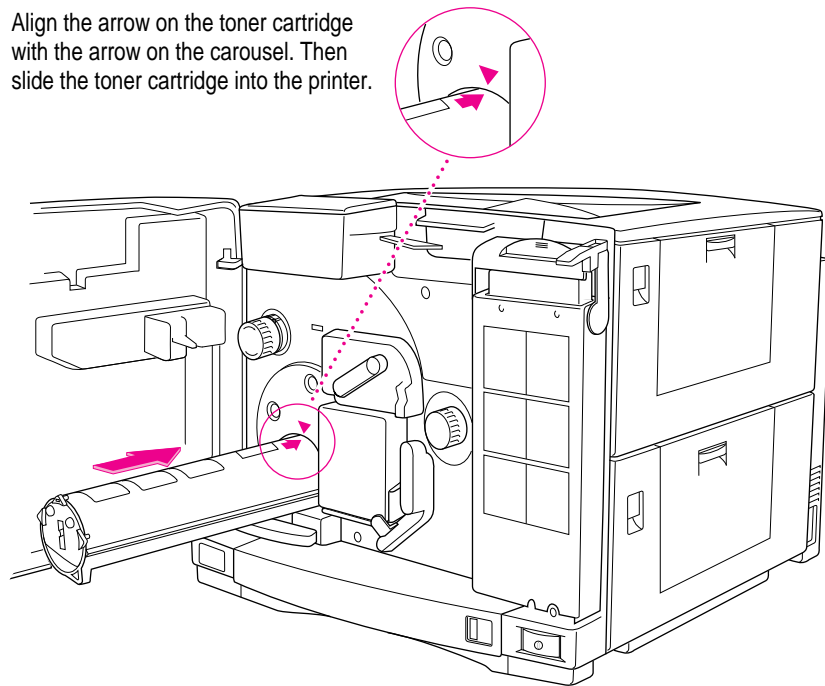


- 6** To remove the sealing tape, grasp the orange plastic tab and pull it away from the cartridge.



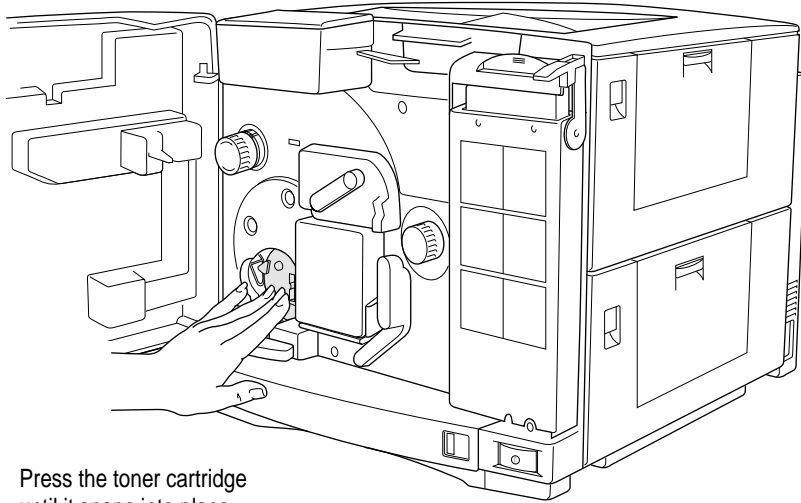
- 7** Insert the toner cartridge into the carousel.

Align the arrow on the toner cartridge with the arrow on the carousel. Then slide the toner cartridge into the printer.



- 8** After you insert the toner cartridge all the way, push firmly to lock it in place.

If you don't press firmly enough to install the cartridge correctly, you won't be able to rotate the carousel and install another cartridge.



Press the toner cartridge until it snaps into place.

- 9** Repeat steps 2 through 8 until you've installed all four toner cartridges.

The process is essentially the same for each cartridge.

## Wait to install the printer options

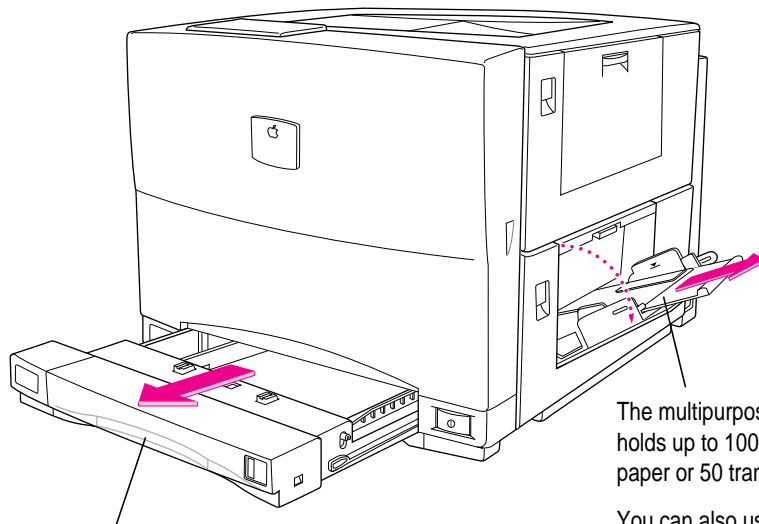
If you purchased any of the following options, wait to install them until you've connected the printer to your network:

- internal or external hard disks
- memory
- 250-sheet feeder

By waiting, you can ensure the printer is working correctly (thus simplifying troubleshooting) before you add the options.

## Loading paper into the paper cassette

You can load paper into the paper cassette or the multipurpose tray, or both. For instructions on using the multipurpose tray, see Chapter 9.



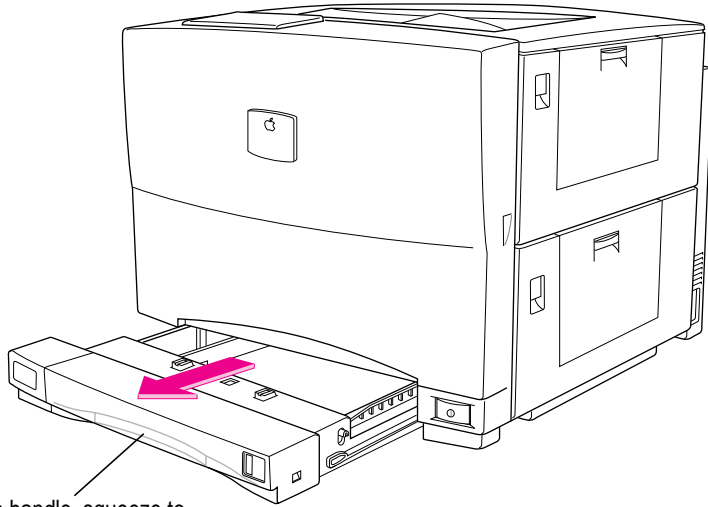
The paper cassette holds up to 250 sheets of paper. With the optional universal cassette, you can load U.S. letter, A4, B5, or legal-size paper.

The multipurpose tray holds up to 100 sheets of paper or 50 transparencies.

You can also use the tray for manual feed printing.

You can expect excellent printing results from photocopier paper. For best results, use paper labeled “laser-quality.” (For paper specifications, see Appendix A.)

- 1 Slide the paper cassette out of the printer.**

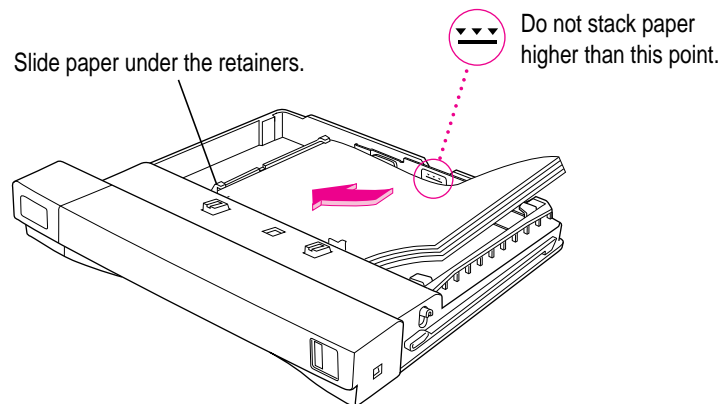


Grasp the handle, squeeze to release the latch, lift and pull the cassette out.

- 2 Prepare a stack of paper.**

You can load up to 250 sheets of 20-pound photocopier paper. Make sure the edges are even on all sides before inserting the stack of paper.

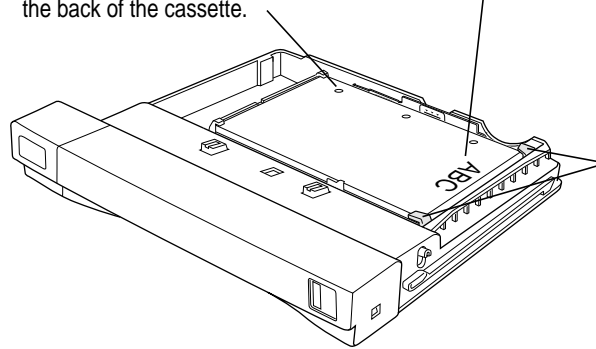
- 3 Slide the stack into the cassette.**



**4 Slide the paper under the bracket at the front of the cassette.**

Load three-hole punched paper with the holes toward the back of the cassette.

Load letterhead paper face up.

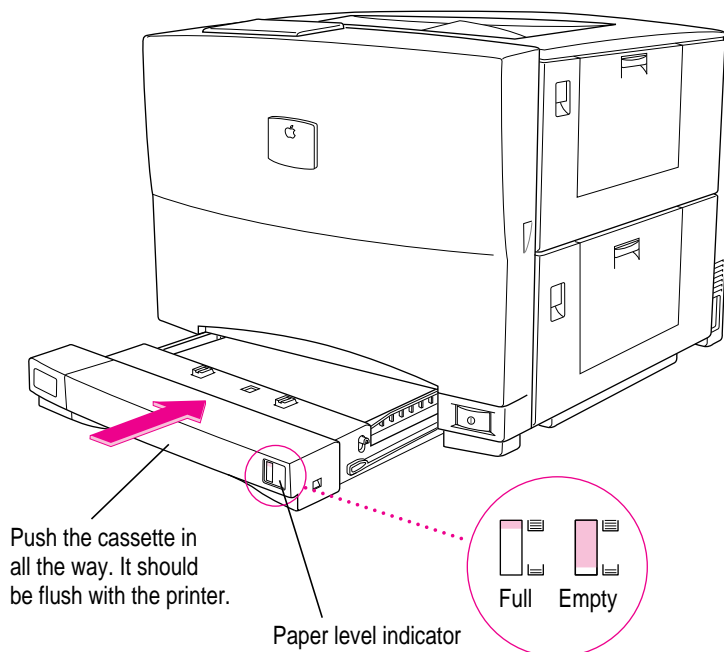


Make sure paper fits under these corner brackets.

You can push the paper down, but don't overload the cassette.

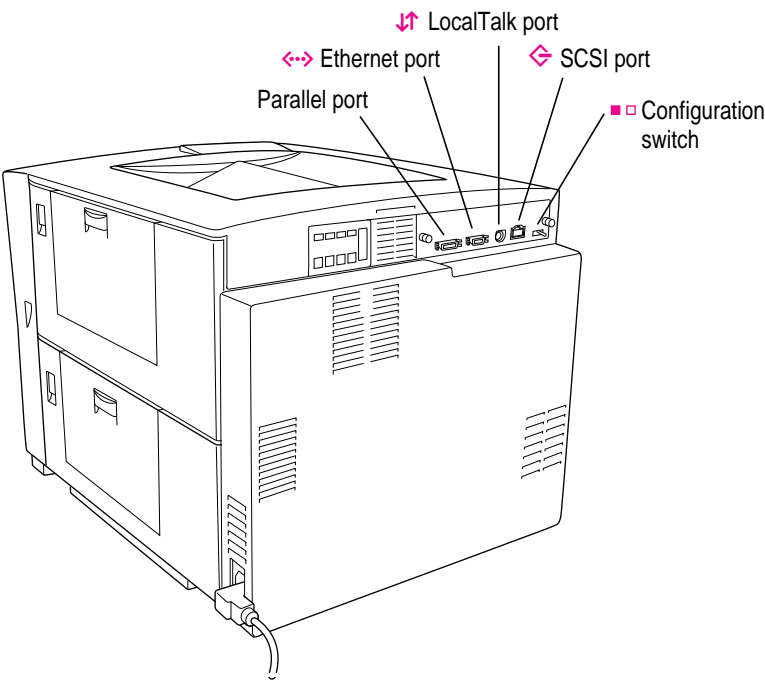
**WARNING** Never load a cassette with paper of the wrong size or type. Doing so may cause a paper jam, damage the printer drum, or use toner unnecessarily.

**5** Slide the cassette into the printer.



# Connecting the printer

You can connect the printer to a number of computers and a variety networks using the printer's LocalTalk, Ethernet, and parallel ports. The printer prints only one user's job at a time, but it manages incoming print jobs from all ports so that no printing conflicts or problems occur.

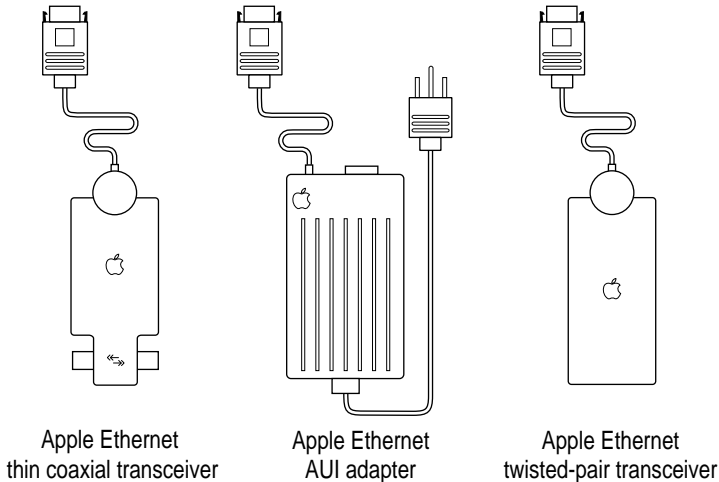


Port	Network interface	Computer
LocalTalk	AppleTalk	Macintosh
Ethernet	AppleTalk (EtherTalk)	Macintosh
	Novell NetWare	DOS and Windows
	Novell ATPS	Macintosh
	TCP/IP	Macintosh DOS and Windows UNIX
Parallel	IEEE 1284 ECP	DOS and Windows

## Connecting to an Ethernet network

A single Ethernet cable can carry a number of network protocols, including AppleTalk (sometimes called EtherTalk when it's on an Ethernet network), Novell NetWare, and TCP/IP. To connect the printer to an Ethernet network running any combination of these protocols, follow these steps:

- 1 Obtain an Ethernet transceiver and a length of Ethernet cable appropriate for your network's media type—thin, AUI, or twisted pair.**



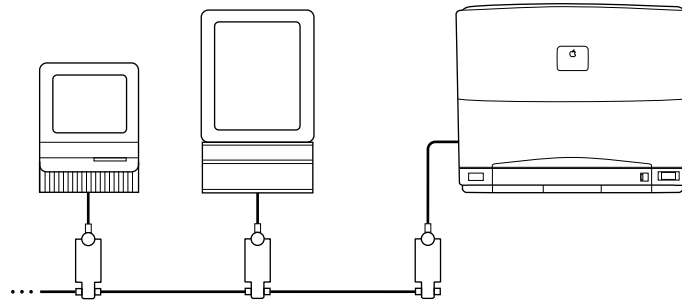
*Note:* These Apple transceivers are self-terminating. Do not add a terminator to the end of the network. If you're not using Apple network devices, check the instructions that came with the transceivers you are using.

- 2 Plug the short cable from the transceiver into the Ethernet port (↔) on the printer.**

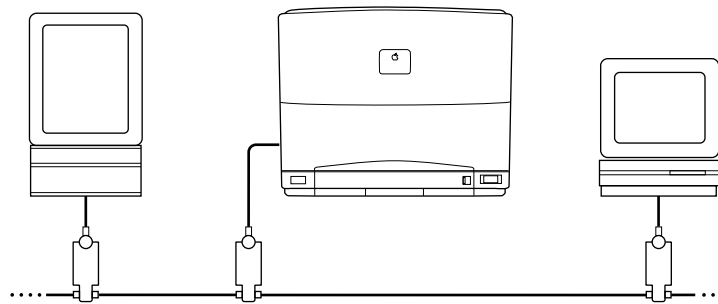


**3** Connect the printer to the Ethernet network in one of these three ways:

- *To connect the printer to the end of an Ethernet network, use the Ethernet cable to connect the empty socket of the nearest device's transceiver to the printer's transceiver, as shown here.*



- *To connect the printer between two devices on an Ethernet network, disconnect one Ethernet cable from the transceiver of the device immediately to the left or right of the printer and plug it into the new printer's transceiver. Then use the new Ethernet cable to connect the free socket on the printer's transceiver to the socket you freed on the other device's transceiver.*



- *To connect the printer to an Ethernet hub, see the documentation that came with the Ethernet hub.*

## What to do after connecting to an Ethernet network

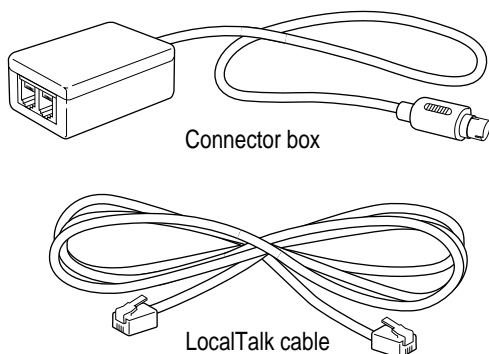
- If you wish to connect the printer to other networks, or to connect the printer directly to a single Macintosh or to an IBM PC or compatible, see the appropriate sections later in this chapter.
- If you're finished connecting the printer, skip to "Adjusting Communication Settings," later in this chapter.

For more information about setting up the printer for different network interfaces, see Chapters 2, 3, and 4.

## Connecting to a LocalTalk network

If you have an existing LocalTalk network, here's how to add the printer to it.

- 1 Obtain a LocalTalk connecting kit.**

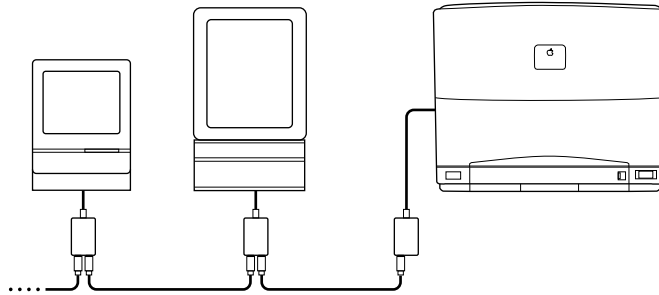


LocalTalk connecting kits come in many varieties. Yours may look different. The kit illustrated above is an Apple product (part number M1657Z/A) and comes with RJ-11 connectors. Apple also produces another LocalTalk kit with different connectors (part number M2068LL/B).

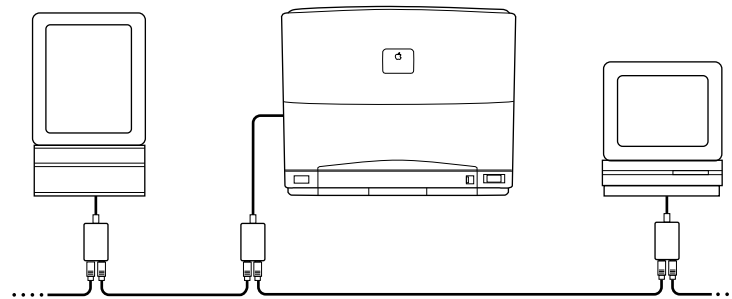
- 2 Plug the connector box into the LocalTalk port (↕) on the printer.**

### 3 Connect the printer to the network in one of these two ways:

- *To connect the printer to the end of a LocalTalk network, use the LocalTalk cable to connect the empty socket of the nearest device's connector box to the printer's connector box.*



- *To connect the printer between two devices on a LocalTalk network, disconnect one LocalTalk cable from the connector box of the device immediately to the left or right of the printer and plug it into the new printer's connector box. Then use the new LocalTalk cable to connect the free socket on the printer's connector box to the socket you freed on the other device's connector box.*



### What to do after connecting to a LocalTalk network

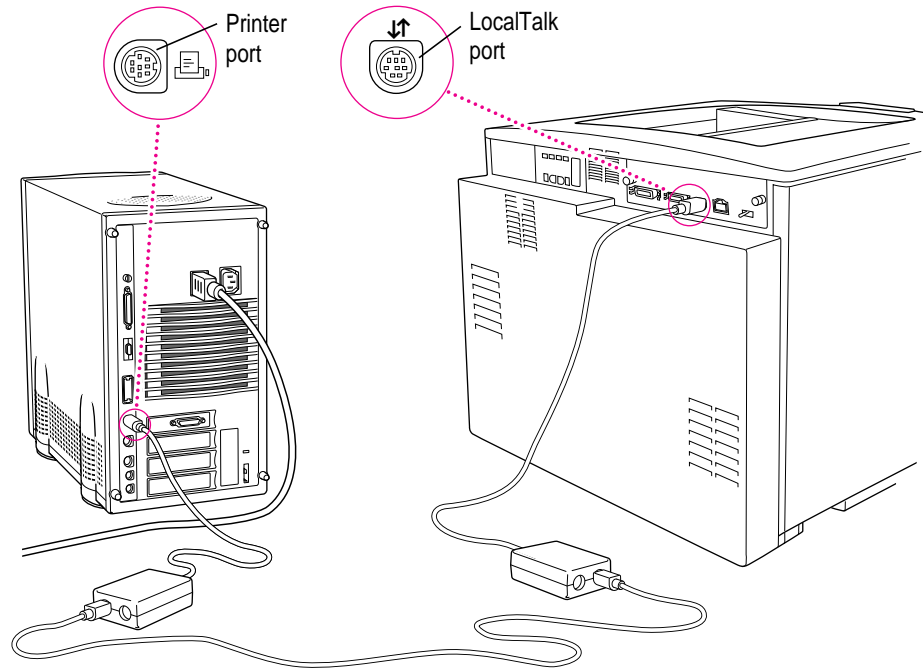
- To connect the printer directly to a single Macintosh or to an IBM PC or compatible computer, see the appropriate sections later in this chapter.
- If you're finished connecting the printer, skip to "Adjusting Communication Settings," later in this chapter.

For more information about setting up the printer on a LocalTalk network, see Chapter 2. For information about setting up the printer on a Novell network running ATPS, see Appendix B.

## Connecting directly to a single Macintosh

Use this method to connect a single Macintosh to the printer.

- 1 Obtain two LocalTalk Kits.
- 2 Plug one LocalTalk connector into the computer's printer (🖨️) port.
- 3 Plug one end of the cable into the LocalTalk connector on the computer.
- 4 Plug the second LocalTalk connector into the printer's LocalTalk (↕) port.
- 5 Plug the other end of the cable into the LocalTalk connector on the printer.



*Note:* You can use Ethernet transceivers (instead of LocalTalk connectors) to connect a Macintosh directly to the printer.

### What to do after connecting to a single Macintosh

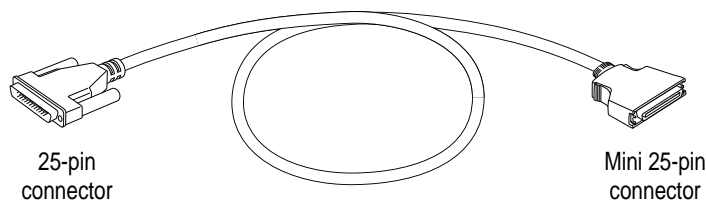
- If you wish to connect the printer to other networks, or to connect the printer directly to an IBM PC or compatible computer, see the appropriate sections later in this chapter.
- If you're finished connecting the printer, skip to "Adjusting Communication Settings," later in this chapter.

See Chapter 2 for more information about setting up the printer on a LocalTalk network or Appendix B for information about setting up the printer on a Novell network running ATPS.

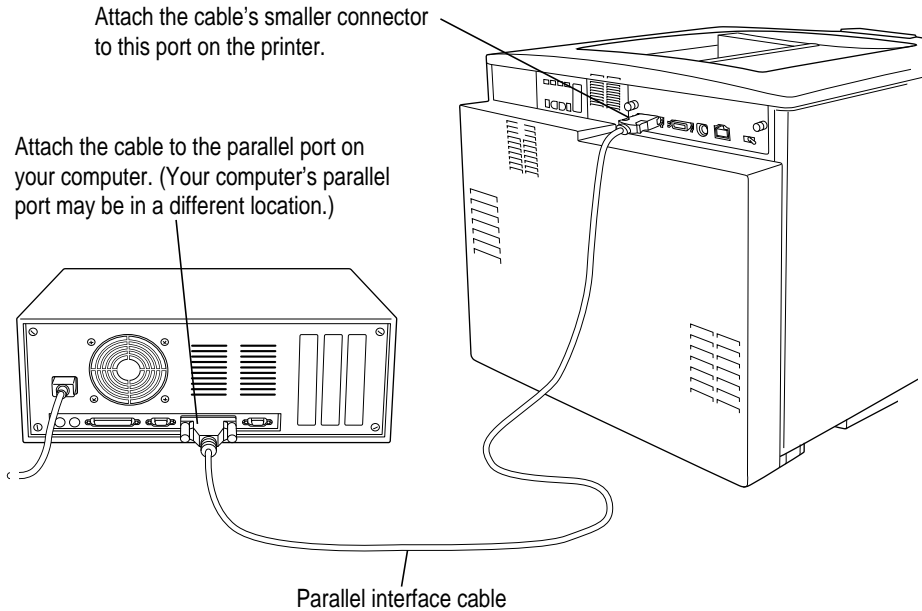
### Connecting to an IBM PC or compatible with a parallel cable

- 1 Obtain a parallel interface cable like this one.

**IMPORTANT** You must purchase this cable, part number M4235ZM/A, designed for the parallel port on the Color LaserWriter 12/600 PS. If you try to use any other cable, you may damage the printer's parallel port.



**2 Use the parallel cable to connect the computer to the printer.**



**3 Check to make sure the port selected in the dialog box matches the one you connected the printer to.**

Open the Control Panels, then open the Printers control panel and check the settings in the Setup Printer dialog. (LPT1 is the recommended setting.)

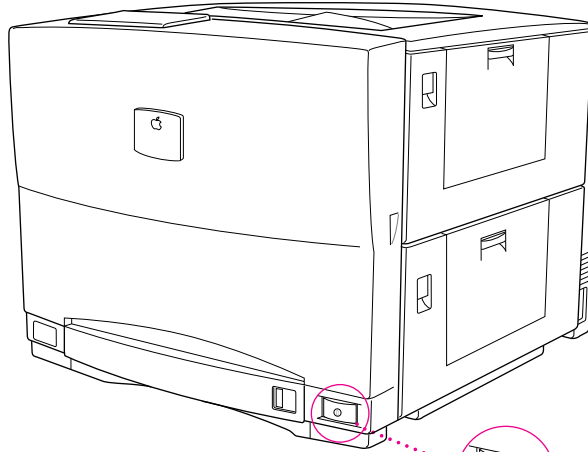
**What to do after connecting directly to an IBM PC or compatible**

Connect the power cable and turn on the printer, as explained later in this chapter. For more information about setting up the printer, see Chapter 3.

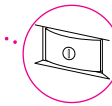
## Connecting the power and turning on the printer

Once you've connected the printer to your networks, you're ready to start up the printer. Follow these steps to make sure everything is working correctly.

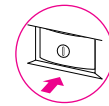
### 1 Make sure the printer is turned off.



If you can't tell whether the switch is in or out, press and release it once or twice until you're sure the switch is out and the printer is off.



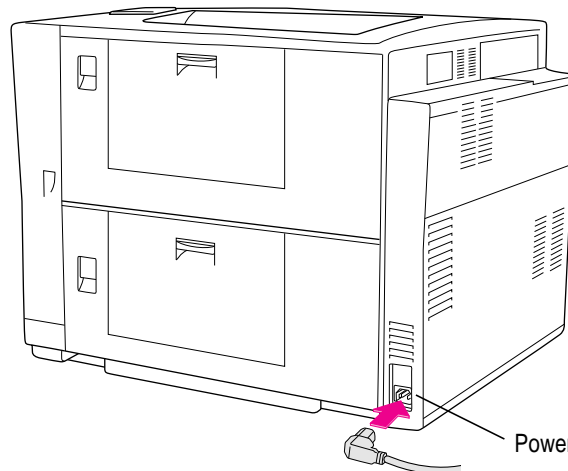
Off position



On position

### 2 Plug in the printer.

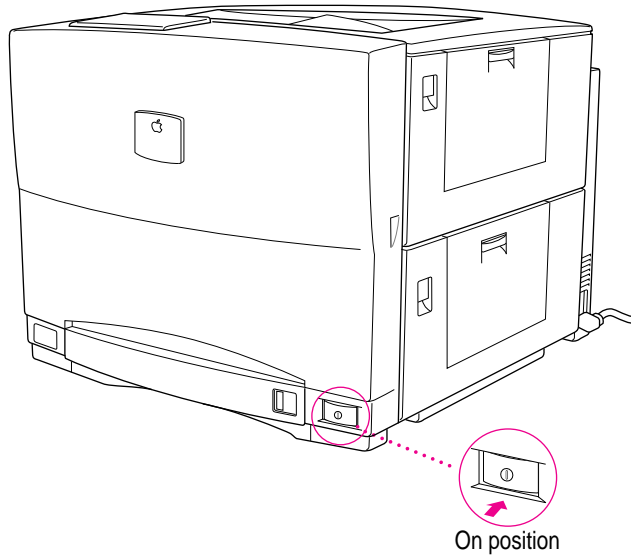
Insert the socket end of the power cord into the receptacle on the back of the printer. Plug the other end into a grounded (three-hole) AC outlet.



Power cord receptacle

**3 Press the power switch to turn the printer on.**

The printer takes about 3 minutes to warm up. During warm-up, various status lights flash, and the printer performs an autocalibration procedure, ensuring good color printing quality.



**4 Save the startup page. It contains information you may need to complete network setup.**

The Ready/In Use light should glow steadily. If it doesn't, or if different lights come on, see Appendix G for information about status lights.

Every time you restart the printer, it automatically prints a startup page and a demonstration page unless you turn either or both of the pages off using the Apple Printer Utility (described in Chapter 2) or the Apple Printer Utility for Windows (described in Chapter 3).

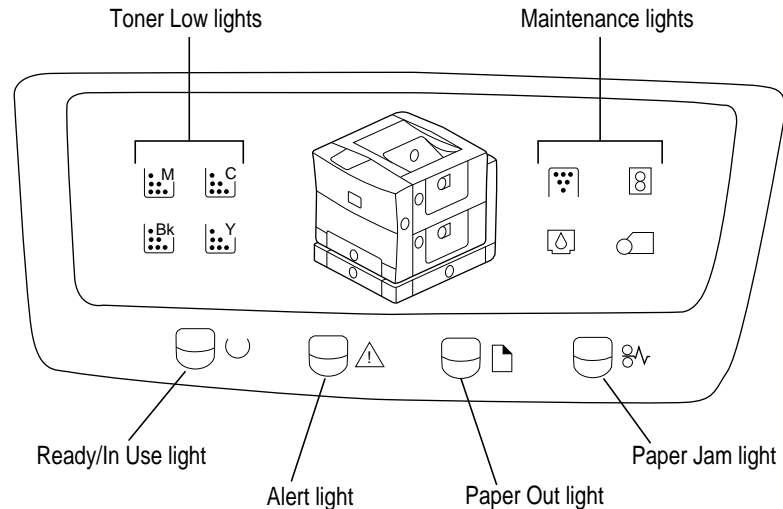
The startup page shows how the printer is set up, including the network connection types and what options are attached to the printer.

Both pages should look clean and sharp. If they are spotty, too light or too dark, or otherwise unclear, switch the printer off and on to print the pages a second time. Try this two or three times if necessary. If the output doesn't improve, or if the printer won't print the pages, refer to Chapter 12, "Fixing Image Problems."



## 5 Check the status lights.

After the startup and demonstration pages are printed, the Ready/In Use light glows steadily. All other lights should be off. If any other lights are on, see Appendix G.



## Saving energy

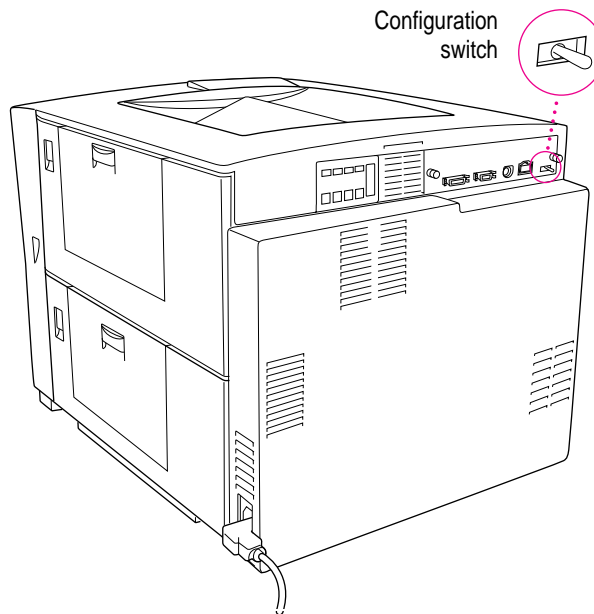
Your Color LaserWriter 12/600 PS meets Energy Star guidelines for saving energy. By default, the printer enters an energy-saving mode after it's been idle for 60 minutes. You can adjust the idle delay by using the Apple Printer Utility on the Macintosh or the Apple Printer Utility for Windows.

You can also save energy on the Color LaserWriter 12/600 PS, as well as on all other printers (including those without energy-saving features), by taking these steps:

- Use the page preview feature provided in many programs to check page layout rather than printing a draft.
- If you know you won't be using the printer for a while—say, a three-day weekend—turn it off.

## Adjusting communication settings

Though you can adjust many of the Color LaserWriter 12/600 PS communication settings, the standard (factory default) settings work for most environments.



### Standard (factory default) settings for the parallel port

Port	Mode	Data	Protocol
Parallel	On	AutoSelect	TBCP

### Standard (factory default) settings for the other ports

Port	Interface	Mode
LocalTalk	LocalTalk	On
Ethernet	EtherTalk	On
	NetWare	On
	TCP/IP	On

If you have changed any of the settings and want to reset the printer to the standard settings, move the configuration switch on the printer to the left-hand position. Then restart the printer (using the Restart Printer command from the Apple Printer Utility or by turning the printer off and then on). Finally, return the switch to the right-hand position.

### Why customize communication settings?

Though the standard communication settings work well for most environments, you might want to customize communication settings to turn off network interfaces you don't need. For example, if you know the printer will never receive a NetWare message over the network, you can turn off the interface and stop the printer from sending out unnecessary NetWare packets.

### How to customize communication settings

Change the settings with either of the following two programs:

- Apple Printer Utility on the Macintosh (see Chapter 2 for details on how to install and use the program)
- Apple Printer Utility for Windows (see Chapter 3 for details on how to install and use the program)

### Custom settings for the parallel port

Port	Mode	Data	Protocol
Parallel	On	AutoSelect, Compatibility, IDP	Normal, Raw, TBCP

### Custom settings for the other ports

Port	Interface	Mode Possible Values		
LocalTalk	LocalTalk	On		
Ethernet	EtherTalk	On	or	Off
	NetWare	On	or	Off
	TCP/IP	On	or	Off

## How to return to the default settings

To return to the factory default settings, move the configuration switch to the left-hand position and restart the printer. Choose Restart Printer from the Utilities menu (in the Apple Printer Utility) or turn the printer off and on. Finally, be sure to return the switch to the right-hand position.

## What to do next

Finish preparing the printer and completing the network connections by reading one or more of the following chapters:

- Chapter 2 explains how to administer the printer on an **AppleTalk network** and how to help **Macintosh users** start using the printer.
- Chapter 3 explains how to administer the printer on an **Ethernet network** and how to help **Windows and NetWare users** get started using the printer. It also explains how to set up a **direct connection** to an IBM PC or compatible computer.
- Chapter 4 explains how to set up the printer on a **TCP/IP network** and how to help **UNIX users** get started using the printer.

# 2

## Setting Up the Printer for Macintosh Users

.....

This chapter explains how to prepare the Color LaserWriter 12/600 PS for use on an AppleTalk network, configure the printer using the Apple Printer Utility, and prepare users' Macintosh computers to print on the printer.

*Note:* For instructions on setting up the printer for access by Macintosh client computers on a NetWare network, see Appendix B.

## Before you begin

Before you begin, make sure you have

- set up the printer as described in Chapter 1
- connected the printer to your network
- made backup copies of the printer disks

**IMPORTANT** To use the printer software, you need a Macintosh with a 68020 or higher central processing unit (any Macintosh except a Macintosh Plus, SE, Classic®, Portable, or PowerBook 100). Your Macintosh must have system software version 7.1 or later and at least 4 megabytes (MB) of memory. If your system software is an earlier version, you should obtain a system software upgrade from an Apple-authorized dealer. (You must upgrade every user on the network who doesn't have system software version 7.1 or later.)

Installing all the printer software and fonts for the Macintosh requires approximately 7.5 MB of free space on your hard disk.

## Initial AppleTalk setup

Before Macintosh users can print with the Color LaserWriter 12/600 PS, the printer administrator must install the printer software and fonts and configure the printer.

## Step 1: Installing the software the printer administrator needs

To install the printer software on a Macintosh computer, follow these steps:

**IMPORTANT** Do not “drag install” the printer software. If you do, the files won’t be properly decompressed and won’t work.

- 1 Turn off any automatic virus-detection programs you have on your Macintosh computer.

If you don’t, problems may occur during the installation. After installation is complete, you can turn the virus-detection programs back on. (For instructions on turning off each virus-detection program, see the manual that came with the program, or telephone the manufacturer of the program.)

- 2 Press and hold down the Shift key, then choose Restart from the Special menu.

When a message on the screen tells you that the extensions are off, you can release the Shift key. Your extensions have been turned off. When you restart the Macintosh after software installation, the extensions will turn on again.

- 3 Make sure the printer software disks are locked.

- 4 Insert *Printer Disk 1 for Macintosh* into a disk drive.

If necessary, open the disk icon.

- 5 To start the Installer program, double-click its icon.



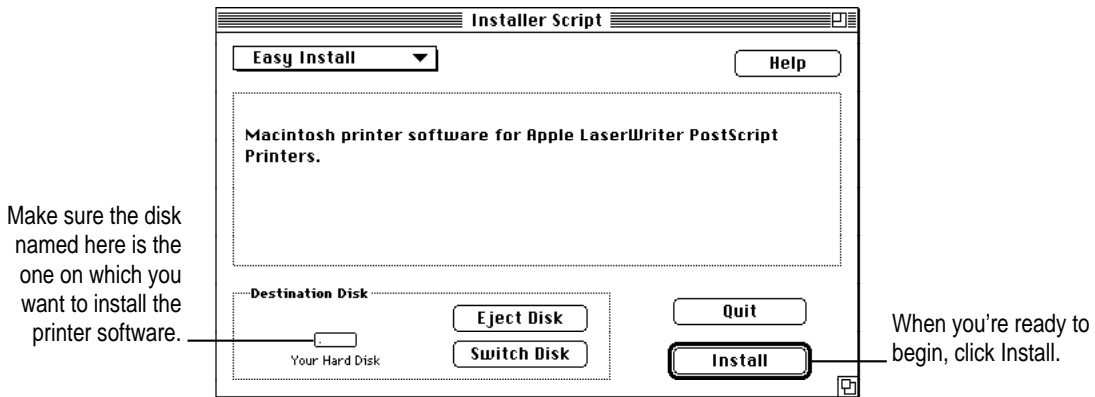
Installer

- 6 In the Welcome dialog box that appears, click Continue.

After a moment, the Install dialog box appears. At the top of the dialog box is a pop-up menu set to allow you to perform an Easy install.

**IMPORTANT** The Installer checks to make sure you have what you need to use the printer software. If you’re missing anything, a message tells you what you need. You won’t be able to install the printer software until you correct the problem. If a dialog box says you don’t have the correct system software, you can purchase a new version from an Apple-authorized dealer.

**7** In the Installer dialog box, click the Install button.



The Installer takes a few moments to calculate what needs to be done and then begins to install files.

**8** Follow the instructions on the screen until the installation is complete.

**9** When you see a message reporting that installation was successful, click Restart.

The Installer restarts your Macintosh.

The software is now installed on the hard disk. If you turned off any automatic virus-detection programs on your Macintosh, turn them on again.

*Note:* If installation is not successful, see Chapter 13 for suggestions.

### More information about the Installer program

In the procedure just described, the Installer places all the software you need on your hard disk. In rare circumstances, you may want to install only a subset of the software. In that case, choose Custom Install from the pop-up menu in the Installer. A list of choices appears. To install something from the list, click to select it, then click the Install button. (There is also a Custom Remove feature.)

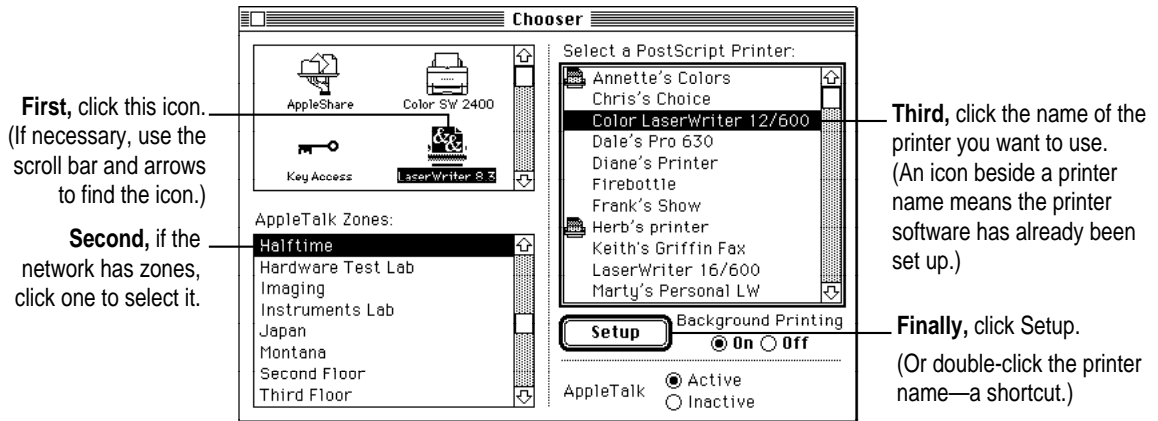


## Step 2: Choosing the printer on the administrator's computer

Before you can use the printer, you must use the Chooser to select the printer and set up the printer software. You only have to set up the printer software once, when you first select it.

Once you select the printer in the Chooser, you won't need to repeat this step unless you change printers or change the way your printer is connected.

- 1 Choose the Chooser from the Apple () menu.
- 2 In the Chooser dialog box, click items to select them.



The Chooser identifies the type of printer and automatically sets up the printer software. A small printer icon appears beside the printer name.

After you close the Chooser, an icon representing the printer appears on the desktop. If you want, you can repeat step 2, selecting and setting up other printers so all their icons appear on your desktop for easy access.

- 3 Close the Chooser.

Anyone who wants to use the printer must follow this procedure at least once.

### Step 3: Making sure everything is working

The best way to make sure everything is set up correctly is to print something. As a simple test, open and print the Read Me file that is in the Apple LaserWriter Software folder.

- 1** Locate the Read Me file in the Apple LaserWriter Software folder.
- 2** Click the Read Me file to select it, and choose **Print** from the **File** menu (or drag the Read Me file to the desktop printer icon and drop it on the printer).

The Print dialog box appears listing the Color LaserWriter 12/600 PS printer as the selected printer. If the printer's name does not appear in the dialog box, see "Step 2: Choosing the Printer on the Administrator's Computer."

- 3** Click **Print**.

If the document doesn't print, check the steps you followed in Chapter 1 for connecting and turning on the printer. Make sure that you have installed the toner cartridges and loaded paper into the paper cassette. Check that no packing material or paper has caused a jam in the printer.

Also check that you have followed all the software installation steps presented in this chapter.

If the printer still won't print, indicator lights on the printer's status panel blink to signal different errors and printing conditions. Check the lights and refer to Appendix G for their meaning. You can also check the status messages that appear in the PrintMonitor (during background printing) to see if error messages appear that might help you identify the problem.

### What to do next

You may change some of the printer's default settings using the Apple Printer Utility as explained in the next section. Then you can set up users' computers as explained in "Getting Macintosh Users Started Using the Printer," later in this chapter. If you want to install any hardware options, see Chapter 5.

## Changing printer settings with the Apple Printer Utility

Though the printer itself has no control panel, you can change some settings on the printer by using programs on computers connected to it:

- *On Macintosh computers*, use the Apple Printer Utility, described in this chapter.
- *On IBM PC and compatible computers*, use the Apple Printer Utility for Windows, described in Chapter 3.

The Apple Printer Utility program lets you change the default settings that control how various aspects of the Color LaserWriter 12/600 PS work. The utility is placed in the Apple LaserWriter Software folder when the printer software is installed. Use it to choose the basic printer settings that you want to use for all documents.

You can use the Print and Page Setup dialog boxes to change some other printer settings without changing the printer's basic defaults.

**IMPORTANT** Changes you make with the Apple Printer Utility affect everyone who uses the printer.

Use the Apple Printer Utility to

- view information about the printer, such as the AppleTalk printer name and the total number of pages the Color LaserWriter 12/600 PS has printed
- name the printer on AppleTalk networks
- identify the printer's physical location
- download fonts to the printer or attached hard disks
- remove fonts
- print font samples
- initialize internal or external hard disks connected to the printer
- turn printing of the startup page on or off
- turn printing of the demonstration page on or off
- conserve power consumption by setting the energy-saving delay
- set paper-handling options
- set when the printer closes print jobs to provide faster throughput
- set the printer's error timeout
- set the printer's AppleTalk zone
- view the printer's Ethernet address
- set the NetWare configuration
- set the TCP/IP configuration
- view and configure the printer's communication settings
- send PostScript files to the printer
- restart the printer

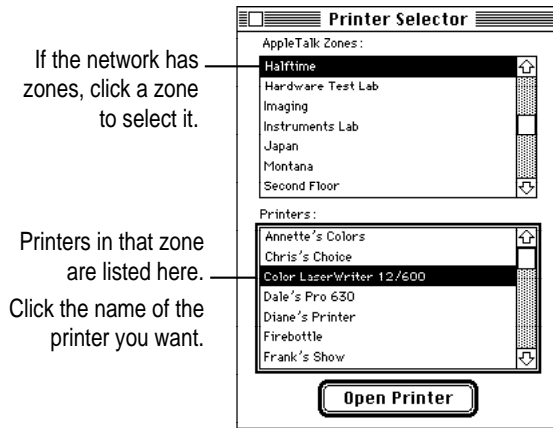
## Opening the Apple Printer Utility

The Apple Printer Utility has two windows: the Printer Selector window, which is similar to the Chooser, and the printer features window, which you use to view or change the printer's settings.

### 1 Double-click the Apple Printer Utility.

The Installer puts the Apple Printer Utility in the Apple LaserWriter Software folder. You can move it wherever you like.

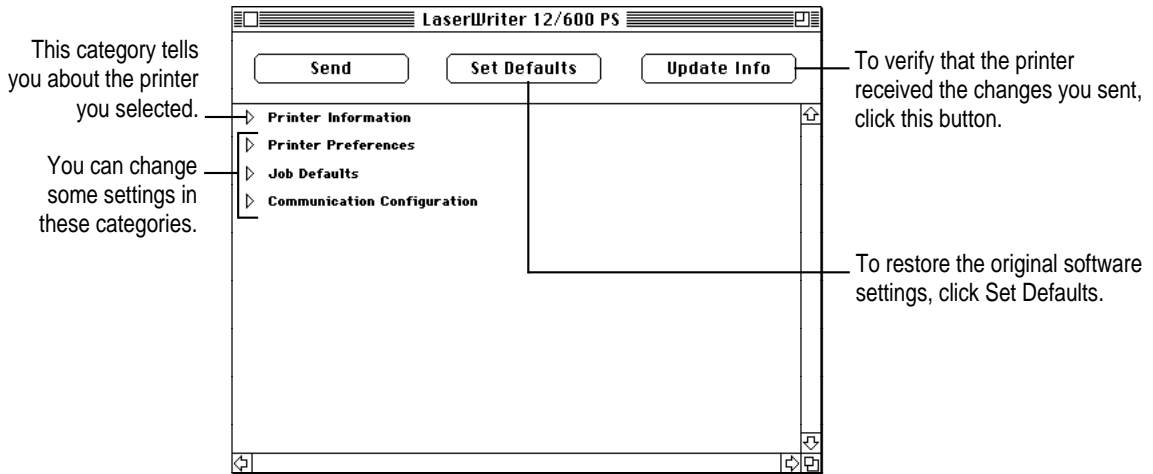
### 2 In the Printer Selector window that appears, select and open the printer you want.



### 3 Click Open Printer.

The printer features window appears.

- 4** To open a category and display its information and options, click the arrow beside the category name.



Additional options may appear that you can also open and work with. When you are finished changing options in a particular category, you can click the arrow again to collapse the options.

- 5** After viewing the information and making changes, click the Send button to send your changes to the printer.
- 6** When you are finished making changes, click the close box to close the window.

The next sections describe configuration procedures that you can perform with the Apple Printer Utility. First select and open the printer in the Printer Selector window. The information and procedures described in each section then present how to work with the printer features window of the utility.

### Quitting the Apple Printer Utility

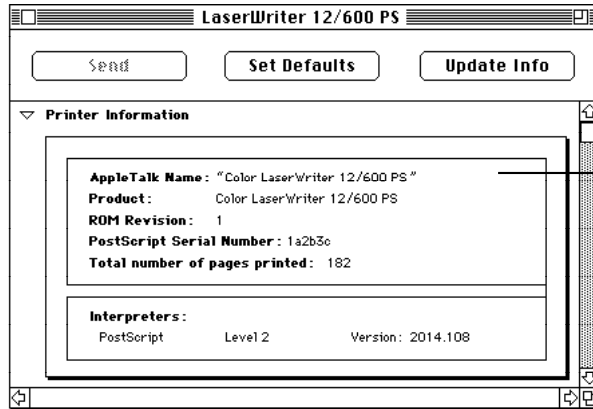
To quit the Apple Printer Utility:

- Choose Quit from the File menu.

## Viewing printer information

You can view information about your Color LaserWriter 12/600 PS by displaying the printer information in the printer features window.

- **Open the Printer Information category.**



To change the printer's AppleTalk name, see the next section, "Naming the Printer."

You cannot change the other settings shown here.

You see a list of printer information.

## Naming the printer

To help users easily select the Color LaserWriter 12/600 PS printer from their computers, give the printer a unique name based, for example, on its location or the group of users who commonly share it. You can name or rename any laser printer on the AppleTalk network.

**IMPORTANT** Be sure to tell users what the printer name is and what zone it's located in when you install the printer software on their computers or instruct them to do so.

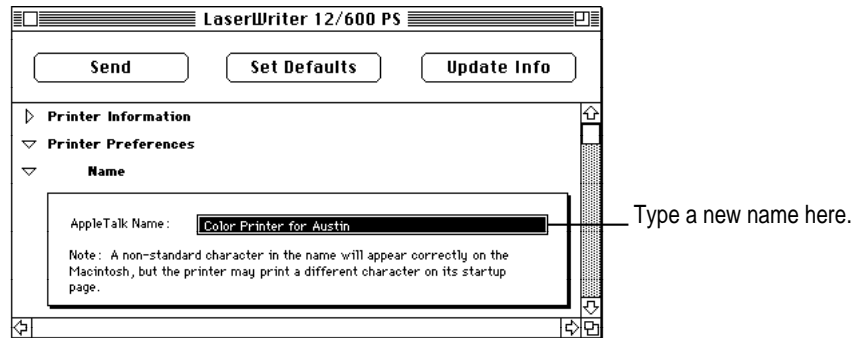
- 1 **Open the Printer Preferences category.**

You see a list of preferences.

- 2 **Open the Name category.**

- 3 In the panel that appears, type a new name.

When the panel opens, it shows the selected printer's current name.



- 4 To send the new name setting to the printer, click Send.

## Identifying the printer's physical location

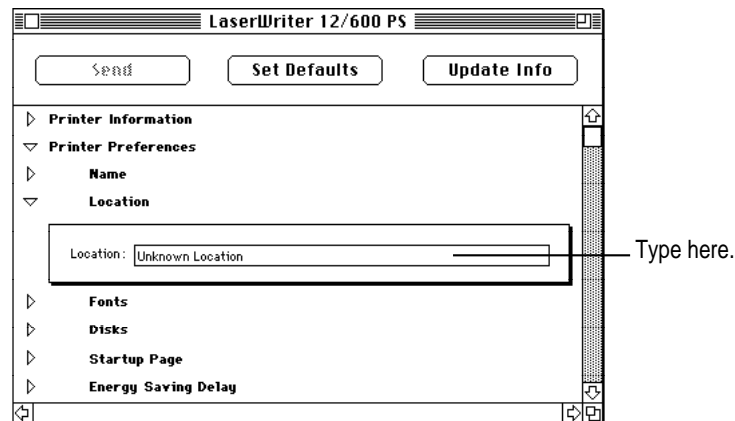
You can type a description of the printer's location.

- 1 Open the Printer Preferences category.

You see a list of preferences.

- 2 Open the Location category.

- 3 In the panel that appears, type a description of the printer's location.



- 4 Click Send.



## Sending fonts to the printer

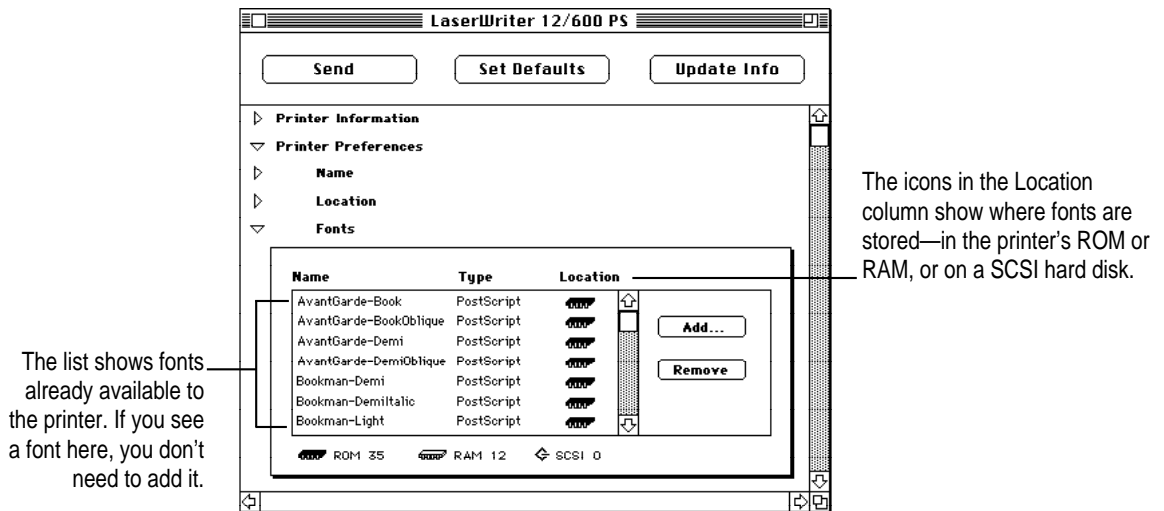
You can send additional fonts (sometimes called *downloading fonts*) to the printer's RAM or to the printer's optional hard disk. You do not have to download fonts to use them in printed documents, but doing so can make your documents print more quickly.

### 1 Open the Printer Preferences category.

You see a list of preferences.

### 2 Open the Fonts category.

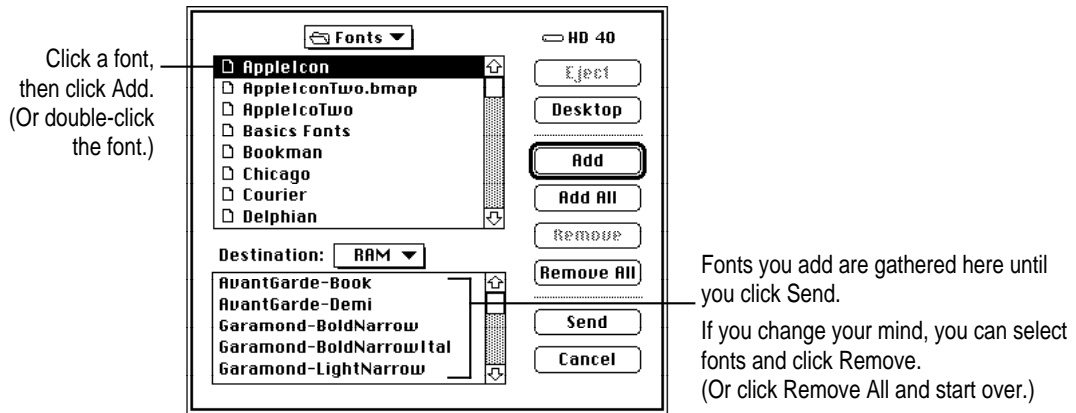
The Fonts panel appears.



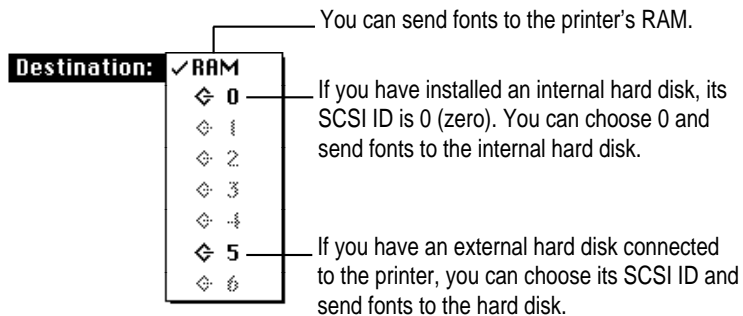
### 3 Click Add.

- 4** In the dialog box that appears, click a font to select it, then click Add.

The Fonts folder (inside the System Folder) is one place to find fonts.



- 5** Use the Destination pop-up menu to choose a destination for the fonts.



Fonts you send to the printer's RAM are lost whenever the printer is turned off, whereas fonts sent to the printer's hard disk are not lost when the printer is turned off.

- 6** Click Send.

## Removing fonts

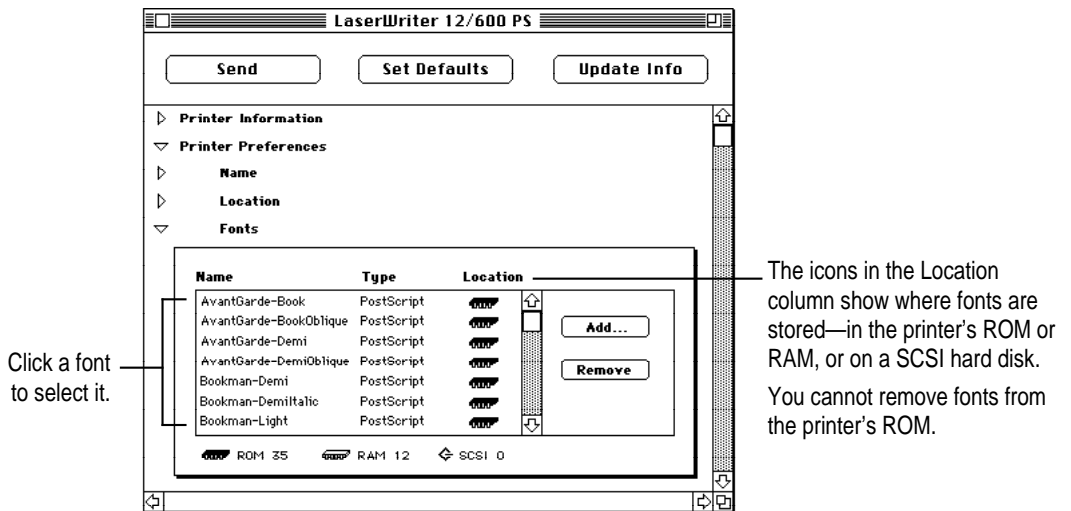
When you no longer need them, you can remove fonts from the printer's memory or a hard disk connected to the printer.

- 1 Open the Printer Preferences category.

You see a list of preferences.

- 2 Open the Fonts category.

- 3 In the Fonts panel that appears, select the fonts you want to remove.



- 4 Click Remove.

## Printing font samples

You can print a list of the fonts currently stored in the printer's memory (both RAM and ROM) and on optional hard disks attached to the printer.

- Choose Print Font Samples from the File menu.

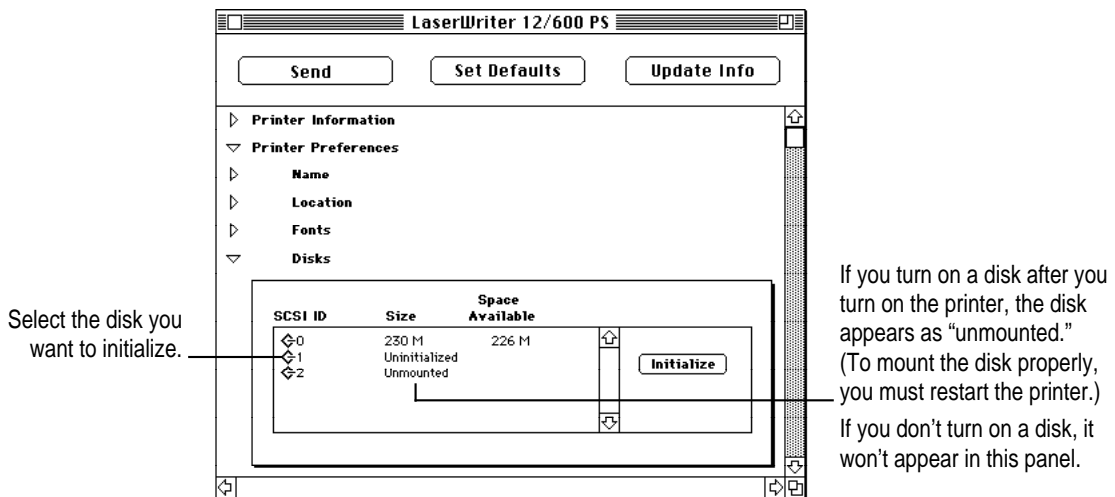
## Initializing a hard disk connected to the printer

If you connect an internal or external hard disk to the printer, you need to initialize the disk before you can download fonts to it. (See Chapter 5 for information about connecting hard disks to the printer.)

The Color LaserWriter 12/600 PS printer recognizes disks formatted for use with the Macintosh hierarchical file system (HFS) format. The printer will *not* recognize disks using other formats. If you connect a disk that is not formatted for HFS, you will need to reinitialize the disk and then reload any fonts from your computer.

**IMPORTANT** Reinitializing erases all fonts previously stored on the disk.

- 1 **Open the Printer Preferences category.**
- 2 **Open the Disks category.**
- 3 **In the panel that appears, select the disk you want to initialize and click Initialize.**



A message warns that initializing erases the entire contents of the disk—including any fonts.

- 4 **Click Initialize to proceed.**

It takes some time to complete the initialization process. The printer won't be available for printing until the hard disk is initialized.

## Turning the startup pages on or off

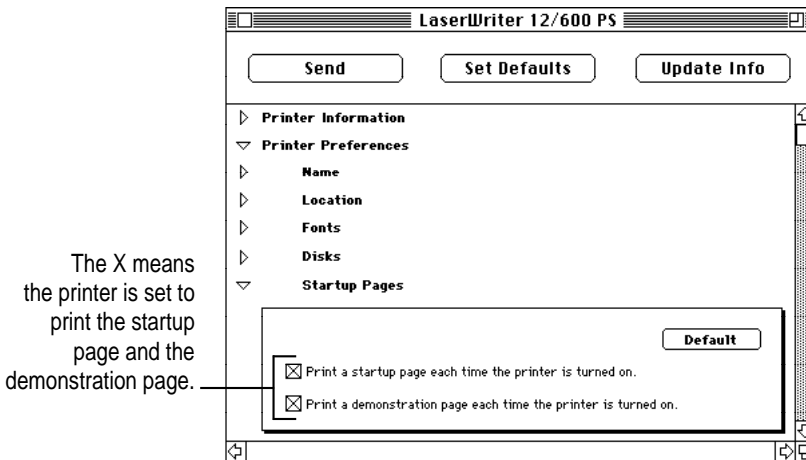
The Color LaserWriter 12/600 PS normally prints a startup page and a demonstration page when you turn the printer on. The startup page shows the printer's name, the total number of pages printed, the amount of memory, installed options, and communication settings. You can turn this feature off if you wish.

- 1 **Open the Printer Preferences category.**

You see a list of preferences.

- 2 **Open the Startup Pages category.**

- 3 **In the panel that appears, click the checkboxes to turn either the startup page or the demonstration page (or both) on or off.**



- 4 **To send the startup page setting to the printer, click Send.**

## Conserving energy

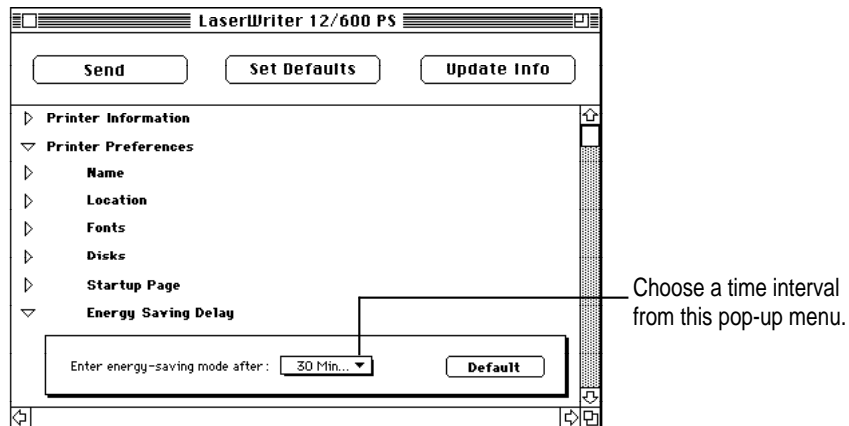
Your Color LaserWriter 12/600 PS automatically reduces its power consumption after 60 minutes of inactivity. You can lengthen or shorten the time that the printer remains idle before it reduces its power consumption. Once the printer turns down its power, it will need to warm up again before printing the next document. You or other network users may experience a small delay (3 minutes) in printing.

- 1 **Open the Printer Preferences category.**

You see a list of preferences.

- 2 **Open the Energy Saving Delay category.**

- 3 **In the panel that appears, choose a time interval from the pop-up menu.**



- 4 **To send the energy-saving delay setting to the printer, click Send.**

## Setting paper-handling options

When the standard paper cassette runs out of paper, the Color LaserWriter 12/600 PS can automatically switch and use paper from another paper source, such as the multipurpose tray (if you tell the printer that the tray contains the same size paper). This lets you continue printing without reloading paper. If you have the optional 250-sheet feeder, and it contains the same size paper, automatic tray switching includes it as a paper source. Combining all three paper sources lets you print up to 600 sheets without reloading paper.

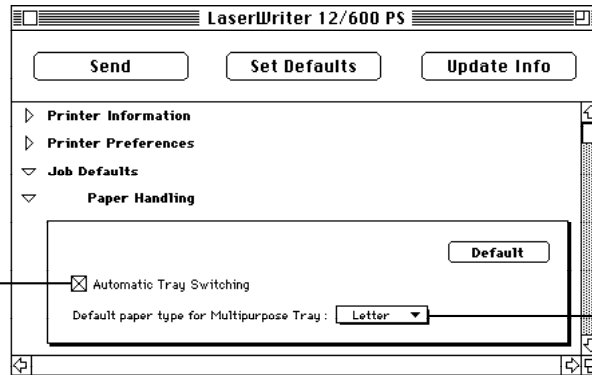
**1 Open the Job Defaults category.**

You see a list of job default categories.

**2 Open the Paper Handling category.**

**3 In the panel that appears, click the checkbox to turn Automatic Tray Switching on or off.**

An X means the printer looks for paper in any available paper source (including the multipurpose tray when the paper size matches).



Choose the size of paper in the multipurpose tray. (If you print jobs that use a different size paper, the printer avoids the multipurpose tray.)

**4 Use the pop-up menu to choose a default paper size for the multipurpose tray.**

If you turn on the automatic tray switching feature (in step 3), the printer draws paper from any paper source that holds the correct size paper. However, the printer is not able to detect the size of paper you may have placed in the multipurpose tray, so you must tell it. If the paper size for the multipurpose tray is the same as the paper in the standard paper cassette (and automatic tray switching is turned on), the printer automatically uses the multipurpose tray as a paper source.

**5 To send the paper-handling settings to the printer, click Send.**

## Setting up job handling

You can set job handling for individual network protocols that you use. If you need to shut down the printer in the middle of printing a document, you can use this panel to make sure the printer finishes the job before closing the connection.

- 1 Open the Job Defaults category.**

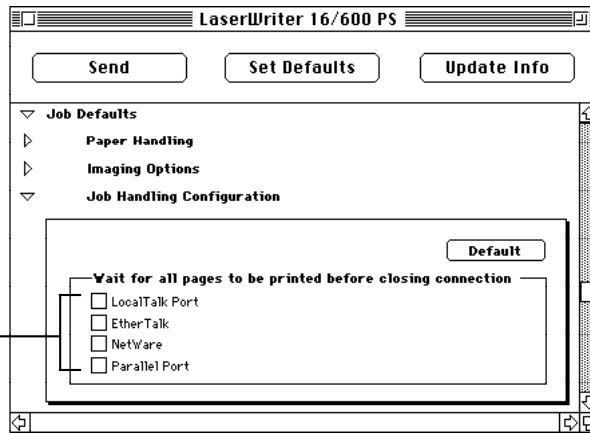
You see a list of network options.

- 2 Open the Job Handling Configuration category.**

- 3 Click the checkboxes next to the network types to specify when the connection with the computer should be broken.**

With this feature on, the printer keeps the connection open until the last page of a job has printed. That way, if a problem develops at the end of the print job, the printer can send error messages to alert users to the problem. Turning the feature on does make the total print time for the job somewhat longer, and the printer prints jobs serially.

An X in a checkbox means the printer prints all pages in a job before closing the connection with the computer that requested the print job.



- 4 To send the job-handling configuration settings to the printer, click Send.**



## Setting the printer's error timeout

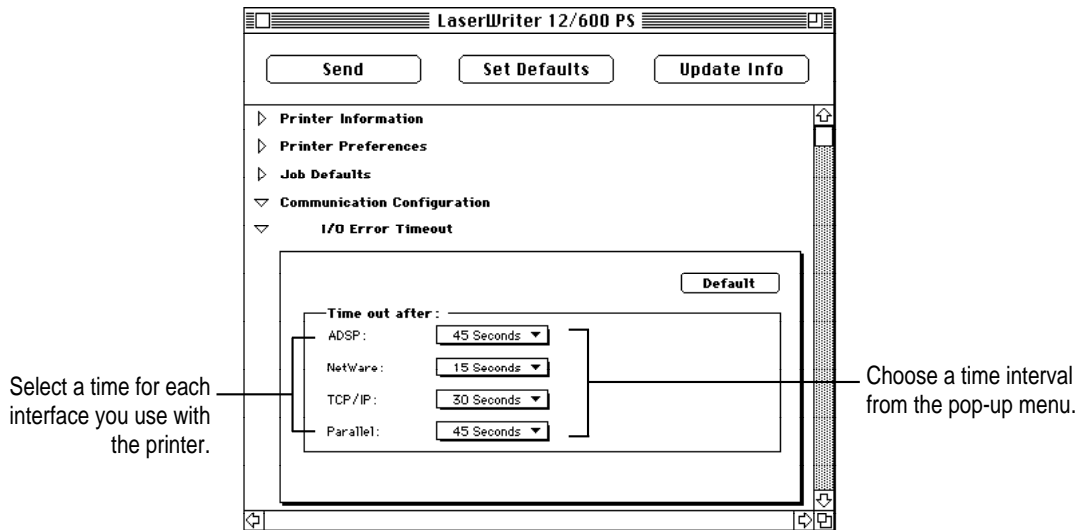
Occasionally, a user may send a job to the printer, then experience a computer problem, such as a power failure. Other users with print jobs in the queue must wait until the printer cancels the problem job. Use the I/O Error Timeout panel to tell the printer how long to wait before going on to print the next job in the queue.

- 1 **Open the Communication Configuration category.**

You see a list of communication settings options.

- 2 **Open the I/O Error Timeout category.**

- 3 **In the panel that appears, choose the time you want the printer to wait.**



- 4 **To send the settings to the printer, click Send.**

## Setting the printer's network zones

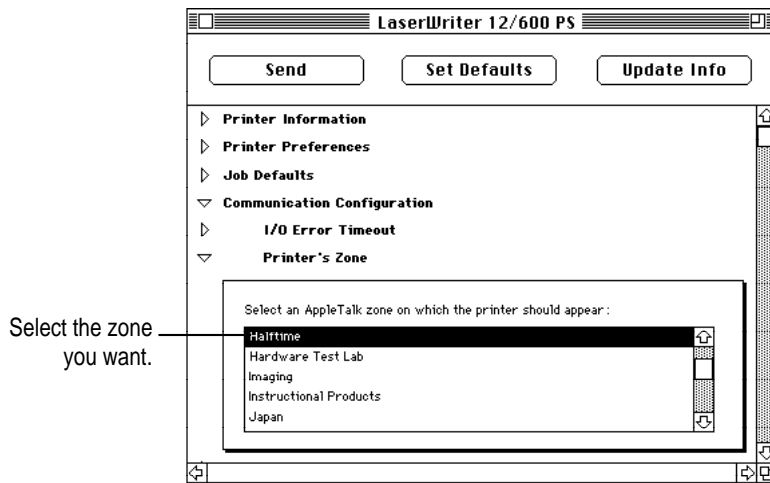
You can specify the AppleTalk network zone that the printer will be accessible in.

- 1 **Open the Communication Configuration category.**

You see a list of communication settings options.

- 2 **Open the Printer's Zone category.**

- 3 **In the panel that appears, select the zone you want the printer to appear in.**



- 4 **To send the zone setting to the printer, click Send.**

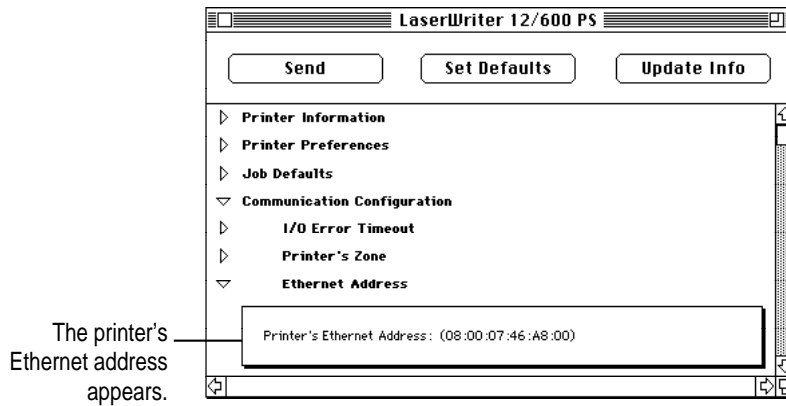
## Viewing the Ethernet address

You can view the printer's Ethernet address when needed.

- 1 **Open the Communication Configuration category.**

You see a list of communication settings options.

- 2 **Open the Ethernet Address category.**



## Working with a NetWare network

If the Color LaserWriter 12/600 PS is connected to a NetWare network, you can use the Apple Printer Utility on a Macintosh to configure NetWare settings in the printer.

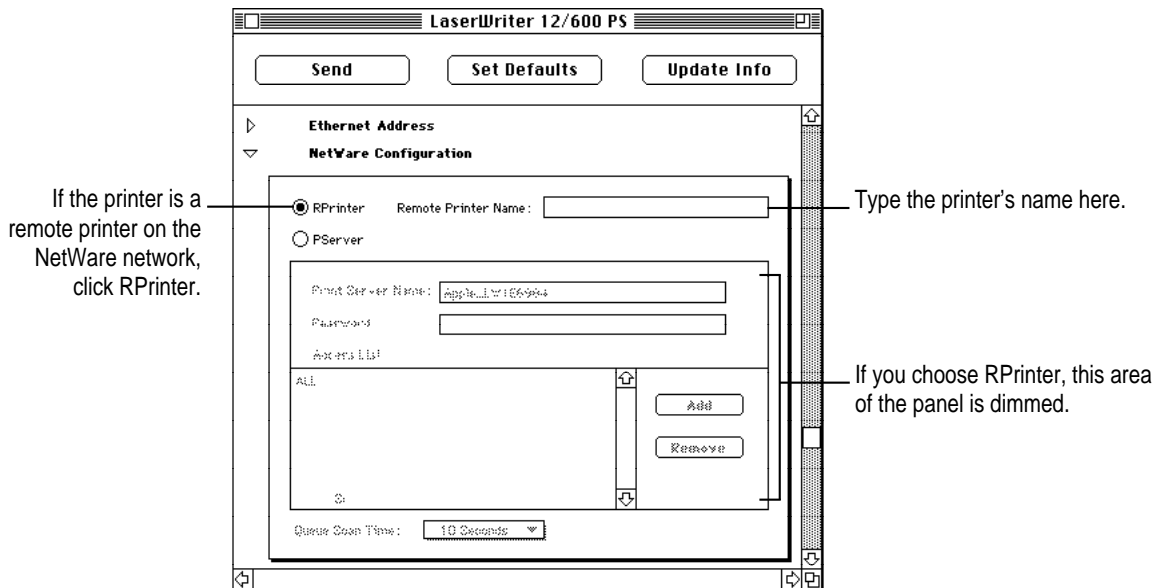
- 1 Open the Communication Configuration category.**

You see a list of communication settings options.

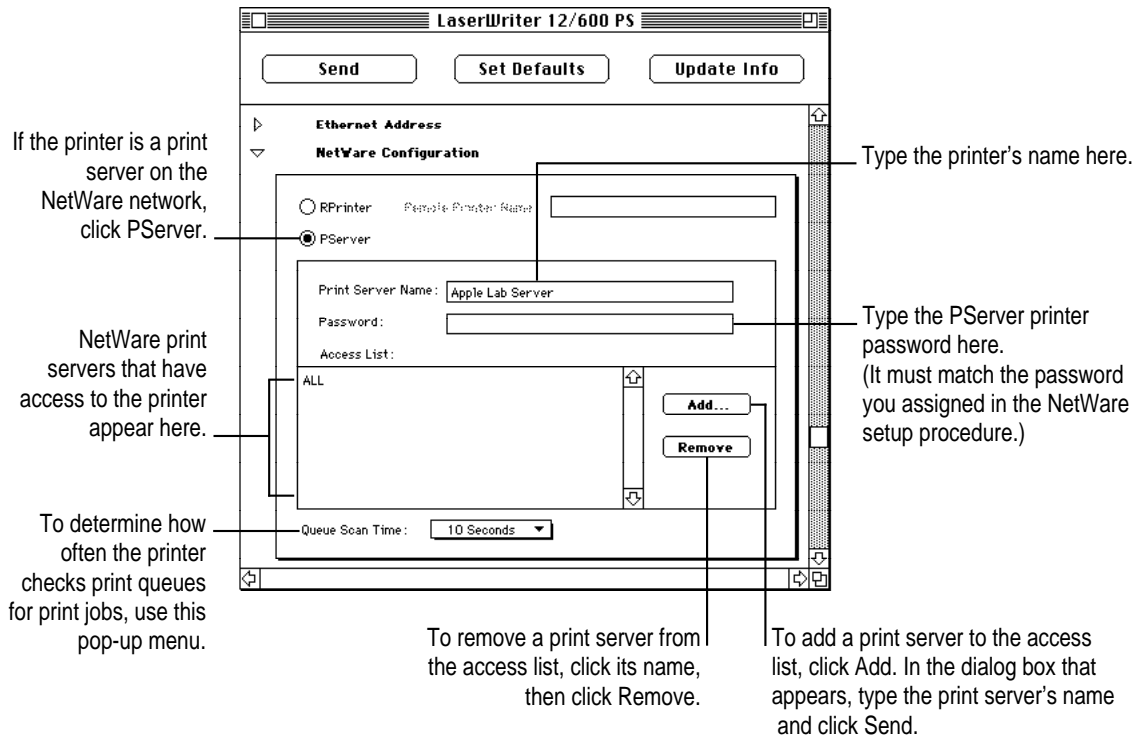
- 2 Open the NetWare Configuration category.**

What you see in the panel depends on whether you have set up the printer as a remote printer (RPrinter) or a print server (PServer) in NetWare.

When you set up the printer as a remote printer, the panel below appears.



When you set up the printer as a print server, the panel below appears.



**3** To send the changes to the printer, click Send.

## Changing TCP/IP configurations

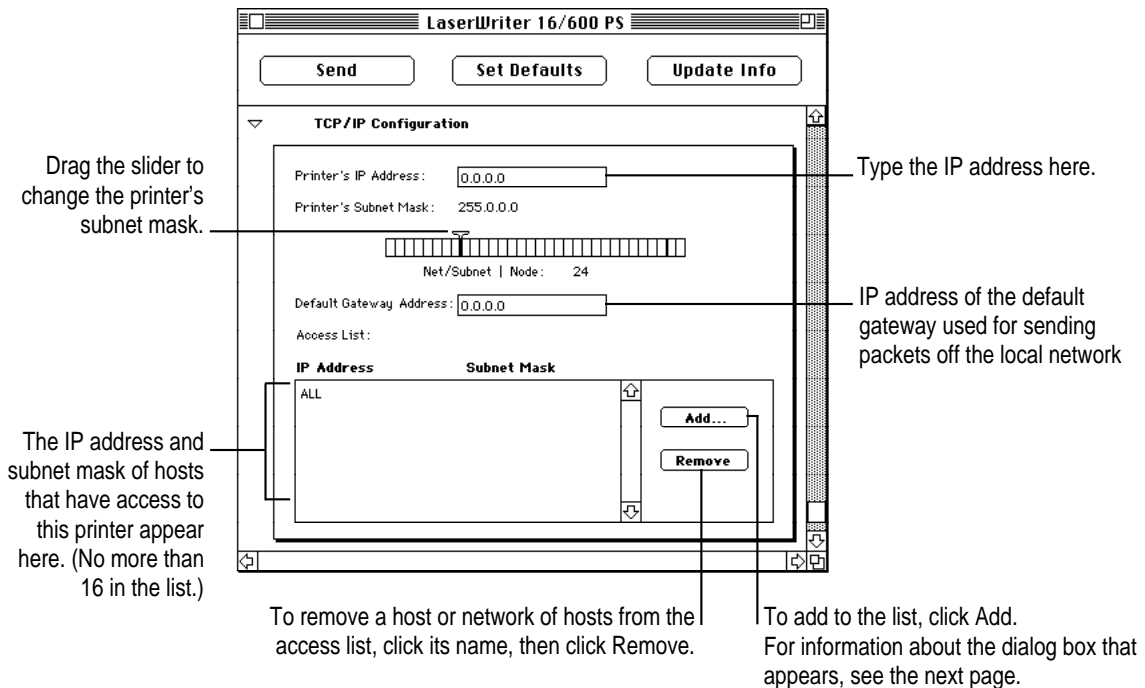
You can specify the IP address of the printer. For information about determining the printer's IP address and setting up the printer on a TCP/IP network, see Chapter 4.

- 1 Open the Communication Configuration category.**

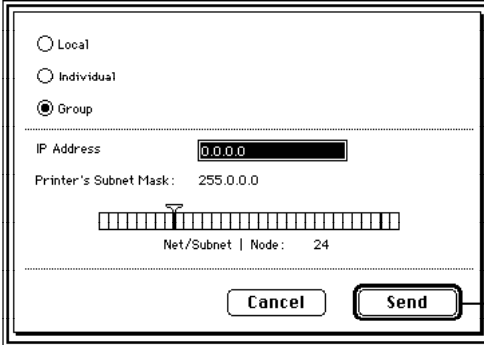
You see a list of communication settings options.

- 2 Open the TCP/IP Configuration category.**

- 3 In the panel that appears, make the changes you want.**



When you click the Add button in the TCP/IP Configuration panel, this dialog box appears:

A dialog box titled "TCP/IP Configuration" with three radio buttons: "Local", "Individual", and "Group". The "Group" button is selected. Below the radio buttons, there is a text field for "IP Address" containing "0.0.0.0". Below that, it says "Printer's Subnet Mask: 255.0.0.0". There is a slider control for the subnet mask, with a label "Net/Subnet | Node: 24" below it. At the bottom, there are two buttons: "Cancel" and "Send".

☐ Local  
☐ Individual  
☒ Group

IP Address: 0.0.0.0

Printer's Subnet Mask: 255.0.0.0

Net/Subnet | Node: 24

Cancel Send

When you've made the changes you want, click Send. The changes are sent immediately.

- To allow printing from all hosts on the same subnet as the printer, choose Local and specify the printer's subnet mask.
- To add a particular host to the list, choose Individual and type the host's IP address.
- To allow printing from all hosts on a different subnet, choose Group. Then type the IP address of a host on that subnet and move the slider to specify the group's subnet mask.

**4** To send the changes to the printer, click Send.

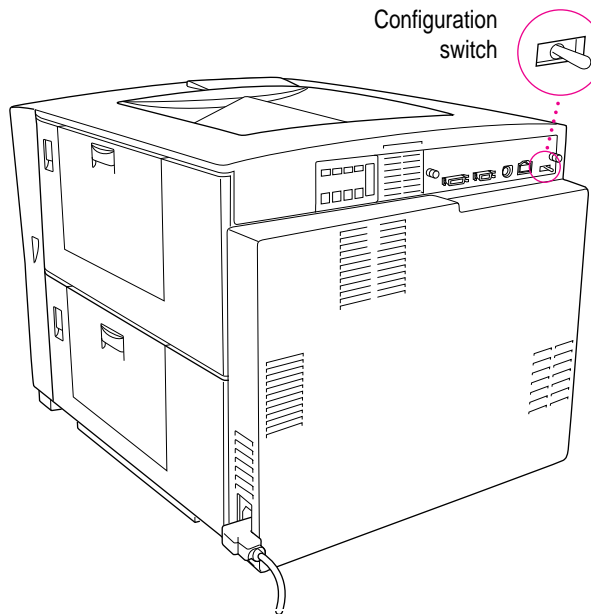
## Viewing and changing communication settings

If you don't need all of the printer's communication settings for your network environment, you can turn unnecessary settings off with the Apple Printer Utility.

For more information about connecting the printer to LocalTalk, Ethernet, and parallel ports, see “Connecting the Printer” in Chapter 1.

- 1 On the printer, make sure the configuration switch is in the right-hand position.**

This is the normal setting and prepares the printer to accept the changes you send. You should leave the switch in the right-hand position unless you need to reset the ports and cannot use the Apple Printer Utility to do it. (For example, if you inadvertently turn off communication to all ports.)



- 2 On your Macintosh, open the Apple Printer Utility.**

- 3 Open the Communication Configuration category.**

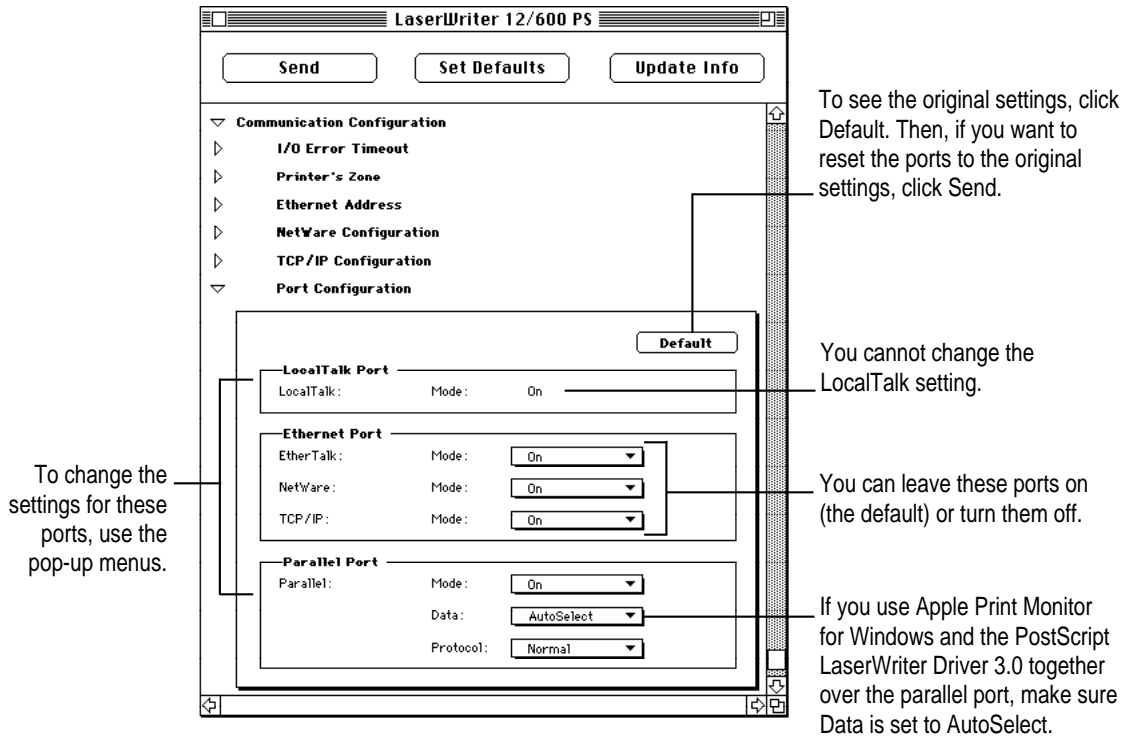
You see a list of communication settings options.

- 4 Open the Port Configuration category.**



**5 In the panel that appears, you can change settings if you need to.**

For example, if you know that the printer will never receive a NetWare message over the network, you can turn off the NetWare interface and stop the printer from sending out unnecessary NetWare packets.



**6 To send the changes to the printer, click Send.**

This implements the new settings. You can alert users about the changes.

**IMPORTANT** As long as you leave the printer's configuration switch in the right-hand position, the printer uses the settings in this panel. If for any reason you need to return to the original, default settings, click the Default button. If you cannot use the Apple Printer Utility to reset the ports, flip the configuration switch to the left-hand position. Then restart the printer and return the switch to the right-hand position.

## Sending PostScript files to the printer

You can download PostScript files to the printer to print a PostScript program or Encapsulated PostScript (EPS) file, or to run a PostScript program to change the internal settings of the printer. You can create a PostScript file in a variety of text-editing programs or by printing any document to a file (just click the File button in the Print dialog box).

- 1 **Choose Send File from the File menu.**
- 2 **In the Send File dialog box, select the PostScript file that you want to send to the printer.**
- 3 **Click Add.**
- 4 **Click Send.**

## Restarting the printer

If you have any problems printing, you may need to restart the printer to clear its memory.

- 1 **Choose Restart Printer from the Utilities menu.**

If you have changes you haven't sent to the printer, a dialog box appears warning that any fonts that have been downloaded to the printer's memory will be lost.

- 2 **To confirm that you want to restart the printer, click Restart.**

When the printer lights stop blinking, the printer is ready to print.

You can achieve the same effect by physically turning the printer on and off again.

**IMPORTANT** If the printer is on a network, make sure no one is attempting to use the printer when you restart it. If someone's printing job is canceled, they must resubmit it.

## Getting Macintosh users started using the printer

As soon as you connect the printer to the network, it's ready to use. In preparing to print on it, Macintosh users follow the same basic steps that you did to install the software and set up the printer. Each user

- installs the printer software and fonts on the Macintosh
- selects and sets up the printer from the Chooser

### Instructions for users

Chapter 6 explains to users how to install the software from the disks that came with the printer.

In addition, you'll need to give users information specific to your network:

- the name of the AppleTalk zone on which the printer is located
- the name you gave the printer if you renamed it with the Apple Printer Utility

### Software for users

If you'd prefer not to pass around the software disks, you can place the software on a server, as explained in the next section. If you prefer, you can of course install the software on each user's computer yourself.

## Preparing a server so users can install over a network

If you want users to install their software from a network server rather than pass around the original Macintosh floppy disks, you must copy the disks to a server as follows:

- 1 Create a new folder on the server and name it (for example, **Network Install**).
- 2 Insert *Printer Disk 1 for Macintosh*.
- 3 Drag the Printer Disk 1 icon onto the icon of the folder.



**IMPORTANT** You must drag the disk icon rather than copying the contents of the disk directly.

- 4 Repeat steps 2 and 3 for each Macintosh printer disk.
- 5 Open the folder you created in step 1.  
The contents of each disk are contained in a folder named for that disk.
- 6 Open the Printer Disk 1 folder.
- 7 Click to select the **Installer** and **Installer Script** icons and drag the icons from the **Printer Disk 1** folder to the folder you created in step 1.

The **Installer** and the **Installer Script** need to be in the same window as the folders for the disks you copied.

**IMPORTANT** Be sure to tell the users in your group where to find the software and the name of the folder to look for on the server.

## Installing the printer software from the server

After you've copied the software to the server as described in "Preparing a Server so Users Can Install Over a Network" earlier in this chapter, users can install the software on their own computers by following these steps:

- 1 Turn off any automatic virus-detection programs on your Macintosh before installing the software.**

If you don't, problems may occur during the installation. After installation is complete, you can turn the virus-detection programs back on. (For instructions on turning off each virus-detection program, see the manual that came with the program, or telephone the manufacturer of the program.)

- 2 Log on to the server from the computer where you want to install the software.**

- 3 Open the folder that contains the printer software.**

- 4 Double-click the Installer icon.**

A dialog box opens to describe the installation.

- 5 Click the Continue button to close the dialog box.**

- 6 Click the Install button.**

The Installer takes a few moments to calculate what needs to be done and then begins to install files.

- 7 Follow the instructions on the screen until the installation is complete.**

After the installation, the Installer tells you to restart your computer.

- 8 Click the Restart button.**

The software is now installed and the printer is ready for use. If you turned off any automatic virus-detection programs on your Macintosh, turn them back on now. After installing the printer software, you need to set it up to use the printer. See "Selecting and Setting Up the Printer" in Chapter 6.

## What to do next

The printer is now set up on your AppleTalk network. If you want to install any options, see Chapter 5. To learn how to print from a Macintosh computer, see Chapter 6. To set up the printer for Windows users, see Chapter 3. To set up the printer for UNIX users, see Chapter 4.

# 3

## Setting Up the Printer for Windows and NetWare Users



This chapter describes how to set up the Color LaserWriter 12/600 PS for use with IBM PCs or compatible computers running Windows or DOS. It provides detailed procedures for setting up the printer for use on a Novell NetWare network and instructions for installing and using Apple Print Monitor for Windows and the Apple Printer Utility for Windows, provided with your printer.

### System requirements

To use the printer, your computer system must meet these requirements:

- IBM PC or compatible, with an 80386 or higher CPU
- hard disk drive
- at least 4 megabytes (MB) of random-access memory (RAM)
- Microsoft Windows 3.1 or higher or Windows for Workgroups 3.11 or higher
- MS-DOS version 3.3 or higher (5.0 or higher recommended)
- 3.5-inch floppy disk drive that reads 1.44 MB disks
- NetWare requires an 80386 CPU with NetWare version 3.0 or higher
- each user of the Apple Printer Utility or Apple Print Monitor must have NetWare Client Software for Windows 3.12 or 4.x installed

Installing all the printer software for the IBM PC or compatible computer requires approximately 3.5 MB of free space on your hard disk.

## Before you begin

Set up the printer as described in Chapter 1, remembering to

- unpack and prepare the printer
- connect the printer to your NetWare network using Ethernet cables or through a direct parallel connection to a PC (To connect the printer directly to your IBM PC or compatible computer, you must use a special parallel interface cable, part number M4235ZM/A, available separately from your Apple dealer.)
- plug in and turn on the printer (Keep the startup page that automatically prints out. It provides the default printer name you need for setup.)

## Installing the software the printer administrator needs

As the printer administrator, you must install the printer software on each computer that will print to the Color LaserWriter 12/600 PS. To do this, use the installation program that comes on the software disks included with the printer.

The instructions that follow assume that you have a mouse or similar pointing device.

- 1 Find the Windows disks that came with the printer and make sure they're write-protected.**

Slide up the write-protection tab in one corner of the floppy disk so that you can see through the hole.

- 2 Start Windows.**

Before installing the software, make sure the Windows Control Panel and Printers control panel are closed.

- 3 Insert *Printer Disk 1 for Windows* into a floppy disk drive.**



- 4 Read the README.TXT file on this disk to check for late-breaking news.**

You can do this with Windows Notepad or another word processor.

- 5 From the Windows Program Manager, choose Run from the File menu.**

- 6 Type `a:\setup` or `b:\setup` (depending on which drive holds your installation disk) in the command line field and click OK.**

After a few moments, a welcome message is displayed that allows you to select Express Installation, Custom Installation, or De-Install.

Express Installation installs all the software you need. It creates the Apple LaserWriter Software program group and installs within it the ReadMe file, Apple Print Monitor for Windows and the Apple Printer Utility for Windows, which you use to name the printer and perform various printer administrative functions. It also installs Adobe Type Manager™ with Type 1 fonts corresponding to the fonts in the printer's ROM.

Custom Installation lets you specify what portions of the software you would like to install. De-Install lets you remove previously installed LaserWriter software.

- 7 Click Express Installation.**

A window appears that keeps you informed as file decompression proceeds. Insert other printer disks (and click OK) as the program asks for them.

Instructions appear describing the next three steps in the installation procedure. Take a moment to read them.

- 8 Click Continue.**

The Adobe Printers control panel appears.

- 9 Select the Color LaserWriter 12/600 PS and click OK.**

The PostScript Printer Driver files and other software are installed on the hard disk. A message appears telling you that the driver software was successfully installed.

- 10 Click OK to dismiss the message.**

- 11** Select another Color LaserWriter 12/600 PS printer, if any, and click OK to install. Repeat for each printer you want to install.

- 12** When you're done, click Close.

A message appears telling you to use the Printers control panel to connect and set up the printers you've installed. By default, each printer uses LPT1. The Printers control panel Setup dialog lets you specify a different port, for example, LPT2, or a NetWare queue.

- 13** Click OK to clear the message.

Another message tells you that installation is complete.

- 14** Click Restart Windows to have the changes take effect.

The Apple LaserWriter Software program group now appears on your Windows Program Manager screen. Contained within the program group are the ReadMe file, Apple Print Monitor for Windows, and the Apple Printer Utility for Windows.

- 15** Choose how to proceed:

For users connected via the parallel cable, the default printer driver settings should suffice.

You can monitor your printer software with Apple Print Monitor for Windows; see the section "Initial Apple Print Monitor for Windows Setup," later in this chapter.

For instructions on using the Apple Printer Utility for Windows, see "Setting Additional Parameters With the Apple Printer Utility for Windows," later in this chapter.

To configure your printer software with NetWare, see "Initial Novell NetWare Setup," later in this chapter.

## Installing software for Windows NT

The steps to install the PostScript Printer Description (PPD) file for the Color LaserWriter 12/600 PS (or other Apple printer) on a Windows NT system are similar to those in the previous section, except that you select Custom Install (step 7) and click “Windows NT Printer Software.” Make sure the other checkboxes are deselected, then follow these steps:

- 1** Click Install. Instructions for installing the Windows NT software appear.
- 2** Click Continue. The Print Manager appears.
- 3** Choose Create Printer from the Print Manager’s Printer menu. The Create Printer dialog box appears.
- 4** Select Other (at the bottom of the list) in the Driver Combo box.
- 5** Insert *Printer Disk 3 for Windows* in the floppy disk drive.
- 6** Make sure the correct floppy disk drive is indicated in the Install Driver dialog box and click OK. A list of printer drivers appears.
- 7** Select the printer driver that corresponds to your printer and click OK.
- 8** Follow the instructions on the screen, and click Continue and OK to complete the installation.

## Using Apple Print Monitor

You can monitor your print jobs on an Ethernet network with Apple Print Monitor for Windows. Here are a few points to note:

- Apple Print Monitor for Windows lets print jobs be sent directly to the printer over the network. Apple Print Monitor is easy to use and makes a NetWare print server (but not a NetWare file server) unnecessary.
- Apple Print Monitor can be used only on systems with Windows 3.1 or 3.11 (or Windows for Workgroups 3.1 or 3.11).
- Apple Print Monitor coexists with NetWare.

You can also monitor your print jobs over a direct parallel connection with Apple Print Monitor; see the instructions in the next section. If you want to use NetWare, see “Initial Novell NetWare Setup,” later in this chapter.

## Initial Apple Print Monitor for Windows setup

This section provides instructions on using Apple Print Monitor on an Ethernet network or with a parallel connection.

**1** Double-click the Apple Print Monitor icon located in the Apple LaserWriter Software program group.

**2** In the Apple Print Monitor window, click **Select Printer**.

**3** In the **Select Printer** window that appears, make sure the **Network** button is selected.

Or, if you connected the printer to your computer via the parallel port, click the **Parallel Port** button.

**4** In the list of printers that appears in the bottom of the window, click the **Color LaserWriter 12/600 PS** printer you want to use.

**5** Click **OK**.

Apple Print Monitor is now monitoring your print jobs to the printer.

**6** In the Apple Print Monitor window, click the **Monitor Options** button.

The button appears on the right side of the window.

**7** In the Options window that appears, make the selections you want.



To be notified when one of your documents starts to print and finishes printing, check this box.

If you want a status window to open automatically whenever there's a printing problem, check this box.

To be alerted by a beep when there's a printing problem, check this box.

**8** Click **OK** and return to the Apple Print Monitor window.

**9** Click the **Minimize** button in the Apple Print Monitor window.

Clicking this button shrinks the window to an icon, leaving Apple Print Monitor running in memory.

To set some additional features of the printer software, see “Setting Additional Printer Parameters With the Apple Printer Utility for Windows,” later in this chapter.

Repeat these steps on each client computer that will be using Apple Print Monitor.

## **Making sure everything is working**

After you’ve configured Apple Print Monitor for Windows, open a Windows application (Notepad, for example) and print a document (such as the ReadMe file) to verify that you can print to the Color LaserWriter 12/600 PS.

## **Initial Novell NetWare setup**

This section provides instructions on setting up the Color LaserWriter 12/600 PS for operation on a Novell NetWare network.

Make sure that the NetWare network is set up and operating according to the instructions in the Novell NetWare documentation.

You should have access to the NetWare Printer Console utility, PCONSOLE, on the PC from which you will be setting up the printer and have the administrative privileges necessary to make changes to the network.

*Note:* The Color LaserWriter 12/600 PS automatically determines the Ethernet frame type used by NetWare for network communications. You do not need to configure frame type when setting up the printer.

**IMPORTANT** The Color LaserWriter 12/600 PS is a PostScript printer only. If you are using NetWare 4.x, use PostScript banner pages only. If you use another type of banner page, the banner will not print. Do not use banner pages at all with NetWare 3.x. If you do, the banner will not print.

## Step 1: Choosing an operating mode

When setting up your printer for a NetWare network, you have a choice of three operating modes:

- PSERVER mode, in which the printer emulates NetWare's PSERVER software and functions as a dedicated print server
- RPRINTER mode, in which the printer functions as a remote printer
- ATPS (AppleTalk Print Spooler) mode, in which the printer functions as a remote AppleTalk printer

In PSERVER mode, the factory default, print jobs are stored in a queue on a specified file server and retrieved by the printer.

In RPRINTER mode, the printer depends on the NetWare print server software—either a NetWare Loadable Module (NLM), an RPRINTER.EXE executable file, or a value-added process (VAP) running on top of the operating system—to manage printing. Print jobs are stored in a queue on a specified file server. When the printer is ready to print the job, the NetWare print server software copies the job to the printer.

In ATPS mode, the printer uses its AppleTalk protocol support to communicate with the Novell ATPS NetWare Loadable Module (NLM). The NLM (included in the *NetWare for Macintosh* package from Novell) extends full queue and spooling services to Macintosh clients from a server-based software process.

There are advantages to each type of operating mode. Your choice will depend on your networking environment and the types of jobs you will be printing. Regardless of your choice, you can locate the printer anywhere on the network.

## What to do next

Once you decide how you want to set up the printer, proceed as follows:

- **PSERVER** To set up the printer as a print server, read about how to use PCONSOLE in the next section, then
  - if you want a simple setup, read “Step 2, Option A: Setting Up the Printer as a Print Server (Using PCONSOLE),” later in this chapter.
  - if you want to assign a password, read “Step 3: Assigning a Password for the Print Server (Optional),” later in this chapter.
- **RPRINTER** To set up the printer as a remote printer, read about how to use PCONSOLE in the next section, then skip to “Step 2, Option B: Setting Up the Printer as a Remote Printer (RPRINTER Mode),” later in this chapter.

For both PSERVER and RPRINTER, you must also follow the instructions in “Step 4: Setting Up the PostScript Printer Driver for NetWare,” later in this chapter.

For more information about using the Apple Printer Utility, read “Setting Additional Parameters With the Apple Printer Utility for Windows,” later in this chapter.

For instructions on setting up the printer for access by Macintosh clients on a NetWare network, see Appendix B.

## Using PCONSOLE

PCONSOLE is a DOS-based utility for configuring printers on a NetWare network. This chapter provides information on the set of basic PCONSOLE operations required to set up the Color LaserWriter 12/600 PS. PCONSOLE is not provided with the printer. It comes with your NetWare software. Detailed information about PCONSOLE can be found in your NetWare documentation.

The descriptions of PCONSOLE in this guide assume the use of keyboard commands to navigate through the program and perform operations. With the installation of a DOS mouse driver, you can also use a mouse to make selections and choose options. The table below lists some basic PCONSOLE key commands.

Command key	Description
Esc (Escape)	Returns to the previous level
Del (Delete)	Deletes a selected item
F7	Cancels changes
Alt-F10	Exits the program
Ins (Insert)	Inserts a new item for a list
F1	Displays online help
Arrow keys	Cycle through menu selections or entry fields



## Step 2, option A: Setting up the printer as a print server (using PCONSOLE)

To set up your printer as a print server you must run PCONSOLE under DOS to specify the print server (PSERVER mode) and create a print queue.

**IMPORTANT** The procedures in this section are specific for a version of PCONSOLE running under NetWare 4.02. If you are running PCONSOLE under NetWare 4.1 or NetWare 3.x, the menus and commands will differ somewhat.

### Specifying a print server

Your first task is to start PCONSOLE and specify the Color LaserWriter 12/600 PS as the print server.

- 1 Log in to a file server from DOS on a client computer.

**IMPORTANT** You must have supervisor or equivalent privileges to create a print server.

- 2 At the DOS prompt, type `PCONSOLE` and press Enter.

The utility starts.

- 3 Press F4.

This changes PCONSOLE to bindery mode, and the Available Options menu appears, displaying printer console options.

```
Print Queues
Print Servers
Quick Setup
Change Current NetWare Server
```

- 4 Use the arrow keys to highlight Print Servers in the menu, and press Enter.

If available, a list of print servers appears.

#### Example

```
APPLE_LW6C4B3D
APPLE_LWF40B99
APPLE_LWF40B8D
APPLE_LWF40BE9
```

- 5 Press Ins, then type the NetWare printer name (provided on the printer's startup page) and press Enter.

The last six digits in the NetWare printer name are from the printer's Ethernet address.

The new name now appears in the list of available print servers.

**IMPORTANT** If multiple file servers are to be serviced by a single printer, this name must be the same on each file server.

### Assigning the operating mode

Now that you've named the printer in PCONSOLE, you assign PSERVER mode to the printer by specifying the mode and the name you want to assign to the printer for notification purposes.

- 1 If it is not already selected, select the name of the print server you specified in the previous procedure and press Enter.

The Print Server Information menu appears, listing options for specifying the printer.

```
Printers
Information and Status
Users
Operators
Serviced NetWare Servers
Description
Password
Audit
```

- 2 Select Printers and press Enter.**

The Defined Printers list appears.

- 3 Press Ins, then type a name for the printer and press Enter.**

Choose a useful name associated with the printer's location or other identifying feature.

- 4 Select the printer you just named and press Enter.**

The Printer Configuration menu for your printer appears.

- 5 Select "Printer type" and press Enter.**

The "Printer type" list appears.

- 6 Choose Other/Unknown from the list, and press Enter.**

Ethernet falls into the Other/Unknown category.

- 7 If you are using NetWare 4.x, select Banner Type and press Enter. When the Banner Type list appears, select PostScript and press Enter.**

- 8 To save the changes, press Esc once, then press Enter.**

- 9 Press Esc three times to return to the Available Options menu.**

Now that the print server is specified and an operating mode is selected, you need to create a print queue and associate it with the print server, as described in the next section.

### **Creating a print queue and associating it with the print server**

In this section you will create a print queue to associate with the printer.

- 1 In the Available Options menu, select Print Queues and press Enter.**

The Print Queues window appears, listing currently existing queues (if any exist).

- 2 Press Ins to create a new print queue.**

- 3 At the prompt, type the new queue name and press Enter.**

The new queue name now appears in the list of print queues.

- 4 If the new queue name is not already selected, use the arrow keys to highlight the queue name and press Enter.**

The Print Queue Information menu appears, displaying options for managing the print queue.

```
Print Jobs
Status
Attached Print Servers
Information
Users
Operators
Print Servers
```

- 5 In the Print Queue Information menu, select Print Servers and press Enter.**

The Print Servers window appears. Because you have not yet assigned a server to the queue, the listing should be empty.

- 6 Press Ins to view a list of available queue servers.**

The Print Server Candidates menu appears, listing candidates for queue servers.

- 7 Select the name of the print server you created earlier and press Enter.**

The selected server now appears in the Print Servers window, indicating that the queue is now associated with that server.

- 8 Press Esc until PCONSOLE quits.**

You will be asked to confirm your exit from PCONSOLE by pressing Enter.

- 9 Turn the printer off and then back on.**

## Completing the PSERVER configuration with the Apple Printer Utility

- 1** Start Windows, if it's not already running.
- 2** In the Program Manager window, open the Apple LaserWriter Software program group and double-click the Apple Printer Utility icon.
- 3** Click Network.
- 4** Select the Color LaserWriter 12/600 PS printer you want, then click Open Printer.
- 5** Select Communication Configuration.
- 6** Select NetWare Configuration.
- 7** Enter the PSERVER name (the same printer name you used in PCONSOLE, if you are not using the default name).
- 8** Click the Rescan button.

Rescan sends the new settings to the printer and causes it to renew its communications with the NetWare file server.

The Color LaserWriter 12/600 PS is now ready to function as a print server on the NetWare network.

*What to do next:* The next section covers setting up the printer as a remote printer. If you want to assign a password on the server, skip to “Step 3: Assigning a Password for the Print Server (Optional).” Otherwise, skip to “Step 4: Setting Up the PostScript Printer Driver for NetWare.”

## Step 2, option B: Setting up the printer as a remote printer (RPRINTER mode)

To configure your printer as a remote printer, you must use PCONSOLE to specify the print server that will provide service to your printer, create a print queue (if necessary), and associate a print queue with the print server. You must also use the Apple Printer Utility to set up the printer as a remote printer.

**IMPORTANT** The procedures in this section are specific for a version of PCONSOLE running under NetWare 4.02. If you are running PCONSOLE under NetWare 4.1 or NetWare 3.x, the menus and commands will differ slightly.

### Specifying a print server

- 1 Log in to a file server from a DOS client PC.

**IMPORTANT** You must have supervisor or equivalent privileges to select a print server.

- 2 At the DOS prompt, type `PCONSOLE` and press Enter.

The utility starts and the Available Options menu appears, displaying printer console options.

```
Print Queues
Printers
Print Servers
Quick Setup
Change Context
```

- 3 Use the arrow keys to highlight Print Servers in the menu and press Enter.

If available, a list of available print servers appears.

- 4 Select a print server or, if the print server does not yet exist, press Ins, type the print server name, and press Enter.

**IMPORTANT** The print server name you enter in PCONSOLE must match a print server NLM, VAP, or a RPRINTER.EXE stored on a dedicated computer.

- 5** In the Print Server menu, select the print server you want to use and press Enter.

The Print Server Information menu appears.

```
Printers
Information and Status
Users
Operators
Description
Password
Audit
```

- 6** Select Printers and press Enter.

The Defined Printers menu appears, displaying options for configuring the print server.

- 7** Select a printer or, if there is no defined printer, press Ins, type the printer's name, and press Enter.

- 8** Select a printer and press Enter.

A configuration window for the selected printer appears.

- 10** If necessary, type an unassigned printer number for your printer and press Enter.

A Configuration window appears for the selected printer.

- 11** Press the down arrow key to move to the "Printer type" field and press Enter.

A menu of printer types appears.

- 12** From the list of printer types, select Other/Unknown and press Enter.

Other/Unknown now appears in the Type field of the Configuration window.

- 13** Press the down arrow key to move to the "Banner type" field and press Enter.

- 14** From the list of Available Banner Types, select Postscript and press Enter.

**IMPORTANT** If you are running PCONSOLE under NetWare 3.x, you must disable banners, or the print job will not print. See "Banner Pages and NetWare," near the end of this chapter.

- 15 Press Esc once to save the configuration.**

PCONSOLE asks you to confirm the new configuration.

- 16 Select Yes and press Enter to confirm the changes.**

The newly defined printer now appears in the list of configured printers.

- 17 Press Esc until you return to the Print Servers menu.**

Now that the print server is specified, you need to create a print queue to associate with the print server.

### **Creating a print queue**

- 1 In the Available Options menu of PCONSOLE, select Print Queues and press Enter.**

The Print Queues window appears, listing the names of existing print queues.

- 2 Press Ins to create a new print queue.**

- 3 At the prompt, type a new queue name and press Enter.**

The new print queue now appears in the list.

- 4 With the new queue name selected, press Enter.**

The Print Queue Information menu appears.

- 5 In the Print Queue Information menu, select Print Servers and press Enter.**

A list of queue servers appears.

- 6 Press Ins to view a list of queue server candidates.**

- 7 Select the name of the logical print server that was specified earlier (“Specifying a Print Server”) and press Enter.**

The name of the server now appears in the Print Servers list.

- 8 Press Esc until you return to the Available Options menu.**

Now that the print queue exists, you must associate it with the print server you specified earlier.



## Associating a print server with the print queue

After you've created a new print queue, you need to associate the print server with the queue.

- 1 In the Available Options menu of PCONSOLE, select Printers and press Enter.**

The Print Servers menu appears, displaying the names of existing print servers.

- 2 Select the printer you defined earlier and press Enter.**

A window appears, showing the printer configuration.

- 3 Select Print Queues Assigned and press Enter.**

The NetWare Server/Print Queue appears. It should list the printer number you specified in an earlier procedure.

- 4 Press Ins to view a list of available queues.**

- 5 Select the queue you created in the earlier procedure and press Enter.**

The Priority dialog box appears, prompting you to enter a priority number for the queue.

- 6 Type a priority number between 1 and 10 in the provided field and press Enter.**

PCONSOLE identifies the file server, the queue associated with the print server, and the queue's priority number.

- 7 Press Esc until PCONSOLE prompts you to press Enter to quit; then press Enter.**

You must now reload the PSERVER software (if it previously existed) from the file server console so that the updated configuration is available to the network. (If no PSERVER software was previously loaded, skip to step 9.)

- 8 At the server prompt, type `unload pserver print_server` and press Enter.**

### Example

```
unload pserver PS_486
```

Now that the PSERVER software is unloaded, you can reload it with the new settings.

- 9 Type `load pserver print_server` and press Enter.

#### Example

```
load pserver PS_486
```

- 10 Restart the printer (by turning it off and on or using the Apple Printer Utility).

Next, you'll use the Apple Printer Utility to complete the configuration.

#### Completing the RPRINTER configuration with the Apple Printer Utility

- 1 Start Windows, if it's not already running.
- 2 In the Program Manager window, open the Apple LaserWriter Software program group and double-click the Apple Printer Utility icon.
- 3 Click Network.
- 4 Click the Color LaserWriter 12/600 PS printer you want, then click Open Printer.
- 5 Select Communication Configuration.
- 6 Select NetWare Configuration.
- 7 Select RPRINTER.
- 8 Enter the name of the print server NLM in the Connect Print Server Name field.
- 9 Click Send.

The printer is ready to function as a remote printer on the NetWare network.

*What to do next:* If you want to assign a password on the server, go to “Step 3: Assigning a Password for the Print Server (Optional).” Otherwise, skip to “Step 4: Setting Up the PostScript Printer Driver for NetWare.”

### Step 3: Assigning a password for the print server (optional)

You can use PCONSOLE to assign a password for printing privileges. However, if you assign a password in PCONSOLE, you must also use the Apple Printer Utility for Windows to specify the same password, as described in “Setting Additional Parameters With the Apple Printer Utility for Windows,” later in this chapter. (The password specified in PCONSOLE tells the file server what to expect; the password specified with the Apple Printer Utility tells the printer what to send.)

- 1 Select Print Servers from the Available Options menu in PCONSOLE and press Enter.**

The list of print servers appears.

- 2 Select the name of the print server for which you want to assign a password and press Enter.**

The Print Server Information menu appears.

```
Printers
Information and Status
Users
Operators
Serviced Netware Servers
Description
Password
Audit
```

- 3 Select Password and press Enter.**
- 4 At the prompt, type the password and press Enter.**

PCONSOLE asks you to retype the password. (The characters are not displayed as you type.)

- 5 Retype the password and press Enter.**

**IMPORTANT** Record the password for later use. If multiple file servers will be served by the same printer, the same password must be used on each server.

- 6 Press Esc once, then to save the change, press Enter.**
- 7 To return to the Available Options menu, press Esc three times.**

## Step 4: Setting up the PostScript printer driver for NetWare

- 1 In Windows, double-click Control Panel.
- 2 Double-click Printers.
- 3 Click Connect. The Connect dialog box opens.
- 4 Click Network. The NetWare Printer Connections dialog box opens.
- 5 Select the queue and the port the printer is assigned to.
- 6 Click Capture, then click Close to close the dialog box.
- 7 Select the port and queue combination you specified in step 5 and click OK.
- 8 In the Printer control panel, select the Color LaserWriter 12/600 PS as the default printer and click Close.

## Step 5: Making sure everything is working

After you've used PCONSOLE to configure your printer as a dedicated print server or a remote printer, you can print, from a Windows application, a document such as the ReadMe file to verify that you can print to the Color LaserWriter 12/600 PS.

## Step 6: Setting up client computers for network printing

After the Color LaserWriter 12/600 PS is set up as a print server or remote printer on a NetWare network, the client computers must be set up for printing. You can find detailed installation instructions in Chapter 7. You can set up all the client computers yourself or give the users the instructions from Chapter 7. If you ask the users to set up their own computers, be sure you give them all the information they need, such as the printer's queue names and what options are installed.

## What to do next

You can set additional printer features as explained in the section "Setting Additional Parameters With the Apple Printer Utility for Windows," next.

## Setting additional parameters with the Apple Printer Utility for Windows

The printer has default settings for both parallel and Ethernet physical configurations. If you want to view the printer's configuration information or change any of the settings, you must use the Apple Printer Utility.

The printer itself has no control panel, but you can set features on it remotely by using programs on computers that can communicate with the printer:

- *On Macintosh computers*, use the Apple Printer Utility and the Chooser's setup function, which are described in Chapter 2.
- *On IBM PC and compatible computers*, use the Apple Printer Utility for Windows, described in this chapter.

The Apple Printer Utility program lets you change the default settings that control how various aspects of the printer work. The utility is placed in the Apple LaserWriter Software program group when the printer software is installed. Use it to set optional printer parameters that you want to use for all documents.

To change printer settings for a specific document (without changing the printer's basic defaults), use the Print and Print Setup dialog boxes. Network users should use the Print and Print Setup dialog boxes to choose the individual settings for their documents.

Use the Apple Printer Utility to

- view information about the printer, such as the AppleTalk printer name and the total number of pages printed
- give the printer an AppleTalk name
- identify the printer's location
- print font samples
- turn printing of the startup page or the demonstration page on or off
- conserve power consumption by setting the energy-saving delay
- set paper-handling options
- set when the printer closes print jobs to provide faster throughput
- view the Ethernet address

- name the printer on NetWare networks by assigning it a PSERVER or RPRINTER name
- assign a password for NetWare networks
- create an access list for TCP/IP and NetWare networks
- view and set the IP address
- view and configure the printer's communication settings
- send PostScript files to the printer
- restart the printer

**IMPORTANT** The Apple Printer Utility for Windows works only with the Color LaserWriter 12/600 PS. When you use the utility to set a parameter, the setting is stored in the printer and affects all Macintosh, Windows, and UNIX computers on the network.

## Installing the Apple Printer Utility for Windows

The Apple Printer Utility is automatically installed when you do an Express installation, as described earlier in this chapter.

## Opening and quitting the Apple Printer Utility

- 1 Start Windows, if it's not already running.
- 2 Go to the Program Manager window.
- 3 Open the Apple LaserWriter Software program group.
- 4 Double-click the Apple Printer Utility icon.

The utility displays the Printer Selector window, listing the printers whose features you can set.

- 5 Select New.
- 6 Select the connection type and the printer you want to work with.
- 7 When you're finished using the utility, choose Exit from the File menu.

## Selecting the printer

Before you can use the Apple Printer Utility to perform operations on a printer, you must:

- **Select the connection type.**
- **Select the Color LaserWriter 12/600 PS printer you want, then click Open Printer.**

## Viewing printer information

You can view information about your printer:

- **In the Apple Printer Utility program, click the triangle for the Printer Information category to open it, displaying a list of printer information.**

**IMPORTANT** Triangles point down when a category is open, displaying the options in the category. Click the triangle (and not the category name) to open or close a category.

## Giving the printer an AppleTalk name

Each Color LaserWriter 12/600 PS can be given an individual name, used for both AppleTalk and Novell networks. Use the following procedure to give the printer a new AppleTalk name.

**IMPORTANT** Be sure to tell users what the printer's name is.

- 1 Click the triangle for the Printer Preferences category to open it.**

The printer preferences list appears.

- 2 Open the Name category.**
- 3 In the panel that appears, type the new name.**
- 4 To send the new name setting to the printer, click Send.**

## Identifying the printer's physical location

You can type a description of the printer's location.

- 1 Click the triangle for the **Printer Preferences** category.

You see a list of preferences.

- 2 Open the **Location** category.

- 3 In the panel that appears, type a description of the printer's location.

- 4 To send the setting to the printer, click **Send**.

## Printing font samples

You can print samples of the PostScript fonts currently stored in the printer's memory (both RAM and ROM) and on optional hard disks attached to the printer.

- Choose **Print Font Samples** from the **File** menu.

## Turning the startup pages on or off

The Color LaserWriter 12/600 PS normally prints a startup page and a demonstration page when you turn the printer on. The startup page shows the printer's name(s), the total number of pages printed, the amount of memory, and communication settings. You can turn either or both pages off if you wish.

- 1 Click on the triangle for the **Printer Preferences** category.

You see a list of preferences.

- 2 Open the **Startup Pages** category.

- 3 In the panel that appears, click the checkboxes to turn the startup page and demonstration page on or off.

An X in a checkbox means the printer is set to print the page.

- 4 To send the setting to the printer, click **Send**.



## Conserving energy

The Color LaserWriter 12/600 PS automatically reduces its power consumption after 60 minutes of inactivity. You can lengthen or shorten the time that the printer remains idle before it reduces its power consumption. Once the printer turns down its power, it will need to warm up again before printing the next document. Network users may experience a delay of up to 3 minutes in printing.

- 1** Open the **Printer Preferences** category.  
You see a list of preferences.
- 2** Open the **Energy Saving Delay** category.
- 3** In the panel that appears, select a delay time from the list box.
- 4** To send the setting to the printer, click **Send**.

## Setting paper-handling options

When the printer runs out of paper in one tray, it can automatically switch and use paper from the paper cassette or multipurpose tray. By using automatic tray switching between the 250-sheet paper cassette and the 100-sheet multipurpose tray, you can print 350 sheets without reloading paper.

You can also tell the printer what size paper is in the multipurpose tray. Then, if you print a job that uses a different size paper, the printer will not use this tray.

- 1** Open the **Job Defaults** category.  
You see a list of preferences.
- 2** Open the **Paper Handling** category.
- 3** In the panel that appears, click the checkbox to turn **Automatic Tray Switching** on or off.

An X in the checkbox means the printer looks for paper in the multipurpose tray when other paper sources are empty.

**4 Use the list box to choose a default paper size for the multipurpose tray.**

If you turn on the automatic tray switching feature, the printer draws paper from any paper source that holds the correct size paper. However, the printer can't tell what size paper is in the multipurpose tray, so you must tell it. If the paper size for the multipurpose tray is the same as the paper in the standard paper cassette (and automatic tray switching is turned on), the printer automatically uses the multipurpose tray as a paper source.

**5 To send the paper-handling settings to the printer, click Send.**

## Setting up job handling

You can set job handling for individual network protocols that you use. If you need to stop the printer in the middle of printing a document, you can use this feature to make sure the printer finishes the job before closing the connection.

**1 Open the Job Defaults category.**

You see a list of preferences.

**2 Open the Job Handling Configuration category.**

**3 In the panel that appears, click the checkboxes next to network types to specify when the connection with the computer should be broken.**

With this feature on, the printer keeps the connection open until the last page of a job has printed. That way, if a problem develops at the end of the print job, the printer can send error messages to alert users to the problem. Turning the feature on does make the total print time for the job somewhat longer. Also, jobs are not overlapped; that is, multiple jobs are printed serially.

**4 To send the settings to the printer, click Send.**

## Viewing the Ethernet address

You can view the printer's Ethernet address when needed.

**1 Open the Communication Configuration category.**

You see a list of communication settings options.

**2 Open the Ethernet Address category.**

The printer's Ethernet address appears.

## Working with a NetWare network

If the Color LaserWriter 12/600 PS is connected to a NetWare network, you can use the Apple Printer Utility for Windows to configure NetWare settings in the printer.

**1 Open the Communication Configuration category.**

You see a list of communication settings options.

**2 Open the NetWare Configuration category.**

What you see in the panel depends on whether you have set up the printer as a remote printer (RPRINTER) or a print server (PSERVER) in NetWare.

**3 For the NetWare RPRINTER setup:**

- Click the RPRINTER checkbox.
- Type the printer's name.
- Click Send to send the changes to the printer.

**For the NetWare PSERVER setup:**

- Click the PSERVER checkbox.
- Type the printer's name and PSERVER password (as assigned in NetWare setup).
- Add print servers to the access list displayed, or remove them, as desired.
- If you like, use the Queue Scan Time text box to change how often the printer checks print queues for print jobs.
- Click the Rescan button to send the new settings to the printer and to have it renew its communications with the NetWare file server.

## Changing TCP/IP configurations

You can specify the IP address of the printer. For information about determining the printer's IP address and setting up the printer on a TCP/IP network, see Chapter 4.

**1 Open the Communication Configuration category.**

You see a list of communication settings options.

**2 Open the TCP/IP category.**

**3 In the panel that appears, make the changes you want.**

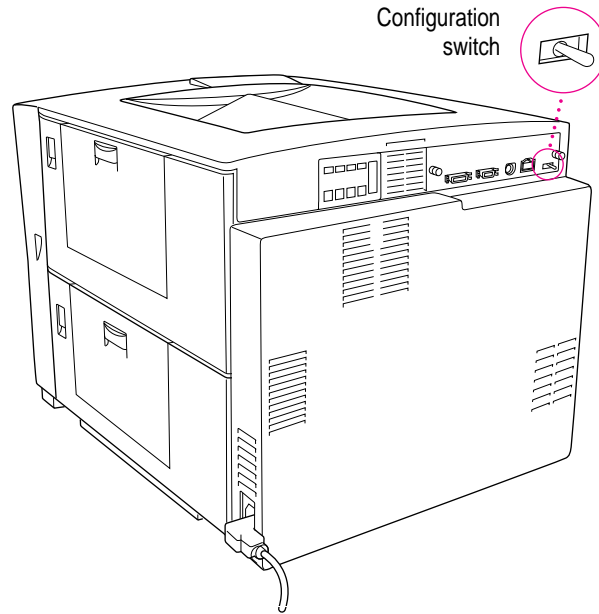
- Type in the printer's IP address.
- Drag the slider control to specify the printer's subnet mask.
- Specify the default gateway address, that is, the IP address of the default gateway used for sending packets off the local network.
- To add to the list of hosts that have access to this printer, click Add and choose Local, Individual, or Group in the dialog box that appears.
  - Choose Local to allow printing from all hosts on the same subnet as the printer.
  - Choose Individual to allow printing from a particular host, and specify the host's address.
  - Choose Group to allow printing from all hosts on a different subnet, and indicate the group's subnet mask.
  - Click Send to send the changes to the printer.
- To remove a printer from the list of hosts that have access to this printer, click Remove.

**4 To send the changes to the printer, click Send.**

## Viewing and changing communication settings

If you don't need all of the printer's communication settings for your network environment, you can turn unnecessary settings off with the Apple Printer Utility.

- 1** On the printer, make sure the configuration switch is in the right-hand (□) position.
- 2** On the computer, open the Apple Printer Utility.



- 3** Click the triangle to open the **Communication Configuration** category.

You see a list of communication settings options.

- 4** Open the **Port Configuration** category.

- 5** In the panel that appears, turn off settings you don't use.

For example, if you know that the printer will never receive an AppleTalk message over the network, you can turn off the AppleTalk interface and stop the printer from sending out unnecessary AppleTalk packets.

- 6** To send the changes to the printer, click **Send**.

This implements the new settings. You can alert users about the changes.

As long as you leave the configuration switch on the printer in the right-hand position, the printer uses these settings. If for any reason you need to return to the original, standard settings, flip the switch back to the left-hand position and restart the printer. Then, after the printer has powered up, return the switch to the right-hand position.

## **Sending PostScript files to the printer**

You can download PostScript files to the printer to print a PostScript program or Encapsulated PostScript (EPS) file, or to run a PostScript program to change the printer's internal settings. You can create a PostScript file in a variety of text-editing programs or by printing any document to a file.

- 1 In the Apple Printer Utility program, choose Send PostScript File from the File menu.**

A dialog box appears.

- 2 In the Send File dialog box, select the PostScript file you want to send to the printer.**

- 3 Click Send.**

## **Restarting the printer**

If you have any problems printing, you may need to restart the printer to clear its memory.

- 1 Choose Restart Printer from the Utilities menu.**

If you have changes you haven't sent to the printer, a dialog box appears, asking whether you want to send the changes now.

- 2 To confirm that you want to restart the printer, click Restart.**

When the printer lights stop blinking, the printer is ready to print.

You can achieve the same effect by turning the printer off and then on again.

**IMPORTANT** If the printer is on a network shared by other users, make sure no one is attempting to use the printer before you restart it. Any print jobs that are canceled must be resubmitted.

## Banner pages and NetWare

The Color LaserWriter 12/600 PS is a PostScript printer only. If you are using NetWare 4.x, use PostScript banner pages only. If you use another type of banner page, the banner will not print.

Do not use banner pages at all with NetWare 3.x. If you do, the banner will not print.

## Installed Type 1 fonts and Adobe Type Manager

Among the files installed during an Express Installation (or a Fonts Custom Install) are the Type 1 font outline (.PFB) files and the Type 1 font metrics (.PFM) files corresponding to the fonts resident in the printer's ROM. Also installed (in the Main program group) is Adobe Type Manager (ATM) and, within it, the fonts resident in the printer.

You can use the ATM control panel to:

- install and remove additional Type 1 fonts
- change the size of the ATM font cache
- turn ATM off and on

### Installing Type 1 fonts

To add Type 1 fonts to your system:

- 1** Double-click the ATM icon (in the Main program group) to open the ATM control panel.
- 2** Choose Add to display the Add ATM Fonts dialog box.
- 3** If you are installing fonts from a floppy disk, insert the disk containing the fonts.
- 4** In the Directories list box, double-click the drive or directory containing the fonts. The font names appear in the Available Fonts list.
- 5** In the Target Directory box for PostScript outline fonts, accept the default directory, `c:\windows\psfonts`, or type the name of the directory into which you want to copy the font files. Any directory name you type will appear in the box labeled "Target Directory for Font Metrics Files."
- 6** Select the fonts you want to add and click Add. Click Exit when you are done.

## Removing Type 1 fonts

- 1 In the ATM control panel, select the fonts to be removed.
- 2 Click Remove.

## Changing the size of the ATM font cache

The size of the ATM font cache determines how much system memory is available to store font information. The default setting is 256K. If you are using many typefaces or sizes, you may want to increase the font cache size to improve performance. To do this:

- 1 Open the ATM control panel.
- 2 Click the up arrow in the Font Cache box to increase the size, or click the down arrow to decrease the size.

## Turning ATM off or on

ATM is turned on automatically when installed. When it is on, your screen display uses Type 1 fonts. When it is off, your display uses TrueType fonts. However, Type 1 fonts print correctly whether or not ATM is on.

To turn ATM on or off, open the ATM control panel and select On or Off. Then click Exit. Then restart Windows, as prompted, for the change to take effect.

## What to do next

The printer is now set up for Windows and DOS computers. If you want to install any options, see Chapter 5. To learn how to print from Windows or DOS computers, see Chapter 7. To set up the printer for UNIX users, see Chapter 4.



# 4

## Setting Up the Printer for UNIX Users

.....

This chapter explains how to prepare the printer for UNIX users. Users' computers must be connected to the printer by an Ethernet network using TCP/IP (Transmission Control Protocol/Internet Protocol).

### Before you begin

Set up the printer as described in Chapter 1, remembering to

- unpack and prepare the printer
- connect the printer to your TCP/IP network using Ethernet cables
- plug in and turn on the printer (Keep the startup page that automatically prints out. It contains information you'll need.)

## Initial TCP/IP setup

Before UNIX users can use the printer, the printer administrator must assign an IP address for the printer, as described in the following sections.

### Will these instructions work for my flavor of UNIX?

The instructions in this section describe how to perform the initial TCP/IP setup for most flavors of UNIX that use the Remote Line Printer Daemon (`lpd`) protocol. These include almost all versions of UNIX based on the Berkeley Software Distribution (BSD), including Apple's own UNIX implementation, A/UX.

For information on other systems, see “Notes on Configuring Specific UNIX Systems,” later in this chapter.

### Background information

TCP/IP is a protocol commonly used to connect UNIX systems over Ethernet networks. Every TCP/IP device must have a unique IP address. Much of the initial work the printer administrator must do is related to assigning an IP address (and a number of associated aliases) to the printer.

### Security

You can limit printer access to hosts (and networks of hosts) that you specify. See “Changing TCP/IP Configurations” in Chapter 2, if you're using the Apple Printer Utility on a Macintosh, or Chapter 3 if you're using the Apple Printer Utility for Windows.

### Step 1: Installing the software the printer administrator needs

You don't need to install any special UNIX software to administer the printer. To control printer features, you can use the Apple Printer Utility program on Macintosh computers (see Chapter 2) or Apple Printer Utility for Windows (see Chapter 3) on IBM PC or compatible computers.

## Step 2: Obtaining an IP address for the printer

To be recognized on your TCP/IP network, your printer must be assigned an IP address. Part of the address identifies your site; the other part uniquely identifies the device. Most sites have a network administrator who dispenses IP addresses for all new network devices. Contact your network administrator for an IP address for the printer.

**WARNING** If your TCP/IP network contains devices with duplicate or incorrect IP addresses, you may experience unpredictable network behavior, or your network may cease to function. Make sure you obtain a valid and unique IP address for the printer.

## Step 3: Assigning an IP address to the printer

When you unpack the printer, it has a unique permanent factory-assigned Ethernet address, but no IP address. To assign an IP address to the printer, you can use any one of the following methods, which are described more fully in the sections that follow:

- **Ping assignment** Any printer administrator with superuser privileges can use this method, which is sometimes called “gleaning.” If your network has neither BOOTP nor RARP services, and you have no access to Windows or Macintosh computers, you must use this method.
- **Macintosh Apple Printer Utility and Apple Printer Utility for Windows** If your network includes a Macintosh computer or Windows computer, you can use one of these utility programs to set the printer’s IP address.
- **BOOTP (Bootstrap Protocol)** If your network has a BOOTP server, you can use this method.
- **RARP (Remote Address Resolution Protocol)** If your network has a RARP server, you can use this method.

These methods are described in the next three sections. Choose which section applies to you, and skip the others.

## Printer IP address assignment, option A: Using `ping` assignment

Any printer administrator with superuser privileges can use the `ping` assignment method to assign the printer's IP address and store it in the printer's nonvolatile memory (so it remembers the address even when the printer is turned off).

*Note:* This method works only when the printer has no IP address. If you've already set the printer's IP address, you cannot change it by using this method.

- 1** Turn on the printer and save the startup page that prints out.
- 2** Log in as `root` to any UNIX workstation on the same subnet as the printer.
- 3** Add the following line to the `/etc/hosts` table on your workstation:

*printer\_IP\_address printer\_IP\_name*

You obtain the printer IP address from your network administrator. You choose the printer IP name yourself (if it was not assigned by the network administrator). It must follow the naming convention of your system, which generally means it must contain fewer than 32 characters.

### Example

```
80.20.0.0      LaserWriterFloor2
```

- 4** Type the following command to force an entry into your system's `arp` table:

```
arp -s printer_IP_name printer_Ethernet_address
```

The printer IP name is the same name you used in step 3. You obtain the Ethernet address from the startup page that prints automatically when you turn on the printer. The address appears next to the top icon on the page.

### Example

If your startup page showed that your Ethernet address was 08:00:07:2b:48:fb, you would type

```
arp -s LaserWriterFloor2      08:00:07:2b:48:fb
```

- 5 **Type the following `ping` command to store the Printer IP Address in the printer's memory:**

```
ping printer_IP_name
```

The printer IP name is the same name you used in steps 3 and 4.

#### **Example**

```
ping LaserWriterFloor2
```

The `ping` command results in a message telling you the printer is alive on the network.

The address is now stored in the printer's memory, and you're ready to test whether the printer is working.

- 6 **To test the connection, once again type the `ping` command from a workstation on the same subnet as the printer:**

```
ping printer_IP_name
```

If the `ping` command responds by telling you that the printer is alive on the network, the address assignment was successful.

If the `ping` command does not respond, or tells you the printer was not found, then the address assignment failed. Try the steps in this procedure again, making sure you type the printer's Ethernet address exactly as it appears on the startup page. If it still doesn't work, see the troubleshooting suggestions in Chapter 13.

- 7 **Skip to “Step 4: Making Sure Everything Is Working,” later in this chapter.**

#### **Printer IP address assignment, option B: Using Macintosh or Windows utilities**

If you have a Macintosh computer connected to the printer, you can use the Apple Printer Utility to assign the printer's IP address, as described in Chapter 2.

If you have a Windows computer connected to the printer, you can use the Apple Printer Utility for Windows to assign the printer's IP address, as described in Chapter 3.

After you have assigned the printer's IP address, skip to “Step 4: Making Sure Everything Is Working,” later in this chapter.

### Printer IP address assignment, option C: Using a BOOTP or RARP server

*Note:* This method works only if the printer has not been assigned an IP address.

If your network has a BOOTP server or RARP server on the same subnet as the printer, you can use it to assign the IP address to the printer. Each time the printer is turned on, it will automatically broadcast requests to BOOTP and RARP servers, which will search a configuration file that maps the printer's built-in Ethernet address to the IP address that you assign.

**IMPORTANT** When you use BOOTP or RARP to assign the printer's IP address, the address is stored permanently in the printer. The printer uses this stored address only if the BOOTP or RARP server is not available at a subsequent boot. Otherwise, each time you turn on the printer it gets its IP address from the server. If you use the Apple Printer Utility, PostScript, or ping to set the IP address manually, and later you want to assign the printer's IP address using a BOOTP or RARP server, you must first use the Apple Printer Utility to reset the printer's IP address to the factory default (0.0.0.0).

If you have a Macintosh computer connected to the printer, you can use the Apple Printer Utility to assign the printer's IP address, as described in Chapter 2.

If you have a Windows computer connected to the printer, you can use the Apple Printer Utility for Windows to assign the printer's IP address, as described in Chapter 3.

Your network documentation explains how to add the printer's information to the BOOTP or RARP configuration file.

For troubleshooting information about BOOTP or RARP, see Chapter 13.

## Step 4: Making sure everything is working

The best way to make sure everything is set up correctly is to print something. Before you can do that, you must set up your own workstation for printing, as described in the steps that follow. The procedure described here is intended to prepare for printing a sample page as quickly as possible; for more complete instructions, see “Getting UNIX Users Started Using the Printer,” later in this chapter.

### Preparing your own workstation for printing

- 1 Add the printer's IP address and the printer's IP name to your `/etc/hosts` file (if you haven't already done so).

Use the same IP address and IP name that you assigned to the printer in the previous section.

- 2 Add the printer to your `/etc/printcap` file as a remote printer.

You can add `printcap` options as you like. (To see the available options, look at your UNIX system's man page for `printcap`.) Your entry should be similar to the following:

```
AppleLWTest|[LaserWriter_12_600_PS]:\  
:lp=:mx#0:rm=printer_IP_name:\  
:rp=printer_queue_name:\  
:sd=path_to_this_queue's_spool_directory:\  
:lf=path_to_this_queue's_log_file
```

Replace *printer\_IP\_name* with the IP name you assigned to the printer. Replace *path\_to\_this\_queue's\_spool\_directory* with the pathname of the unique directory created for this queue. Replace *path\_to\_this\_queue's\_log\_file* with the unique pathname of the file where error information from the `lpd` command will be logged.

### Example

```
AppleLWTest|[LaserWriter_12_600_PS]:\  
:lp=:mx#0:rm=LaserWriterFloor2:\  
:rp=AppleLWTest:\  
:sd=/usr/spool/lpd/AppleLWTest:\  
:lf=/usr/spool/lpd/printerlog
```

*Note:* For a description of some of the parameters in this `printcap` entry, see “Getting UNIX Users Started Using the Printer,” later in this chapter.

### 3 Create and set the privileges for the spool directory specified in step 2.

#### Example

```
mkdir /usr/spool/lpd/AppleLWTest  
chown daemon /usr/spool/lpd/AppleLWTest  
chgrp daemon /usr/spool/lpd/AppleLWTest  
chmod 775 /usr/spool/lpd/AppleLWTest
```

### Printing a test page

Use any PostScript file as a test page.

Most UNIX systems use either the `lpr` or `lp` command to print documents over a TCP/IP network. The following commands show examples of how to print a file named `file.postscript` to the printer:

#### Example

```
lpr -PAppleLWTest file.postscript
```

If everything is working, the Ready/In Use light on the printer (leftmost of the indicator lights) will blink, then the pages will print. If there’s a problem, see Chapter 13 for troubleshooting tips.

### Cleaning up the `printcap` file after testing the printer

You may want to delete the test entry you made in your `/etc/printcap` file and instead create a new one as described in “Getting UNIX Users Started Using the Printer,” later in this chapter.



## What to do next

You may configure the printer as explained in the next major section. After the printer is configured, you can set up users' workstations as explained in "Getting UNIX Users Started Using the Printer," later in this chapter.

## Configuring the printer

Though the printer itself has no control panel, you can configure it by using programs on computers connected to the printer:

- On Macintosh computers, use the Apple Printer Utility and the Chooser's setup function, described in Chapter 2.
- On IBM PC or compatible computers, use the Apple Printer Utility for Windows, described in Chapter 3.

## Getting UNIX users started using the printer

As in "Initial TCP/IP Setup," earlier in this chapter, the instructions in this section describe how to set up workstations for most flavors of UNIX that use the Remote Line Printer Daemon (`lpd`) protocol. These include almost all versions of UNIX based on the Berkeley Software Distribution (BSD), including Apple's own UNIX implementation, A/UX. For information on other systems, see "Notes on Configuring Specific UNIX Systems," later in this chapter.

Commonly, printer administrators make entries in the `/etc/hosts` and `/etc/printcap` files on each user's workstation to enable them to use the printer: The `/etc/hosts` entry identifies the printer's IP name and address. The `/etc/printcap` file identifies different printing parameters.

**IMPORTANT** This is a PostScript-only printer. If you want to print text files, you must send them through a PostScript filter such as "enscript" before printing them.

- 1** Add the printer's IP name and IP address to each user's `/etc/hosts` file.

Use the same IP address and IP name that you assigned to the printer in "Step 3: Assigning an IP Address to the Printer," earlier in this chapter.

## 2 Make an entry to each user's `/etc/printcap` file.

You can add `printcap` options as you like. (To see the available options, look at your system's man page for `printcap`.) Each entry should be similar in form to the following:

```
local_print_queue_name | [description_of_printer]:\  
    :lp=:mx#0:rm=printer_IP_name:\  
    :rp=rlocal_print_queue_name:\  
    :sd=path_to_this_queue's_spool_directory:\  
    :lf=path_to_this_queue's_log_file:
```

Fill in the parameters in italics as follows:

- Replace *local\_print\_queue\_name* with the queue name the user should use to reference the printer. Typically, queue names indicate the location of the printer and what sort of files it should be used for.
- Replace *description\_of\_printer* with a comment describing the printer.
- Replace *printer\_IP\_name* with the IP name you assigned to the printer in “Step 3: Assigning an IP Address to the Printer,” earlier in this chapter.
- Replace *rlocal\_print\_queue\_name* with the queue name the user should use to reference the local printer.
- Replace *path\_to\_this\_queue's\_spool\_directory* with the pathname of the unique directory created for this queue.
- Replace *path\_to\_this\_queue's\_log\_file* with the unique pathname of the file where error information from the `lpd` command will be logged.

Here's an example of a `printcap` entry that allow users to print both text and other files to the same printer:

### Example

```
KeithsLW|[LaserWriter_12_600_PS]:\  
    :lp=:mx#0:rm=LaserWriterFloor2:\  
    :rp=raw:\  
    :sd=/usr/spool/lpd/KeithsLW:\  
    :lf=/usr/spool/lpd/printerlog
```

- 3 **Type the following command to change directories:**

```
cd /usr/spool/lpd
```

- 4 **Create and set the privileges for the two spool directories specified in step 2, as shown in this example:**

#### **Example**

```
mkdir KeithsLW
chown daemon KeithsLW
chgrp daemon KeithsLW
chmod 775 KeithsLW
```

## Notes on configuring specific UNIX systems

The following sections describe how to configure certain UNIX systems.

### Configuring HP-UX version 8.07

- 1 **Assign an IP address and IP name to the printer, as described in “Step 3: Assigning an IP Address to the Printer,” earlier in this chapter.**
- 2 **Make sure the printer’s IP name and IP address are entered in the `/etc/hosts` file.**
- 3 **Log in to the system console as `root`.**

The System Administration Manager (SAM) uses a screen-oriented interface that works best at the console.

- 4 **Run the SAM utility by typing `sam` at the UNIX prompt.**
- 5 **Select the following options, in order, from the SAM menu:**

```
Peripheral devices
```

```
Printers and Plotters
```

```
Actions
```

```
Add a Remote Printer (Do not select “Add a Network Printer.”)
```

A form appears for you to define a remote printer.

**6 Enter information into the remote printer form, as follows:**

- **Printer queue name** Type the local queue name users will use as the name for the printer.
- **Remote system name** Type the IP name assigned to the printer as described in “Step 3: Assigning an IP Address to the Printer,” earlier in this chapter.
- **Remote printer queue name** Type the local queue name users will use as the name for the printer.
- **Remote cancel model** Used for remote printer job removal; type `rcmodel`
- **Remote status model** Used for remote printer queue status; type `rsmodel`
- **Make this the system default printer? (y or n)** Type `y` to make this printer the default printer for all workstations on this segment of the network.
- **Printer class** Optional
- **Restrict cancel** Optional
- **Remote printer on a BSD system? (y or n)** Because this printer is a Berkeley-style remote printer, type `y`

**7 Choose Perform Task from the SAM menu.**

**8 To enable the print queue you just created, choose the following items from the SAM menu, in order:**

```
Peripheral Devices
Printers and Plotters
Enable a Printer
```

**9 When SAM asks for the printer name, type the IP name assigned to the printer as described in “Step 3: Assigning an IP Address to the Printer,” earlier in this chapter.**

**10 Leave SAM.**

**11 Start the LP request scheduler by typing**

```
/usr/lib/lpsched
```

**12 Test printing with the following command:**

```
lp -d printer_queue_name filename
```

## If the test print doesn't work

If the test document doesn't print, follow these steps:

- 1 Check whether the `rlp` daemon is running. At the UNIX prompt, type

```
ps -e | grep rlp
```

If the process is running, you will see one or more lines of text; if it is *not* running, you will see no response.

- 2 If `rlp` is running—that is, you saw one or more lines of text in step 1—kill the process by typing

```
kill -15 process_number_from_step_1
```

- 3 Make sure the following entry is in the `/etc/inetd.conf` file:

```
printer stream tcp nowait root
/usr/lib/rlpdaemon rlpdaemon -i
```

This line tells `inetd` to start the `rlp` daemon automatically when a print request is made (if it's not already running).

- 4 Make sure the following entry is in the `/etc/services` file:

```
printer 515/tcp spooler
```

- 5 Start `inetd` by typing the following command at the UNIX prompt:

```
/etc/inetd -c
```

- 6 Repeat the steps in “Configuring HP-UX Version 8.07.”

## Configuring HP-UX version 9.xx

- 1 Assign an IP address and IP name to the printer, as described in “Step 3: Assigning an IP Address to the Printer,” earlier in this chapter.

- 2 Make sure the printer's IP name and IP address are entered in the `/etc/hosts` file.

- 3 Log in to the system console as `root`.

The System Administration Manager (SAM) uses a screen-oriented interface that works best at the console.

- 4 Run the SAM utility by typing `sam` at the UNIX prompt.

**5 Select the following options, in order, from the SAM menu:**

Printers and Plotters

Printers/Plotters

Actions

Add a Remote Printer (Do *not* select “Add a Network Printer.”)

A form appears for you to define a remote printer.

**6 Enter information into the remote printer form as follows:**

- **Printer queue name** Type the local queue name users will use as the name for the printer.
- **Remote system name** Type the IP name assigned to the printer as described in “Step 3: Assigning an IP Address to the Printer,” earlier in this chapter.
- **Remote printer queue name** Type the local queue name users will use as the name for the printer.
- **Remote cancel model** Used for remote printer job removal; type `rcmodel`
- **Remote status model** Used for remote printer queue status; type `rsmodel`
- **Printer class** Optional
- **Make this the system default printer?** Check the box to make this printer the default printer for all workstations on this segment of the network.
- **Allow anyone to cancel requests** Check this box if anyone should be able to cancel requests.
- **Remote printer on a BSD system? (y or n)** Because this printer is a Berkeley-style remote printer, check this box.

**7 Select the OK button.**

**8 When you see the message “Task completed,” select OK.**

**9 Pull down the Lists menu and select Exit.**

**10 Select the Exit SAM button.**

**11 Test printing with the following command:**

```
lp -d printer_queue_name filename
```

### If the test print doesn't work

If the test document doesn't print, follow these steps:

- 1 Check whether the `rlp` daemon is running. At the UNIX prompt, type

```
ps -e | grep rlp
```

If the process is running, you will see one or more lines of text; if it is *not* running, you will see no response.

- 2 If `rlp` is running—that is, you saw one or more lines of text in step 1—kill the process by typing

```
kill -15 process_number_from_step_1
```

- 3 Make sure the following entry is in the `/etc/inetd.conf` file:

```
printer stream tcp nowait root
/usr/lib/rlpdaemon rlpdaemon -i
```

This line tells `inetd` to start the `rlp` daemon automatically when a print request is made (if it's not already running).

- 4 Make sure the following entry is in the `/etc/services` file:

```
printer 515/tcp spooler
```

- 5 Start `inetd` by typing the following command at the UNIX prompt:

```
/etc/inetd -c
```

- 6 Repeat the steps in “Configuring HP-UX Version 9.xx.”

### Configuring IBM AIX version 3.x

- 1 Assign an IP address and IP name to the printer, as described in “Step 3: Assigning an IP Address to the Printer,” earlier in this chapter.

- 2 Make sure the printer's IP name and address are entered in the `/etc/hosts` file.

- 3 At the UNIX prompt, type the following to run the SMIT utility:

```
smit
```

**4 To add a remote queue, choose the following items from the SMIT menu:**

Spooler (Print Jobs and Printers)

Manage Remote Printer Subsystem

Client Services

Remote Printer Queues

Add a Remote Queue

A form appears for you to define a remote printer.

**5 Enter information into the remote printer form, as follows:**

- **Name of queue to add** Type the local queue name users will use as the name for the printer.
- **Designation host for remote jobs** Type the printer IP name assigned to the printer as described in “Step 3: Assigning an IP Address to the Printer,” earlier in this chapter.
- **Name of queue on remote printer** Type the local queue name users will use as the name for the printer
- **Name of device to add** Type any name, up to 7 characters. The name is required but has no effect on the print service.

**6 To start the `lpd` subsystem, choose the following items from the SMIT menu:**

Spooler (Print Jobs and Printers)

Manage Remote Printer Subsystem

Server Services

`lpd` Remote Printer Subsystem

Start Using the `lpd` Subsystem

Start BOTH Now and at System Restart

**7 At the UNIX prompt, start the `qdaemon` by typing**

```
startsrc -s qdaemon
```

**8 Try printing by using this command:**

```
lpr -Pprinter_queue_name filename
```

Note that there's no space between `-P` and *printer\_queue\_name*.



## Configuring Sun OS version 4.1, Ultrix version 4.2, or other BSD systems

- 1 Log in as `root`.
- 2 Assign an IP address and IP name to the printer, as described in “Step 3: Assigning an IP Address to the Printer,” earlier in this chapter.
- 3 Make sure the printer’s IP name and address are entered in the `/etc/hosts` file.  
  
If you’re using Network Information Service (NIS), please see the NIS manual for instructions on setting up an IP name and address.
- 4 Make sure the `lpd` daemon is running on the Sun OS or Ultrix system by typing the following command at the UNIX prompt:

```
ps aux | grep lpd
```

If the `lpd` daemon is running, you should see output similar to

```
root 135 0.0 0.0 52 0 ? IW Oct 17 0:01 /usr/lib/lpr
```

and you should skip to step 5.

If the `lpd` daemon is not running, you will not see any output, and you should start the daemon by logging in as `root` and typing this command at the UNIX prompt:

```
/usr/lib/lpd
```

You can verify that the daemon is running by using the `ps` command described in this step.

*Note:* To start the `lpd` daemon automatically when the system boots, make sure that lines similar to the following exist in the `/etc/rc` file:

```
if [ -f /usr/lib/lpd ] ; then
rm -f /dev/printer /var/spool/lpd.lock
/usr/lib/lpd;echo -n ' printer'
fi
```

**5 Add the following entry to the `/etc/printcap` file:**

```
local_print_queue_name | [description_of_printer]:\  
:lp=:mx#0:rm=printer_IP_name:\  
:rp=remote_print_queue_name:\  
:sd=path_to_this_queue's_spool_directory:\  
:lf=path_to_this_queue's_log_file:
```

For a description of these parameters, see “Getting UNIX Users Started Using the Printer,” earlier in this chapter.

**6 Create the spool directory that you specified in step 5:**

```
mkdir path_to_this_queue's_spool_directory  
chmod 775 path_to_this_queue's_spool_directory
```

**7 Try printing by using this command:**

```
lpr -Pprinter_queue_name filename
```

Note that there's no space between `-P` and `printer_queue_name`.

## What to do next

The printer is now set up on your TCP/IP network. If you want to install any options, see Chapter 5.

# 5

## Installing Options

.....

The Color LaserWriter 12/600 PS has several user-installable printer options. You can add a 250-sheet feeder (containing a universal cassette), a 250-sheet universal cassette, and external hard disks or an internal hard disk for font management. You can also increase the printer's random-access memory (RAM).

This chapter provides instructions for installing these options.

**WARNING** When installing any of the options described in this chapter, be sure the printer is turned off.

## Installing the optional 250-sheet feeder

Follow these instructions for installing the 250-sheet feeder. For instructions on loading the feeder with paper, see “Loading the Optional 250-Sheet Universal Cassette” in Chapter 9.

**WARNING** To install the 250-sheet feeder, you must place the Color LaserWriter 12/600 PS on top of the cassette base. Because of the printer's weight, it's recommended that you have two people lift the printer. Aligning the printer on the 250-sheet feeder base is easier when two people are lifting the printer.

The cassette base adds approximately 4 inches to the height of the Color LaserWriter 12/600 PS. Begin by selecting a location for the printer that provides enough room to accommodate the increased height of the printer.

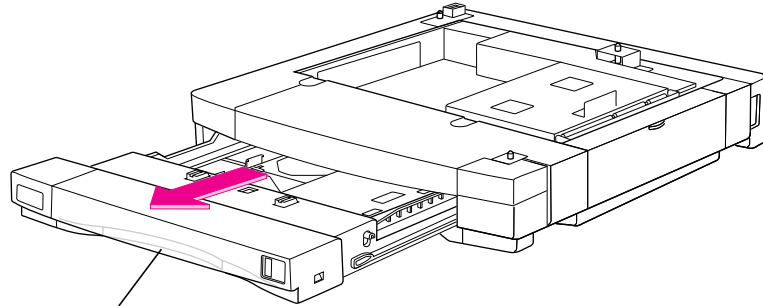
If you intend to keep the printer in its current location, make sure that adequate room will be available for opening the top cover, loading paper, and maintaining the printer. You will also need to move the printer temporarily from its current location to place the cassette base in its place. When moving the printer, be sure to place it on a strong, stable surface that can support its weight.

**1 Turn off and unplug the printer.**

Also, make sure the printer is disconnected from your computer or network.

**2 Unpack the 250-sheet feeder and remove any packing materials within the base and paper cassette.**

**3 Remove the universal paper cassette from the feeder.**



Squeeze the handle, lift slightly, and pull the cassette out.

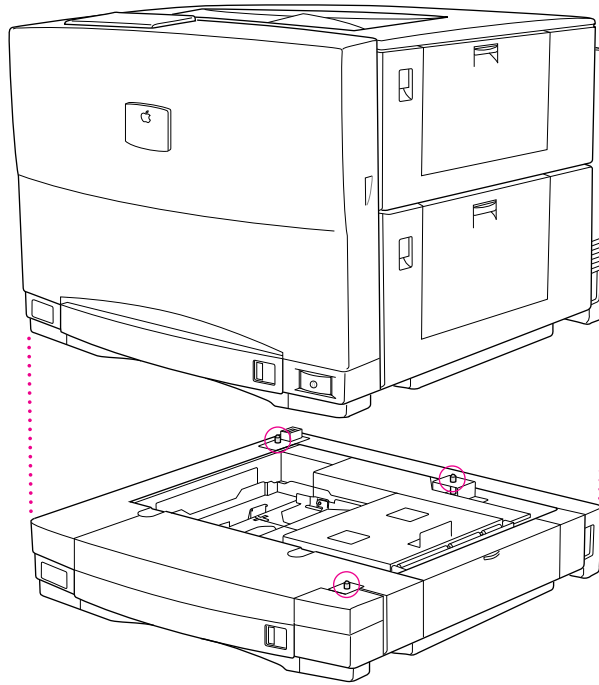
You don't need to fill the cassette with paper at this time.

**4 Place the feeder base where you want the printer to be located.**

Orient the base so that its paper cassette and the printer's paper cassette will be on the front side when the printer is on the feeder base.

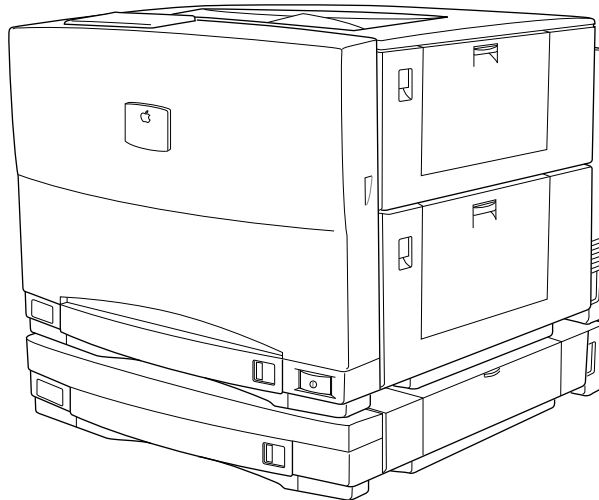
**5 Remove the paper cassette from the printer.**

- 6** With another person, lift the printer, position it directly over the feeder base, and gently lower the printer until it sits evenly on the feeder.



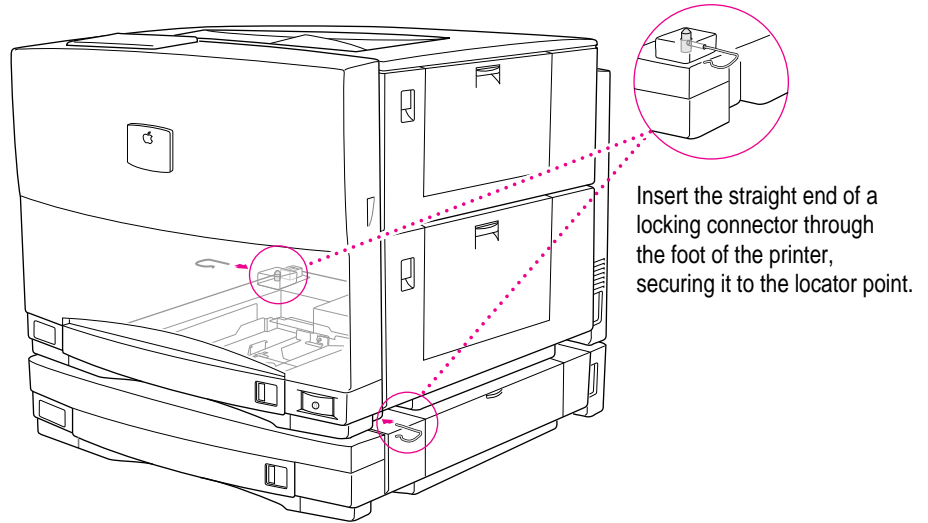
Notice the three locator points that protrude from the feeder. The printer fits over these.

As you lower the printer, align the corners of the printer directly over those of the base.



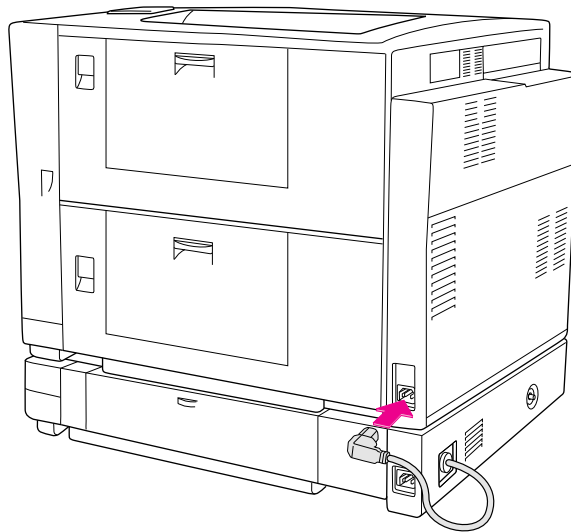
**7 Insert the locking connectors.**

The locking connectors secure the printer to the feeder.

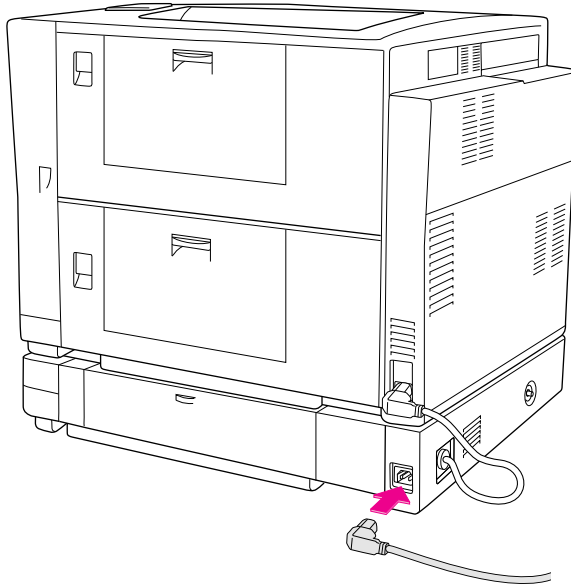


**8 Replace both paper cassettes (one goes inside the printer, the other inside the feeder).**

**9 Connect the feeder's short power cable to the printer.**



- 10** Connect the longer power cable (the one previously used for the printer) between the optional feeder and a grounded electrical outlet.



- 11** Turn on the printer.
- 12** Configure your printer software to use the 250-sheet feeder.

Next you must configure the printer software on your computer to use the new paper option. For instructions, see “Configuring Your Software for New Printer Options,” later in this chapter.

For instructions on loading paper into the feeder, see “Loading the Optional 250-Sheet Universal Cassette” in Chapter 9. For information about printing options with a Macintosh computer, see Chapter 6. For information about printing options with an IBM PC or compatible computer, see Chapter 7.

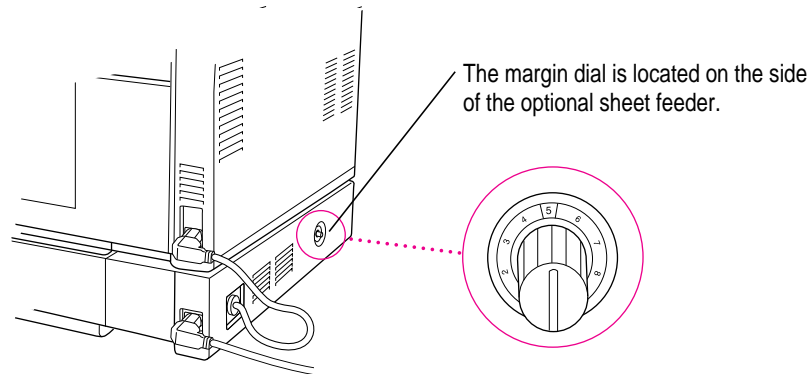


## Adjusting the side margin

Once you've installed the optional sheet feeder, you can check its left margin setting. If necessary, you can adjust the setting so that the left margins match on pages printed from both paper cassettes.

- 1** Turn on the printer.
- 2** Load paper into the universal paper cassette in the feeder.  
For instructions, see Chapter 9.
- 3** Print anything that you've already printed from the standard cassette (for comparison).
- 4** In the Print dialog box, choose Lower Cassette from the Paper Source pop-up menu.
- 5** Compare the left margins on the pages printed from the different paper cassettes.

If the margins are the same, no adjustment is necessary. If the margins don't match, change the adjustment on the optional feeder. To increase the margin, turn the adjustment dial to a higher number. To decrease the margin, turn the dial to a lower number.

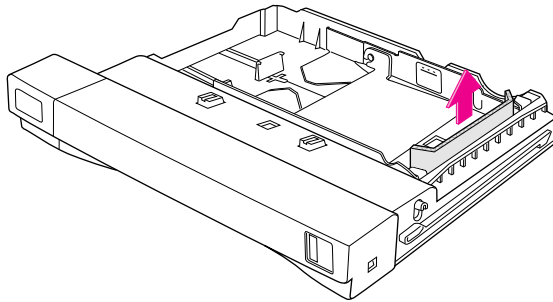


- 6** Repeat steps 3-5 until the margin is what you want on pages printed from the optional feeder.

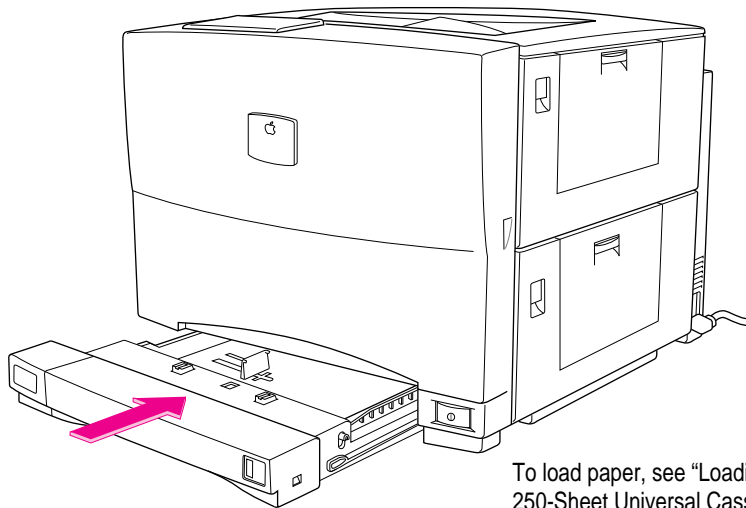
## Installing the 250-sheet universal cassette

To install the 250-sheet universal cassette in the printer, follow these steps.

- 1** **Unpack the cassette and remove any packing materials within the cassette.**



- 2** **Slide the standard paper cassette out of the printer.**
- 3** **Slide the 250-sheet universal cassette into the printer.**



To load paper, see “Loading the Optional 250-Sheet Universal Cassette” in Chapter 9.

You’ve now completed installing the 250-sheet universal cassette. For information about printing options, see Chapter 6 if you are using a Macintosh computer or Chapter 7 if you are using an IBM PC or compatible computer.

## Adding hard disks

You can install an internal hard disk and attach up to six external SCSI 40 MB (or larger) hard disks to the Color LaserWriter 12/600 PS. The hard disk provides space for font storage.

When you connect one or more hard disks to your printer to store fonts, documents will print faster because your computer will rarely need to download a font to the printer. You'll also improve network performance because less information is transferred over network cables.

When you do download a font, you can choose to download it either to a hard disk or to the printer's RAM. Downloading it to a disk stores it there permanently (or until you remove it). If you have a Macintosh, you can initialize the disks and download fonts to them by using the Apple Printer Utility program (see "Sending Fonts to the Printer" in Chapter 2). If you have an IBM PC or compatible computer, you can initialize the disks and download fonts to them by using the Font Downloader in the Printer Setup dialog box (see "Downloading Fonts" in Chapter 7).

### Connecting a previously used hard disk

The Color LaserWriter 12/600 PS recognizes disks formatted for use with the Macintosh HFS format. However, the printer will not recognize disks using other formats. If you attach such a disk to the printer, you will need to reinitialize the disk before you can use it and then reload any fonts from your computer. Reinitializing erases everything, including all fonts previously stored on the disk.

### Connecting external hard disks

You must use an HDI-30 SCSI System cable to connect the first external hard disk to the external SCSI port. For each additional hard disk you connect to the Color LaserWriter 12/600 PS, you will need a SCSI peripheral cable, which links two SCSI devices. You'll also need a SCSI terminator connected to the last device in the SCSI chain.

**IMPORTANT** The external hard disk you connect to the Color LaserWriter 12/600 PS printer must supply 5 volts DC to the SCSI bus to work properly. Check the documentation that came with the hard disk for information about SCSI voltage.

The kind of SCSI cable terminator to use with disks connected to the printer can be black or gray. To purchase terminators, contact an Apple-authorized dealer.

Before you connect your external hard disks, make sure that each one has a unique SCSI ID number. Do not turn on or attempt to use the printer or any attached hard disk until each disk has been assigned its own number. Do not use SCSI ID #7; it is reserved for the printer's CPU. SCSI ID #0 is used by an internal hard drive, if one is installed.

### Setting the SCSI ID number

Each SCSI device attached to the printer must have a unique ID number.

You assign a SCSI ID number by setting the SCSI ID switch on the back panel of the disk. Follow these steps.

- 1 Make sure the hard disk and printer are turned off.**
- 2 Set the SCSI ID according to the hard disk manufacturer's specifications.**

**IMPORTANT** Before you turn on the printer, be sure to turn on any external hard disks attached. If you turn on the printer first, it may not recognize some attached external hard disks. When this happens, the printer may not start up properly, and you won't be able to print anything. To fix this problem, make sure all the hard disks are turned on, then restart the printer.

### Connecting a single external hard disk

- 1** Turn off the printer.
- 2** Attach the HDI-30 SCSI System cable to the SCSI port on the printer.
- 3** Attach the other end of the HDI-30 SCSI System cable to either SCSI port on the hard disk.
- 4** Attach a cable terminator to the other SCSI port on the hard disk.

The printer recognizes disks formatted for use with the Macintosh hierarchical file system (HFS) format. However, the printer will not recognize disks using other formats, and the printer's startup page will not indicate that the hard disk is installed until after you initialize the disk. See "Initializing Hard Disks," later in this chapter, for more information.

### Connecting multiple external hard disks

- 1** Turn off the printer and all hard disks connected to it.
- 2** Attach the HDI-30 SCSI System cable to the SCSI port on the printer.
- 3** Attach the other end of the cable to the SCSI port on the first hard disk.
- 4** Attach a peripheral cable to the other SCSI port on the first hard disk.
- 5** Attach the other end of the peripheral cable to either SCSI port on the next hard disk.
- 6** Repeat steps 4 and 5 for each additional hard disk.
- 7** Attach a cable terminator to the unused SCSI port on the last hard disk.

## Adding an internal hard disk

To create additional space to store fonts in your Color LaserWriter 12/600 PS, you can purchase an internal hard disk. To install the internal hard disk, you remove the controller board from the printer, connect the hard disk to the board, and replace the board in the printer. Be sure to wear a grounding wrist strap when working on the controller board. If you can't find the grounding wrist strap that comes with the internal hard disk, you can purchase one from a computer dealer.

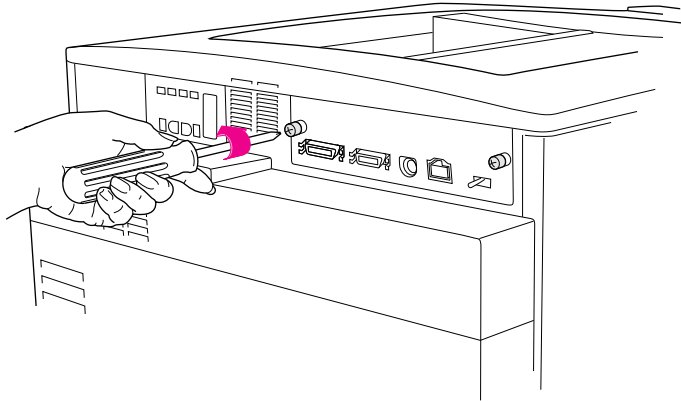
**IMPORTANT** These instructions explain how to install an internal hard disk yourself. You can also contact an Apple-authorized dealer who can install your internal hard disk for a service fee.

**WARNING** Make sure the printer is turned off and plugged in (for grounding).

- 1 If necessary, turn the printer so that the rear (opposite the side with the Apple logo and printer's name) is accessible.

Get help moving the printer. It takes at least two people to move it safely.

- 2 Remove the two screws that hold the controller board in place.



**WARNING** When installing the hard drive, avoid touching the surface of the printer's controller board with hands or tools to avoid damaging or scratching the printed circuits.

- 3 Grasp the metal frame of the controller board and slide it out of the printer.**

Place the board next to the printer. (When you put on the grounding wrist strap, you want to be able to reach the controller board easily.)

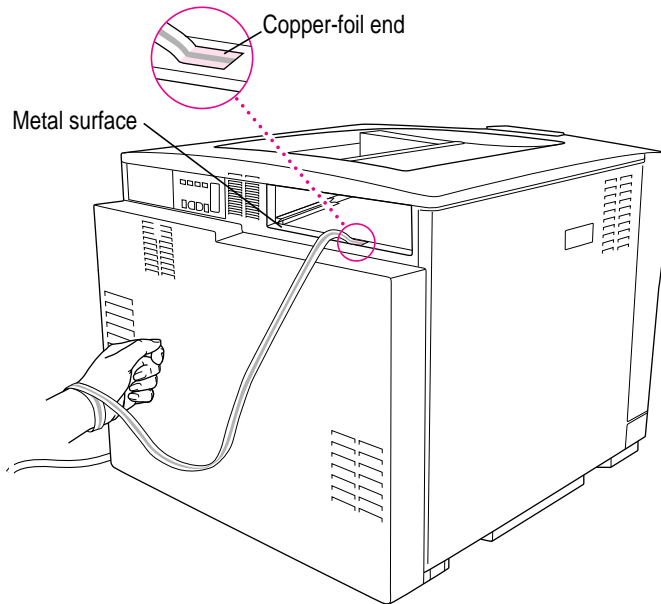
**IMPORTANT** Be sure to put on the grounding wrist strap before handling the hard disk or any internal printer parts. The strap grounds you to the printer, preventing any static discharge that might harm the controller board or printer. Wearing the strap cannot harm you. If you can't find the grounding wrist strap that comes with the internal hard disk, you can purchase one from a computer dealer.

- 4 Wrap the end of the grounding strap that does not have copper foil on it around your wrist.**

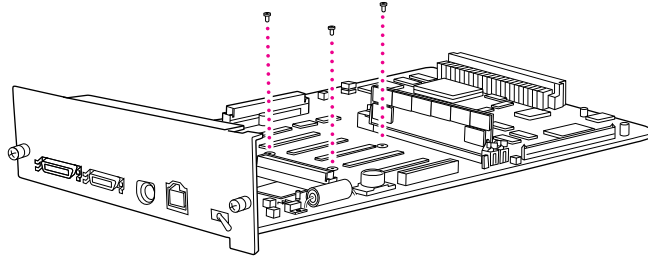
The strap's light adhesive coating keeps it attached to your wrist, while allowing for easy removal.

- 5 Remove the backing from the piece of copper foil at the other end of the strap.**

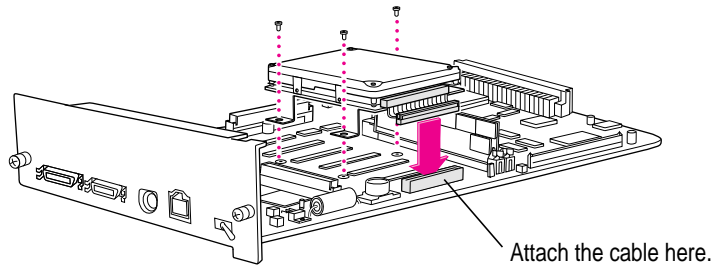
- 6 Attach the copper-foil end of the strap to the metal surface on the inside of the printer by pressing the adhesive backing against the metal.**



- 7** Remove the three screws from the controller board and discard them.



- 8** Attach the hard drive cable to the controller board.



- 9** Secure the brackets on the hard disk to the controller board with the three screws that came in the package with the hard disk.

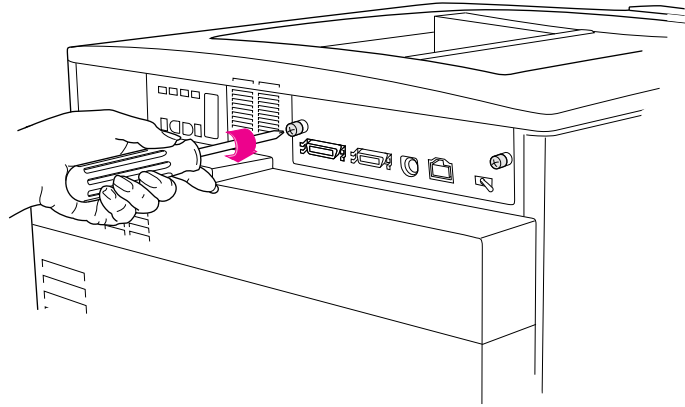
- 10** Remove and discard the grounding wrist strap.

You've now installed the hard disk. You need only replace the controller board to complete the installation.

- 11** Grasp the controller board by its metal frame and slide it back into the printer.



**12** Replace the two screws that hold the controller board in place.



You've completed installing a hard disk in the printer. Next you must initialize the hard disk before you can use it.

### Initializing hard disks

After connecting an external or internal hard disk to the printer, you must initialize the disk before you can use it. Macintosh external hard disks already initialized in the HFS format can be used as is with the printer.

If you have a Macintosh, you can use the Apple Printer Utility to initialize a hard disk connected to the Color LaserWriter 12/600 PS. See “Initializing a Hard Disk Connected to the Printer” in Chapter 2. If you use an IBM PC or compatible computer, use the Font Downloader in the Windows Setup dialog box to initialize a hard disk. See Chapter 7 for more information about initializing disks and downloading fonts.

**IMPORTANT** Initialize a hard disk only once from a Macintosh or from an IBM PC or compatible computer. After you initialize the disk, it will be able to store font information from Macintosh computers and from IBM PC or compatible computers. Initializing the disk again from either a Macintosh or IBM PC or compatible will erase any font information stored there.

Your printer's startup page will not show that a hard disk is installed until you initialize the hard disk.

## Using external hard disks from manufacturers other than Apple

**IMPORTANT** Some older model hard disk drives may not be compatible with the Color LaserWriter 12/600 PS.

If you are considering connecting external hard disks to your printer, keep these points in mind:

- The printer requires SCSI 40 MB (or larger) hard disks.
- The printer must be able to tell how much storage space is available on the disk. This is not possible with some hard disks from manufacturers other than Apple. You cannot use these disks with the printer.
- Some non-Apple disks have internal SCSI terminators. There should be no more than one terminator in addition to the one on the printer's controller board (one on the first device in the chain and one on the last device).
- The hard disk must be able to deliver at least 5 volts of termination power.

## Increasing the printer RAM

The printer comes with 8 MB of RAM soldered on the controller board and a 4 MB SIMM in one of the two slots on the board. You can increase the memory size to a total of 40 MB (maximum) by installing up to 32 additional MB of RAM in the printer.

Adding RAM improves performance; allows more fonts to be downloaded to the printer at one time; provides more space to store the calculations needed for large or complex images; and increases the space available for font caching, or maintaining recently used fonts in memory for faster access the next time they are needed. Additional RAM also improves the image quality of documents printed on legal-size paper.

**IMPORTANT** The instructions provided here explain how to install added memory in your printer yourself. If you wish, you can also contact an Apple-authorized dealer to install more memory for a service fee.

You can purchase additional RAM for the printer in units of 1, 4, and 16 MB SIMMs. You can also purchase RAM expansion kits from many electronics and computer outlets. For information about the RAM specifications required to expand your printer's memory, see Appendix A.

**IMPORTANT** The RAM used in the Color LaserWriter 12/600 PS is not the same type of RAM used in earlier LaserWriter II printers. The two are not interchangeable.

**WARNING** Refrain from handling the memory until you have put on a grounding wrist strap. Handling the memory without wearing a grounding strap may allow static electricity to be discharged into the memory and damage it. If you don't have a grounding wrist strap, be sure to purchase one from a computer dealer.

## Installing RAM

The printer's controller board has two slots, marked J10 and J11, for installing additional memory. RAM is provided on SIMMs (Single Inline Memory Modules) that you insert into the slots.

Your printer comes with 8 MB of RAM soldered on the main board and 4 MB inserted into slot J10.

You must have at least 12 MB of RAM in the printer, and you can increase the total to as much as 40 MB. For example, to increase the memory size to 16 MB, install a single 4 MB SIMM in slot J11. To increase the memory size to 24 or 40 MB, install one or two 16 MB SIMMs in slots J10 and J11 ( $16 + 8 = 24$ ;  $16 + 16 + 8 = 40$ ).

The table below lists RAM configurations you can use. Remember, the total amount of memory (shown in the first column) includes the 8 MB of RAM soldered on the controller board.

Amount of memory (megabytes)	Slot J10	Slot J11
12 MB (standard)	0 MB	4 MB
13 MB	4 MB	1 MB
16 MB	4 MB	4 MB
24 MB	16 MB	0 MB
25 MB	16 MB	1 MB
28 MB	4 MB	16 MB
40 MB	16 MB	16 MB

**IMPORTANT** The printer requires 12 MB RAM and won't work with less.

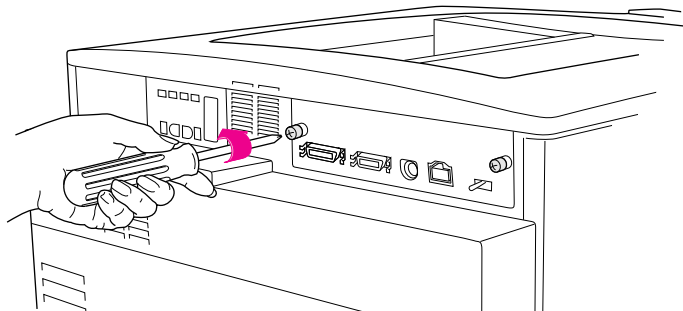
A total of 16 MB of RAM gives you improved print quality in legal-sized documents.

**WARNING** Make sure the printer is turned off and plugged in (for grounding).

- 1 If necessary, turn the printer so that the rear (opposite the side with the Apple logo and printer's name) is accessible.

Get help moving the printer. It takes at least two people to move it safely.

- 2 Remove the two screws that hold the controller board in place.



**WARNING** Avoid touching the surface of the printer's controller board with hands or tools to avoid damaging or scratching the printed circuits.

**3 Grasp the metal frame of the controller board and slide it out of the printer.**

Place the board next to the printer. (When you put on the grounding wrist strap, you want to be able to reach the controller board easily.)

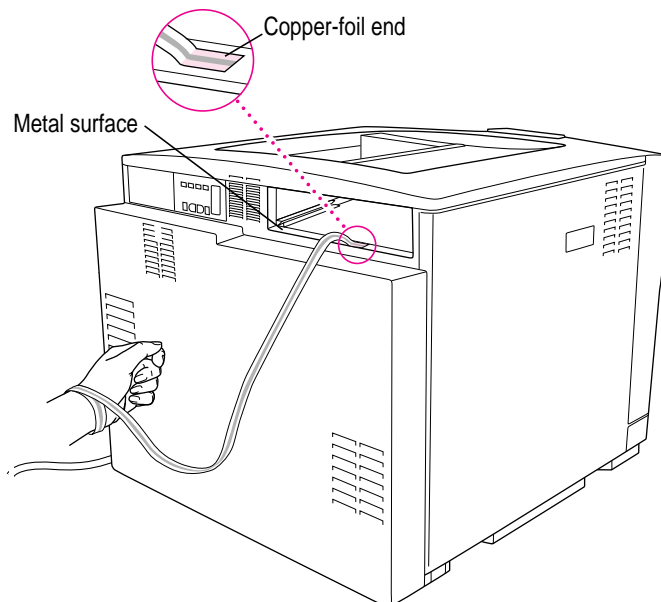
**IMPORTANT** Put on a grounding wrist strap before handling the SIMM or any internal printer parts. The strap grounds you to the printer, preventing any static discharge that might harm the board or printer. Wearing the strap cannot harm you. If you haven't got a grounding wrist strap, you can purchase one from a computer dealer.

**4 Wrap the end of the grounding strap that does not have copper foil on it around your wrist.**

The strap's light adhesive coating keeps it attached to your wrist, while allowing for easy removal.

**5 Remove the backing from the piece of copper foil at the other end of the strap.**

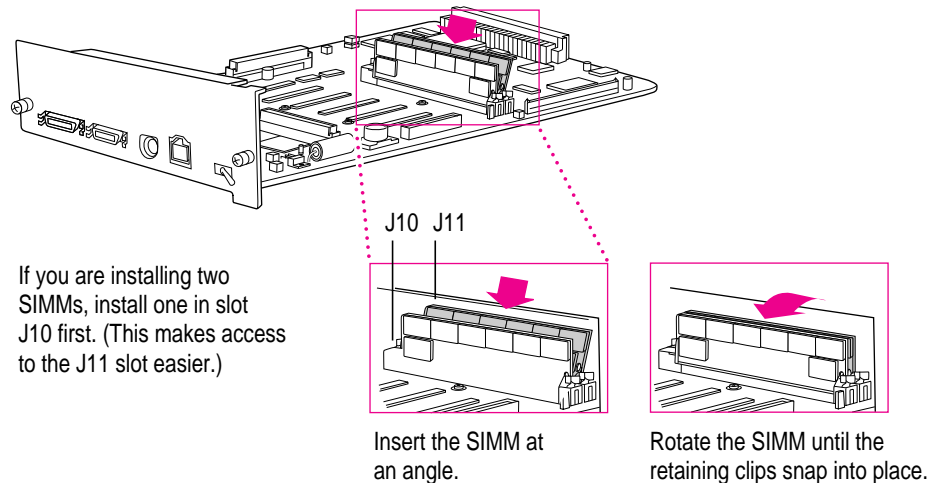
**6 Attach the copper-foil end of the strap to the metal surface on the inside of the printer by pressing the adhesive backing against the metal.**



- 7** Insert the SIMM into the connector at an angle and press the SIMM into the retaining clips on each end of the connector until the clips snap and fasten the SIMM in place.

Hold the SIMM over the slot, aligning the connectors and notches with the controller board's connector. Notice that one edge of the SIMM has a distinctive notch that you can use to judge the orientation and alignment of the SIMM with the connector. This notch, on the bottom edge of the SIMM, should be down as you install the SIMM.

**WARNING** To avoid damaging or scratching the printed circuits when installing a SIMM, don't touch the controller board with hands or tools.

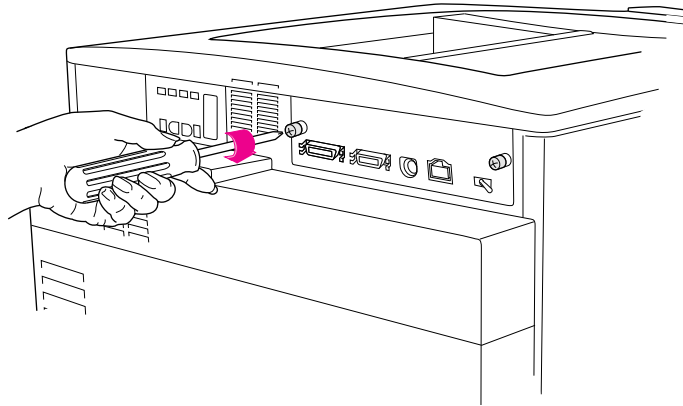


Depending on the amount of memory you're installing, you may need to install one or two SIMMs, and perhaps remove a SIMM from a slot in order to insert one that has more memory. For example, when installing two 16 MB SIMMs, you must remove the 4 MB SIMM from the J11 slot.

To remove a SIMM, carefully spread the retaining clips at the base of the installed SIMM, then rotate the SIMM until it can be pulled free of the slot.

- 8** Repeat step 7 to install the second SIMM if necessary.
- 9** Remove the grounding wrist strap.

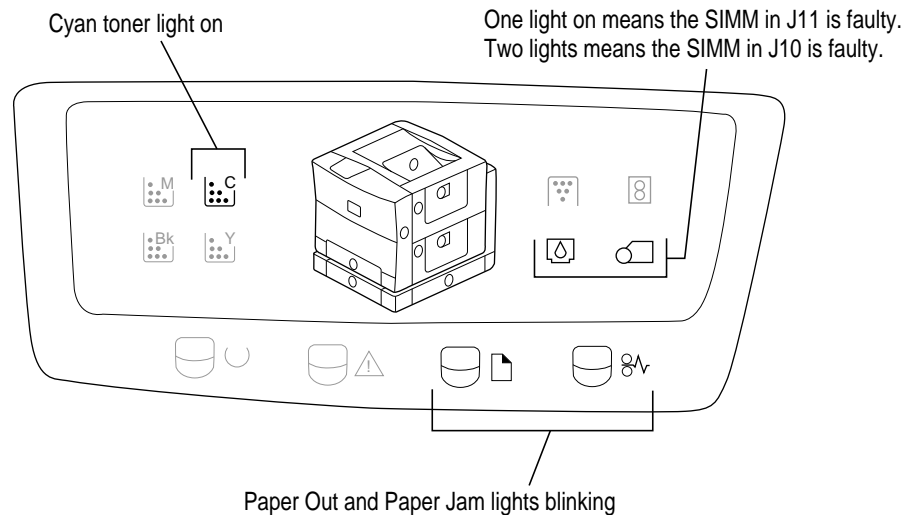
- 10 Slide the controller board back into the printer.
- 11 Replace the two screws that hold the controller board in place.



- 12 Turn on the printer.

The printer does self-diagnostic tests each time it is turned on. During this testing, the printer verifies the amount of memory installed. If the test determines that a SIMM is faulty, specific status panel lights come on.

Try reinstalling the SIMMs, following the instructions earlier in this chapter. If this does not resolve the problem, contact an Apple-authorized dealer. (For more information about diagnostic tests and status lights, see Appendix G.)



- 13 Check the startup page to see that the new memory is listed there.**

If the startup page has been turned off, use the Apple Printer Utility to print the startup page. (For details, see “Turning the Startup Pages On or Off” in Chapter 2 for Macintosh computers, or Chapter 3 for Windows computers.)

- 14 Next, configure the printer software to use the additional memory.**

For configuration instructions, see “Configuring Your Software for New Printer Options,” next.

## Configuring your software for new printer options

After installing more memory or a 250-sheet feeder, the administrator or the user needs to update the printer software on each computer connected to the network. You can reconfigure the printer software using the Chooser on Macintosh computers or the Windows Setup dialog box on IBM PC or compatible computers.

### Configuring the Macintosh printer software

- 1 Choose the Chooser from the File menu.**

The Chooser dialog box appears.

- 2 Click the LaserWriter 8 icon.**

- 3 If your network has zones, click the printer’s zone to select it. If your network doesn’t have zones, skip to step 4.**

- 4 Double-click the printer name.**

The printer software automatically checks the printer’s options and selects the correct settings.

- 5 Close the Chooser.**



## Designating the 250-sheet feeder as the preferred paper source

You can tell the printer to use the optional feeder as the preferred paper source. If you do, and you choose Auto Select in the Print dialog box, the printer looks first in the 250-sheet feeder for paper. If it's out of paper, the printer looks in the standard cassette.

For more information about how the printer uses paper sources, see “Setting Paper-Handling Options” in Chapter 2 if you have a Macintosh, or in Chapter 3 if you have a Windows computer.

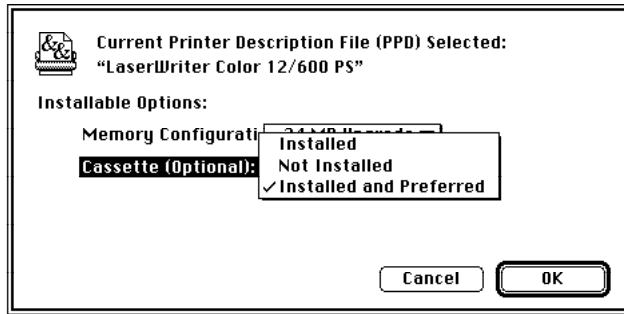
- 1 Choose the Chooser from the File menu.
- 2 In the Chooser dialog box, click the LaserWriter 8 icon.
- 3 If your network has zones, click the printer's zone to select it. If your network doesn't have zones, skip to step 4.
- 4 Click the printer's name.
- 5 Click Setup.

The Printer Setup dialog box appears.



- 6 Click Configure.

- 7 In the dialog box that appears, choose Installed or Installed and Preferred from the Cassette pop-up menu.



- 8 Click OK.
- 9 In the Printer Setup dialog box that appears, click OK.

Now the printer recognizes that the optional feeder has been installed. If you chose Installed and Preferred, the printer knows that the optional feeder is the preferred paper source for Auto Select (a choice in the Print dialog box).

## Configuring the printer from an IBM PC or compatible

You must have Windows running on your computer to use this procedure.

- 1 From the Program Manager, double-click the Control Panels, then double-click the Printers Control Panel icon to display the Printer Setup dialog box.
- 2 Select the Color LaserWriter 12/600 PS from the list of Printers.
- 3 Choose the Setup command from the Options menu to display the Setup dialog box for your printer.

The Setup dialog box contains buttons that display other dialog boxes containing additional printer settings.

- 4 In the Setup dialog box, click the Features button.

The Features dialog box appears.

- 5 In the Features dialog box, use the controls to set up the optional features that you have installed on your printer.
- 6 Click OK to close the Features dialog box.
- 7 Click Close to close the Setup dialog box.

# Guide for Users

**Chapter 6** Macintosh Users

**Chapter 7** Windows and DOS Users

**Chapter 8** UNIX Users

**Chapter 9** Loading Paper

**Chapter 10** Maintenance

**Chapter 11** Clearing Paper Jams

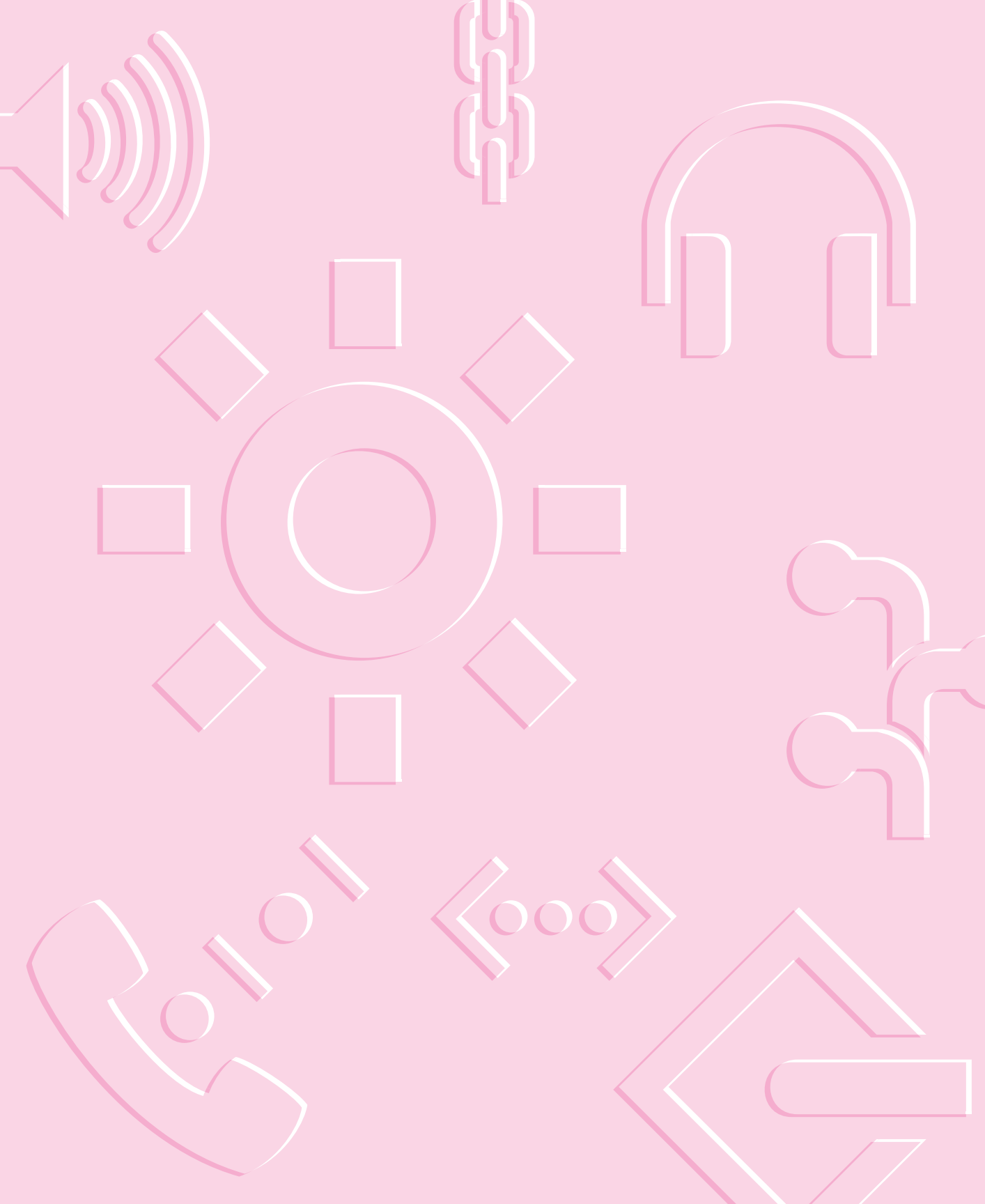
**Chapter 12** Fixing Image Problems

**Chapter 13** Troubleshooting

Part II contains information you need to use a printer that has already been set up. You can find setup instructions in Part I.



*part*



# 6

## Macintosh Users



The Color LaserWriter 12/600 PS comes with software and fonts for use with Macintosh computers. This chapter describes the system requirements and the procedures for installing the printer software and fonts on a Macintosh. You'll also find explanations for using the standard printing and page setup options of the LaserWriter 8 printer driver software supplied with your printer.

## System requirements

To use the printer software, you need a Macintosh with a 68020 or higher central processing unit (any Macintosh except a Macintosh Plus, SE, Classic, Portable, or PowerBook 100). Your Macintosh must have system software version 7.1 or later and at least 4 megabytes (MB) of memory. If your system software is an earlier version, you need to obtain a system software upgrade from your computer or software dealer.

Installing all the printer software and fonts for the Macintosh requires approximately 7.5 MB of free space on your hard disk.

## Installing the printer software

To install the printer software on a Macintosh computer, follow these steps:

**IMPORTANT** Do not “drag install” the printer software. If you do, the files won’t be properly decompressed and won’t work.

- 1 Turn off any automatic virus-detection programs you have on your Macintosh computer.**

If you don’t, problems may occur during the installation. After installation is complete, you can turn the virus-detection programs back on. (For instructions on turning off each virus-detection program, see the manual that came with the program, or telephone the manufacturer of the program.)

- 2 Press and hold down the Shift key, then choose Restart from the Special menu.**

When a message on the screen tells you that the extensions are off, you can release the Shift key. Your extensions have been turned off. When you restart the Macintosh after a successful installation, the extensions will turn on again.

- 3 Make sure the printer software disks are locked.**

- 4 Insert *Printer Disk 1 for Macintosh* into a disk drive.**

If necessary, open the disk icon.

- 5 To start the Installer program, double-click its icon.



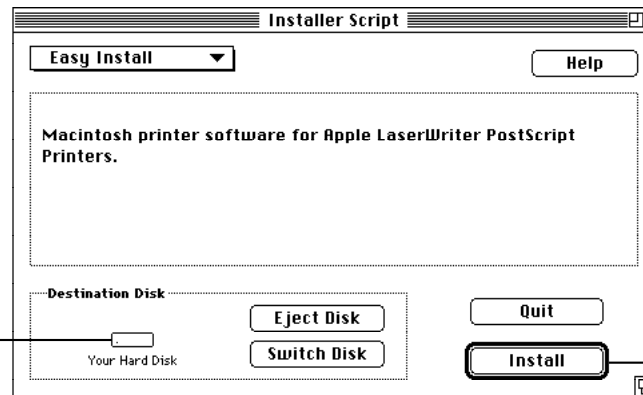
- 6 In the Welcome dialog box that appears, click Continue.

After a moment, the Install dialog box appears. At the top of the dialog box is a pop-up menu set to allow you to perform an Easy install.

**IMPORTANT** The Installer checks to make sure you have what you need to use the printer software. If you're missing anything, a message tells you what you need. You won't be able to install the printer software until you correct the problem. If a dialog box says you don't have the correct system software, you can purchase a new version from an Apple-authorized dealer.

- 7 In the Installer dialog box, click the Install button.

Make sure the disk named here is the one on which you want to install the printer software.



When you're ready to begin, click Install.

The Installer takes a few moments to calculate what needs to be done and then begins to copy files.

**8 Follow the instructions on the screen until the installation is complete.**

The Installer ejects disks and asks you to insert others. Keep following the instructions on the screen until the installation is complete.

**9 When you see a message reporting that installation was successful, click Restart.**

The Installer restarts your Macintosh.

The software is now installed on the hard disk. If you turned off any automatic virus-detection programs on your Macintosh, turn them on again.

*Note:* If installation is not successful, see Chapter 13 for suggestions.

### **More information about the Installer program**

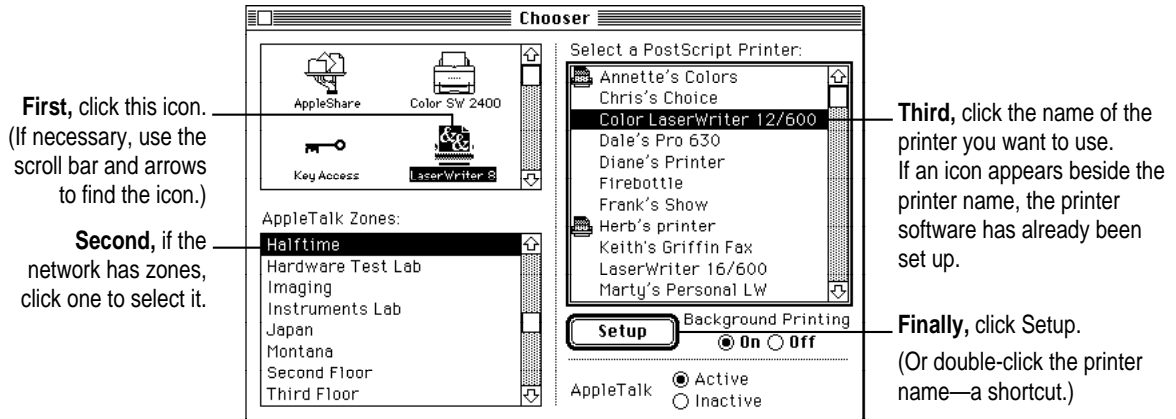
In the procedure just described, the Installer places all the software you need on your hard disk. In rare circumstances, you may want to install only a subset of the software. In that case, choose Custom Install from the pop-up menu in the Installer. A list of choices appears. To install something from the list, click to select it, then click the Install button.



## Selecting and setting up the printer

Before using your printer for the first time, you must select it in the Chooser. Once you select the printer in the Chooser, you won't need to repeat this step unless you change printers or change the way your printer is connected.

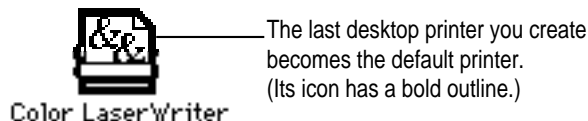
- 1 Choose the Chooser from the Apple (🍏) menu.
- 2 In the Chooser dialog box, click items to select them.



The Chooser identifies the type of printer and automatically sets up the printer software. A small printer icon appears beside the printer name.

- 3 Close the Chooser.

After you close the Chooser, a desktop printer icon for the Color LaserWriter 12/600 PS appears on the desktop. (If you don't close the Chooser, the desktop printer won't be created.) If you want, you can repeat steps 1 through 3, selecting and setting up other printers on your desktop for easy access.



A desktop printer icon cannot be moved off the desktop (unless you throw it away); however, you can move it anywhere on the desktop that you like.

## Creating, throwing away, and manipulating desktop printer icons

To create a desktop printer, select the printer using the Chooser. After you close the Chooser, the icon will appear on your desktop. See “Selecting and Setting Up the Printer,” earlier in this chapter.

You may also do the following with desktop printer icons:

- **Throw away the icon** Drag the icon to the Trash. You can’t throw away a desktop printer icon while the printer is printing a document. (You can create another desktop printer icon for that printer whenever you like.)  
*Note:* You must always have at least one printer icon on your desktop. If you throw away the last icon, it will immediately be created again.
- **Rename the icon** Rename the icon as you would any other Finder icon. Click the name to highlight it, then type the new name. This changes the name of the icon, not the name of the printer.
- **Move the icon** You may drag the icon anywhere you like on the desktop. However, you may not move it off the desktop.
- **Create an alias for the icon** You may create an alias for the icon as you would any Finder icon, by selecting the icon and choosing the Make Alias command from the File menu. The alias may be moved anywhere on or off the desktop.

## Determining the status of a printer by looking at its icon

You can tell the status of a printer by looking at its desktop icon:



**Plain** icon indicates a printer that is not currently chosen for printing.



**Stopped** icon indicates you have stopped the print queue.



**Default** icon indicates the printer you have currently chosen to print on.



**Error** icon indicates there is an error on this printer. Double-click the icon to see a message.



**Printing** icon indicates a document is printing on this printer.



**Disabled** icon indicates this desktop printer is not available. See Chapter 13.

## Switching between printers

If you have more than one printer available, you must select which printer you want to use. The printer you select is called the default printer.



A bold outline around the desktop printer icon indicates that this is the default printer, where all your documents will print, until you indicate otherwise.



A plain outline around the desktop printer icon indicates that this is not the default printer.

To change the default printer, use one of these three methods, as described in the next sections.

- Drag the document you want to print to a desktop printer icon, and that printer automatically becomes the default printer.
- Select the desktop printer icon and choose Set Default Printer from the Printing menu.
- Select a new printer using the Chooser.

*Note:* Switching between printers may change how much information you can fit on a page. It's best to choose a printer before you spend much time paginating the document.

### Drag the document you want to print to a desktop printer icon

You can switch to a new default printer by dragging the icon of any document you want to print to the icon of the printer you want to use.

### Select the printer using its desktop printer icon

If you already have a desktop printer icon for the printer you want to use, follow these steps to select a new default printer without immediately printing anything on it:

- 1 Click the icon of the desktop printer you want to use.**

A Printing menu appears on the menu bar at the top of the screen.

- 2 Choose the Set Default Printer command from the Printing menu.**

Until you choose another printer, the Print command will send your documents to this printer.

## Select a new printer using the Chooser

If you don't have a desktop printer icon for the printer you want to use, you must select the printer using the Chooser. The Chooser will then create a desktop printer icon for the printer that you select and make it the default printer.

- 1 Choose the Chooser from the Apple menu.**
- 2 Select the printer that you want.**
- 3 Close the Chooser by choosing Close from the File menu.**

When you close the Chooser, it creates a desktop printer icon for the printer you selected.

## Printing

On a Macintosh, printing functions are controlled through the Page Setup and Print dialog boxes, which are accessed through the File menu.

Most Macintosh application programs use a version of the standard Page Setup and Print dialog boxes, although the exact options presented vary among programs. (See the manuals that came with your program for details about specific options.)

The printer administrator can use the Apple Printer Utility to change default settings the printer uses for all documents. For more information about the Apple Printer Utility, see Chapter 2.

## Selecting page setup options

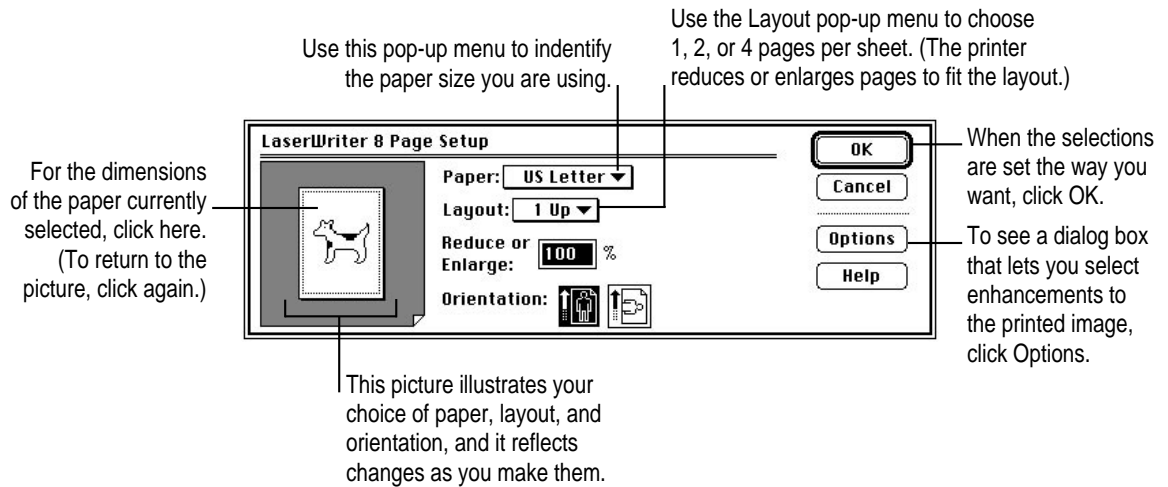
The Macintosh Page Setup dialog box allows you to specify certain aspects of your document, such as its page size, format, and orientation, as well as the settings for several print effects. You can change these settings for every document you create. It's recommended that you set your page setup options when you first create a document. Then, as you view and format the document it will closely resemble its final printed form.

- 1 Choose Page Setup from the File menu.**

The Page Setup dialog box appears.

**2 In the dialog box that appears, select the page setup options you want.**

Most Macintosh programs use a dialog box similar to the one shown below, although the exact features may vary.



**3 When you've made your choices, click OK.**

To make the printer's current page setup settings the default software settings, hold down Option and click OK. (Some programs may not support this method of setting defaults.)

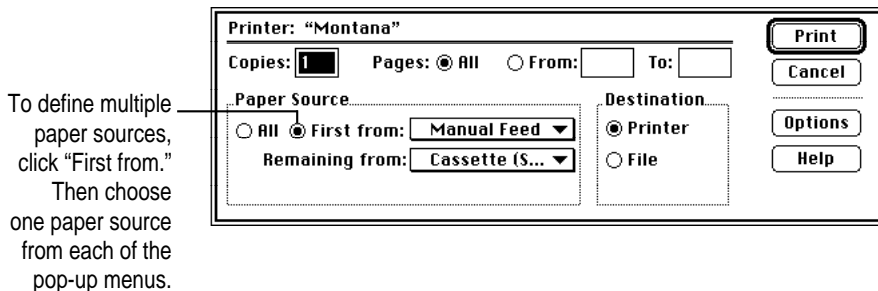
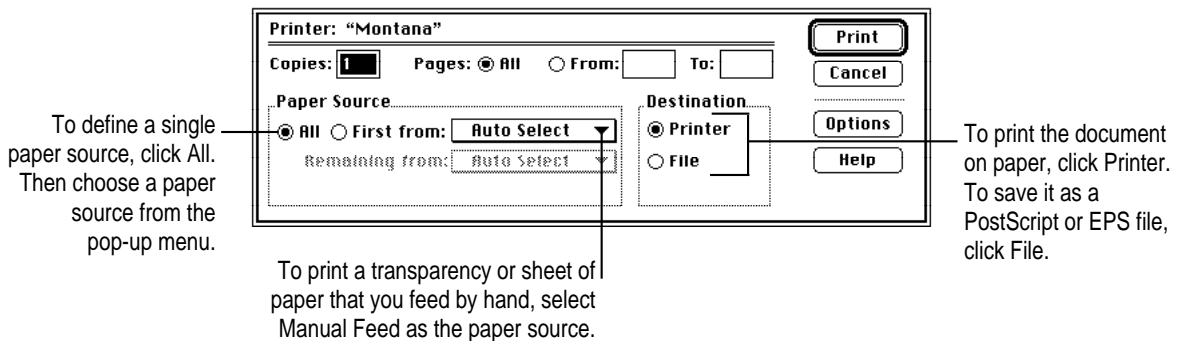
## Printing documents

Most programs on the Macintosh use a Print dialog box similar to the one shown below, although the exact features may vary. You can use the dialog box to specify print options such as the number of copies you want printed.

Some programs add more choices to the Print dialog box. For information about such options, refer to the documentation that came with the program.

**1** Choose Print from the File menu (or drag the document to the desktop printer icon and drop it on the printer).

**2** In the dialog box that appears, select the options you want.



**IMPORTANT** The paper source menus vary according to the paper sources of your printer and paper sizes you choose in the Page Setup dialog box. For paper-loading instructions, see Chapter 9.

**3** When the selections are what you want, click Print (or Save, if the destination is not a printer).

## Printing a cover page automatically

You can choose to print a cover page that provides information about the printed document, such as the document's name and the date and time of printing.

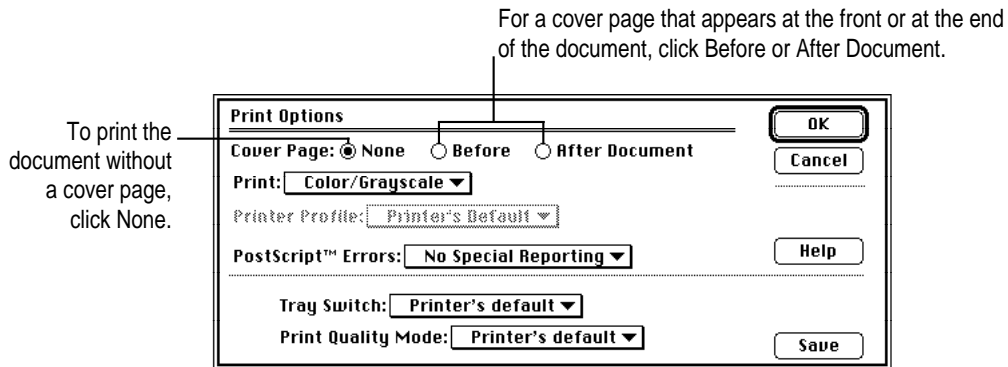
- 1 Choose Print from the File menu.

The Print dialog box appears.

- 2 In the Print dialog box, make the selections you want.

- 3 Click Options.

- 4 In the Print Options dialog box, make the selections you want.



- 5 Click OK.

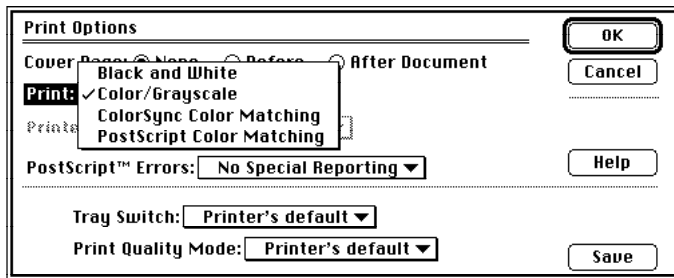
- 6 In the Print dialog box, click Print.

The cover page will print each time you print your document.

## Printing color and grayscale documents

When you print a document containing colors or shades of gray, you can choose to maximize either image quality or speed.

- 1 Choose Print from the File menu (or drag the document to the desktop printer icon and drop it on the printer).
- 2 In the Print dialog box, make the selections you want.
- 3 Click Options.
- 4 In the Print Options dialog box, choose what you want from the Print pop-up menu.



- For the fastest printing, choose Black and White. (The image quality won't be as good, especially if the original image is in color.)
- If you're using a customized color-matching method or printer profile, choose ColorSync Color Matching. Printing with ColorSync Color Matching, the computer does the work, matching the RGB colors on your monitor and the printer's profile and sending the correct CMYK information to the printer.

Be sure to set the ColorSync system profile to match your monitor. (See Appendix D)

- If your print job contains JPEG compressed images (such as QuickTime or QuickTake 100 images) choose PostScript Color Matching. Printing with PostScript Color Matching, more color matching is done on the printer.

- 5 Click OK.
- 6 In the Print dialog box, click Print.



## Reporting printing errors

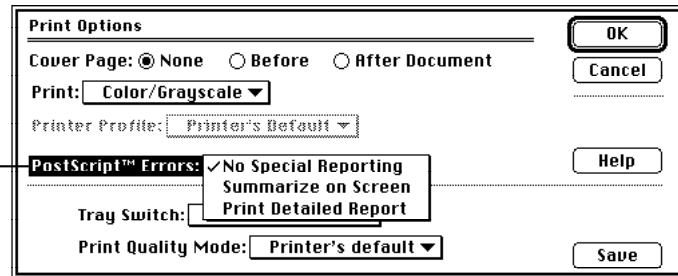
You can specify how printing errors are reported when they occur. You can have the printer provide no special reporting, provide a summary of the print error on your Macintosh screen (when using foreground printing), or print a page reporting the error.

- 1 Choose Print from the File menu (or drag the document to the desktop printer icon and drop it on the printer).

The Print dialog box appears.

- 2 In the Print dialog box, make the selections you want.
- 3 Click Options.
- 4 In the Print Options dialog box, choose what you want.

Choose the reporting method you want from this pop-up menu.



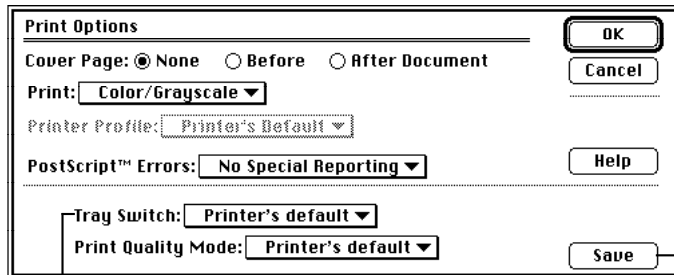
- 5 Click OK.
- 6 Click Print in the Print dialog box.

## Turning tray switching on or off

Tray switching lets you switch automatically between the paper cassette and the multipurpose tray (or other optional paper source) without reloading paper when one paper source runs out of paper.

**IMPORTANT** If you have the same size paper in your paper cassettes and multipurpose tray and have tray switching turned on, the printer may draw paper from any paper source that has the correct size paper (even if you select a specific paper source from the Print dialog box). If you want to print from a specific paper source only, turn automatic tray switching off.

- 1 Choose Print from the File menu (or drag the document to the desktop printer icon and drop it on the printer).
- 2 In the Print dialog box, make the selections you want.
- 3 Click Options.
- 4 In the Print Options dialog box, choose On, Off, or Printer's default from the Tray Switch pop-up menu.



Choose On, Off, or Printer's Default.  
(You select the default—automatic tray switching  
on or off—in the Apple Printer Utility.)

To save your Tray  
Switch setting as  
the printer's default  
setting, click Save.

## Printing transparencies

When you want to print transparencies, choose the Print command and click the Options button in the Print dialog box. Then choose Transparency from the Paper Type menu in the Print Options dialog box.

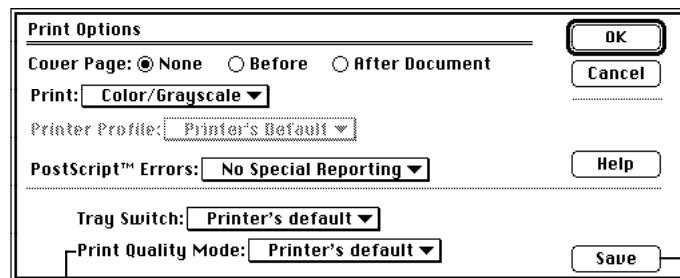
A page you print as a transparency looks different from the same page printed on paper. You can see bigger dots of color on the transparency film. This kind of printed image looks best when projected on a screen.

## Changing the Print Quality mode

The Print Quality pop-up menu offers these choices:

- Normal for speed and good quality for most purposes
- Best for improved registration (needed only for special printing jobs)
- Printer's Default for when you use the Apple Printer Utility (in the Job Defaults category, Imaging Options panel) to make the choice

- 1 Choose Print from the File menu (or drag the document to the desktop printer icon and drop it on the printer).
- 2 In the Print dialog box, make the selections you want.
- 3 Click Options.
- 4 In the Print Options dialog box, choose Normal, Best, or Printer's Default from the Tray Switch pop-up menu.



Choose Fastest, Best, or Printer's Default.  
(You select the default—automatic tray switching  
on or off—in the Apple Printer Utility.)

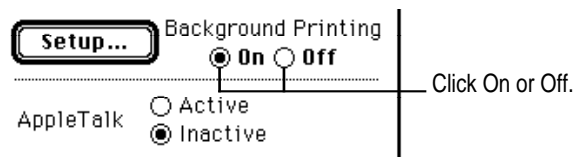
To save your Print  
Quality Mode setting  
as the printer's default  
setting, click Save.

## Printing while using the computer for other work

With background printing turned on, you can use your Macintosh for other work while you're printing.

To turn background printing on, follow these steps:

- 1 **Select Chooser from the Apple menu.**
- 2 **In the Chooser dialog box, click the LaserWriter 8 icon.**
- 3 **Click to turn background printing on or off.**



- 4 **Close the Chooser.**

Once background printing is turned on, it is in effect whenever you print, until you turn it off. When you click Print in the Print dialog box, a message appears for a moment to tell you the document is being prepared. Once the message disappears, you can continue other work. Your computer may pause occasionally while it processes the document for printing. See “Monitoring and Controlling Background Printing,” next, for more information.

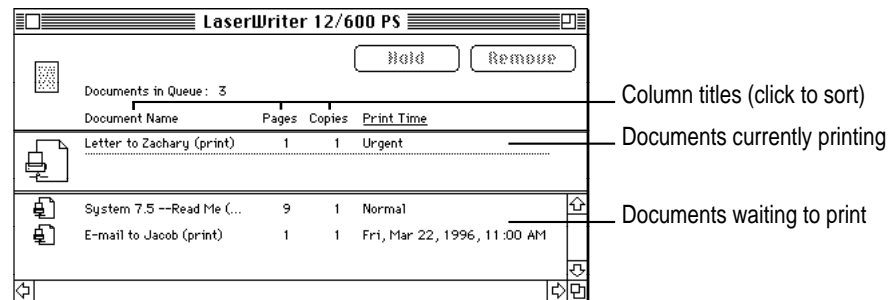
## Monitoring and controlling background printing

If you are using background printing, you can use the desktop printer features to monitor and control the documents that are waiting to print. To learn how to turn background printing on and off, see the previous section, “Printing While Using the Computer for Other Work.”

To monitor or control a print request, follow these steps:

### 1 Double-click the desktop printer icon you're interested in.

A window opens listing the documents that are printing or waiting to print:



Watching the status messages can be helpful when troubleshooting printing problems. When more than one job is waiting to be printed, a list of print jobs appears in the waiting list. When you sort the list by Print Time, it shows the order in which they will be printed.

### 2 Choose what you'd like to do.

- **To delete a print request**, select its title or icon (by clicking it), then click the Remove button. (You can select more than one item at a time by holding down the Shift key while clicking.) You can also drag the icon for the print request to the Trash. Note that these methods delete only the print job (also known as the spool file), not the document itself.
- **To put a print request on hold**, click its title or icon to select it, then click the Hold button. The print request stays on hold until you select its title again and click the Resume button. You can also put the document that's currently printing on hold by dragging it to the list of documents waiting to print.

- **To indicate that a print request is urgent**, select its title or icon (by clicking it), then choose Set Print Time from the Printing menu. In the dialog box that opens, click Urgent. This moves the print request to the top of your list.
- **To indicate that a print request should not print until a future time**, select its title or icon (by clicking it), then choose Set Print Time from the Printing menu. In the dialog box that opens, click At Time, then set the time you want.
- **To change the order of the items waiting to print**, move their place in the list by dragging their titles up or down in the list.
- **To sort the list of documents waiting to print**, click the title of the column you want to sort by. For example, to sort by the name of the document, click Document Name. (You can also sort by choosing the commands in the View menu.) The column title you sorted by is underlined. Sorting the items does not change the order in which they will print. To see that order, sort by Print Time.
- **To temporarily stop all documents from printing on this printer**, choose Stop Print Queue from the Printing menu. To resume using the printer, choose Start Print Queue from the Printing menu. If you're using a PowerBook, this can be a good way to save print requests while you're on the road until you get back to your printer.

*Shortcut:* If you click the printer's desktop icon to select it, you can choose the commands that start and stop the print queue from the Printing menu without opening the window for the printer.

- **To move a print request from one printer to another printer** of the same type, drag the icon for the print request (spool file) to the icon of the printer where you want to move it. If you're not sure whether the two printers are of the same type, try moving the print request anyway—the printer software won't let you move a print request to an incompatible printer.

**3** To continue working while documents print, click on a desktop window or your desktop.

## Using the Apple Printer Utility

The Apple Printer Utility program supplied with the printer software allows the printer administrator to control various aspects of how the printer works. For information about using the Apple Printer Utility, see Chapter 2.

# 7

## Windows and DOS Users



The Color LaserWriter 12/600 PS comes with software for IBM PC or compatible computers using Windows 3.1. This chapter describes how to install and use the PostScript Printer Driver and other printer software.

*Note for Windows NT users:* See “Installing Software for Windows NT” (later in this chapter) for installation instructions. Refer to your Windows NT manual for instructions about printing.

### System requirements

To use the printer, your computer system must meet these requirements:

- IBM PC or compatible, with an 80386 or higher CPU
- hard disk drive
- at least 4 megabytes (MB) of random-access memory (RAM)
- Microsoft Windows 3.1 or 3.1x or Windows for Workgroups 3.11 or 3.1x
- MS-DOS version 3.3 or higher (5.0 or higher recommended)
- 3.5-inch floppy disk drive that reads 1.44 MB disks
- NetWare requires an 80386 CPU with NetWare version 3.0 or higher
- each user of the Apple Printer Utility or Apple Print Monitor must have NetWare Client Software for Windows 3.12 or 4.x installed

Installing all the printer software for the IBM PC or compatible computer requires approximately 3.5 MB of free space on your hard disk.

## Installing the Windows printer software

To install the Windows printer software (if not already installed by your system administrator), follow these steps. These instructions assume that you have a mouse or similar pointing device.

- 1 Find the Windows disks that came with the printer and make sure they're locked.**

You lock a disk by sliding up its write-protection tab. The disk is locked when you can see through the hole.

- 2 Start Windows.**

Before installing the software, make sure the Windows Control Panel and Printers control panel are closed.

- 3 Insert *Printer Disk 1 for Windows* into a floppy disk drive.**

- 4 Read the README.TXT file on *Printer Disk 1 for Windows* to check for late-breaking news.**

You can do this with Windows Notepad or another word processor.

- 5 From the Windows Program Manager, choose Run from the File menu.**

- 6 Type `a:\setup` or `b:\setup` (depending on which drive holds your installation disk) in the command line field and click OK.**

After a few moments, a welcome message is displayed that allows you to select Express Installation or Custom Installation, or De-Install.

Express Installation installs all the software you need to print with your Color LaserWriter 12/600 PS. It creates the Apple LaserWriter Software program group and installs within it the ReadMe file, Apple Print Monitor for Windows, and the Apple Printer Utility for Windows, used to name the printer and perform various printer administrative functions.

Custom Installation lets you specify what portions of the software you would like to install. De-Install lets you remove previously installed LaserWriter software.



**7 Click Express Installation.**

A window appears that keeps you informed as file decompression proceeds. Insert other printer disks (and click OK) as the program asks for them.

Instructions appear describing the next three steps in the installation procedure. Take a moment to read them.

**8 Click Continue.**

The Adobe Printers control panel appears.

**9 Select the Color LaserWriter 12/600 PS and click OK.**

The PostScript Printer Driver files, Apple Print Monitor for Windows, and the Apple Printer Utility for Windows are installed on the hard disk. A message appears telling you that the driver software was successfully installed.

**10 Click OK to dismiss the message.**

**11 Select another printer, if any, and click OK to install. Repeat for each printer you want to install.**

**12 When you're done, click Close.**

A message appears telling you to use the Printers control panel to connect and set up the printers you've installed. By default, each printer uses LPT1. The Printers control panel Setup dialog box lets you specify a different port, for example, LPT2 or a NetWare queue.

**13 Click OK to clear the message.**

Another message tells you that installation is complete.

**14 Click Restart Windows to have the changes take effect.**

The Apple LaserWriter Software program group now appears on your Windows Program Manager screen. Contained within the program group are the ReadMe file, Apple Print Monitor for Windows, and the Apple Printer Utility for Windows.

## **15 Choose how to proceed:**

For most users connected via the parallel cable, the default printer driver settings should suffice.

You can monitor your printer software with Apple Print Monitor for Windows; see the section “Initial Apple Print Monitor for Windows Setup,” in Chapter 3.

For instructions on using the Apple Printer Utility for Windows, see “Setting Additional Parameters with the Apple Printer Utility for Windows,” in Chapter 3.

To configure your printer software with NetWare, see “Initial Novell NetWare Setup,” in Chapter 3.

For instructions on using Adobe Type Manager, for example to install or remove Type 1 fonts, see “Installed Type 1 Fonts and Adobe Type Manager,” in Chapter 3.

## **16 Exit from the installer.**

If you’re not going to use NetWare or your computer is connected directly to the printer by a parallel cable, click Close. If your computer is connected to the printer over a NetWare network, follow these steps:

- From Windows, click Control Panel.
- Click Printers.
- Click Connect. The Connect dialog box opens.
- Click Network. The NetWare Printer Connections dialog box opens.
- Select the queue and the port the printer is assigned to.
- Click Capture and click Close to close the dialog box.
- Highlight the queue and port combination you specified earlier and click OK.
- In the Printers control panel, set the Color LaserWriter 12/600 PS printer as the default printer and click Close.

*Note:* If you don’t already have your NetWare queues set up, go to “Initial Novell NetWare Setup,” in Chapter 3, when you finish installing the software.

## What to do next

The PostScript Printer Driver and other software are now installed. To learn to use the PostScript Printer Driver, turn to “Printing From Windows Applications,” later in this chapter.

## Installing software for Windows NT

The steps to install the PostScript Printer Description (PPD) file for the Color LaserWriter 12/600 PS (or other Apple printer) on a Windows NT system are similar to those in the previous section, except that you select Custom Install (step 7) and click “Windows NT Printer Software.” Make sure the other checkboxes are deselected, then follow these steps:

- 1** Click Install. Instructions for installing the Windows NT software appear.
- 2** Click Continue. The Print Manager appears.
- 3** Select Create Printer from the Print Manager’s Printer menu. The Create Printer dialog box appears.
- 4** Select Other (at the bottom of the list) in the Driver Combo box.
- 5** Insert *Printer Disk 3 for Windows* in the floppy disk drive.
- 6** Make sure the correct floppy disk drive is indicated in the Install Driver dialog box and click OK. A list of printer drivers appears.
- 7** Select the printer driver that corresponds to your printer and click OK.
- 8** Follow the instructions on the screen, and click Continue and OK to complete the installation.

## Printing from Windows applications

After you have connected the printer to your computer and installed and set up the printer software, you're ready to start printing. This section explains the basic steps required to print a document, though the details can vary from one program to another. To find out more about printing from your programs, read the documentation that came with them. If you have Windows NT, print using the TCP/IP protocol or using AppleTalk protocol. See your Windows NT manual for information on configuring.

To print a document from a Windows program, the program must be open and the document window must be active.

### **1 Choose Print from the File menu.**

In most cases a Print dialog box appears in which you can select options, including the number of copies and the pages to print. Depending on your program, the Print dialog box may offer other options.

### **2 Select the options you want and click Print.**

A message appears while the document is queued to the Print Manager. After the message disappears, you can go on with your work while your document is being printed.

## Setting printer driver options

You can change the PostScript Printer Driver default options. For example, you can change the preset paper orientation to Portrait or Landscape.

You set printer options in the printer driver Setup dialog box, which you can open in three ways, as explained in the sections that follow:

- from the Control Panel
- from your application
- from the Print Manager

*Note:* When changing options to print a specific document, it's preferable to change the options from within the application. Settings you change from within an application will affect that document only and not all documents printed afterward. Settings you change in an application's Print dialog box override print options you set in the Setup dialog box.

## Opening the printer Setup dialog box from the Control Panel

- 1 From the Program Manager, double-click the Control Panel icon to display the Control Panel.
- 2 Double-click the Printers icon to display the Printers dialog box.
- 3 Select the printer you want to set up from the List of Installed Printers.
- 4 Choose Setup to display the Setup dialog box for the printer.

You can also use the Printers dialog box to select a default printer, to switch the Print Manager on and off, and to connect your printer to a different port.

## Opening the printer setup dialog box from your application

Most applications have a Print Setup command in their File menus.

- 1 Choose the Print Setup command from the File menu.  
This command usually displays the Print Setup dialog box.
- 2 If you are using more than one printer, select the printer you want to set up.
- 3 Click the Options (or Setup) button to display the Setup dialog box.

*Note:* The names of the commands and buttons used to display the printer Setup dialog box vary from program to program. See your program's documentation for the precise command and button names it uses.

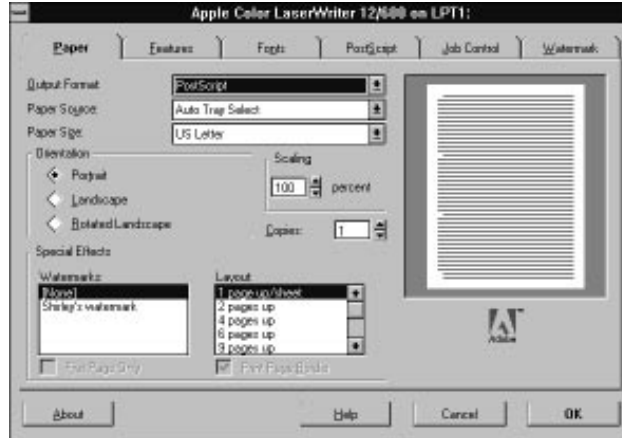
## Opening the printer Setup dialog box from the Print Manager

- 1 From the Program Manager, double-click the Print Manager icon to display the Print Manager.
- 2 Select the printer you want to set up from the list of Printers.
- 3 Choose the Setup or Printer Setup command from the Options menu to display the Setup dialog box for your printer.

## Selecting printer options in the Setup dialog box

You can change the most commonly used printer settings from the Setup dialog box. (The tabs in the dialog box also give you access to additional printer settings. For information about these settings, see “Additional Printer Options,” next.) The previous sections explain how to open the Setup dialog box.

The Paper tab dialog box is displayed first:



- **Output Format** Selects either PostScript or Encapsulated PostScript. Use PostScript for normal printing. Use Encapsulated PostScript to create a file that can be placed in a document of a program that accepts Encapsulated PostScript images.
- **Paper Source** Selects which paper cassette or multipurpose tray to use as the paper source.
- **Paper Size** Specifies the paper size. Select the size that matches the paper in the current paper source.
- **Orientation** Selects the orientation of the printed page. You can select Portrait (tall), Landscape (wide), or Rotated Landscape (which prints text and images in landscape orientation, but reverses the top and bottom of the page, most useful when you're printing with three-hole punched paper).

- **Scaling** Shrinks or enlarges the print image by a percentage you specify. You can scale the image from 10 percent to 400 percent.
- **Copies** Specifies the number of copies of each document page to print.
- **Watermarks** Specifies which watermark to use.
- **Layout** Specifies the number of pages to print on each sheet of paper.
- **Preview Screen** Shows changes you make in the driver settings.

*Note:* To print on transparencies, you must select Transparency using the Paper Type option in the Features tab dialog box.

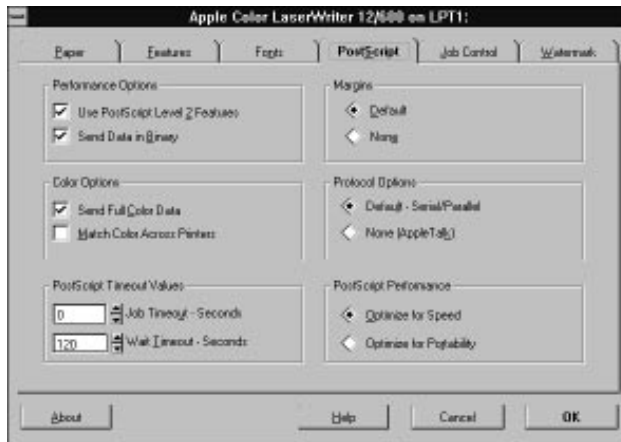
## Additional printer options

In addition to the Paper tab, other tabs display settings for:

- PostScript
- Fonts
- Features
- Job control
- Watermark

## PostScript

Click the PostScript tab to display the PostScript tab dialog box, which controls color printing, the communication protocol, and PostScript Level 2 features.



The PostScript tab dialog box lets you set the following options:

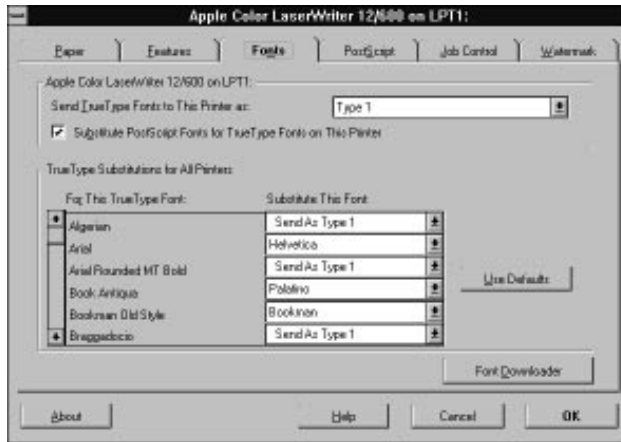
- **Use PostScript Level 2 features** Tells the driver to use PostScript Level 2 features when printing documents. Use the Level 2 features to speed printing.
- **Send Data in Binary** Tells the driver to send data to the printer in a binary format. Sending data in binary format may improve the printer's performance when printing images or documents containing many downloadable fonts. The Color LaserWriter 12/600 PS printer can always receive data in either ASCII or binary format.
- **Send Full Color Data** Tells the driver to print colors on a color printer. Usually it is best to select this option even when printing to a non-color printer. Colors print in finer shades of gray.
- **Match Colors Across Printers** Tells the driver to save color-matching information with the data for use later when the document is saved to a file for printing on a different PostScript Level 2 printer.



- **Job Timeout** Sets the maximum number of seconds that the printer will spend trying to print a document before canceling the print job. A value of zero means that the job is never canceled.
- **Wait Timeout** Sets the maximum number of seconds that the printer will wait for Windows to send data before canceling the print job. A value of zero means that the job is never canceled.
- **Margins** Changes the way the printer driver reports the printable area to the applications you use. The Default option tells the driver to report the printable area accurately to the applications. The None option tells the driver to report the dimensions of the paper as the printable area.
- **Protocol Options** Tells the print driver whether to begin and end print jobs with Ctrl-D. Default means it will begin and end jobs with a Ctrl-D, and None means it won't. If the printer is connected to your computer or network by its parallel port, click Default; if it's connected by its Ethernet port, click None.
- **PostScript Performance** Tells the driver to build PostScript document descriptions that print as fast as possible when Optimize for Speed is selected. Such document descriptions might not print successfully on printers with limited memory. Select "Optimize for Portability" to tell the driver to build PostScript document descriptions that print successfully on many different printers.

## Fonts

Click the Fonts tab to display the Fonts tab dialog box. Parameters in this dialog box control the way the driver prints TrueType fonts used in your documents. The driver can download available TrueType fonts as TrueType fonts (Type 42); substitute available PostScript fonts for TrueType fonts; or automatically create PostScript versions of TrueType fonts and download them to the printer when you print.



The TrueType Fonts tab dialog box lets you set the following options:

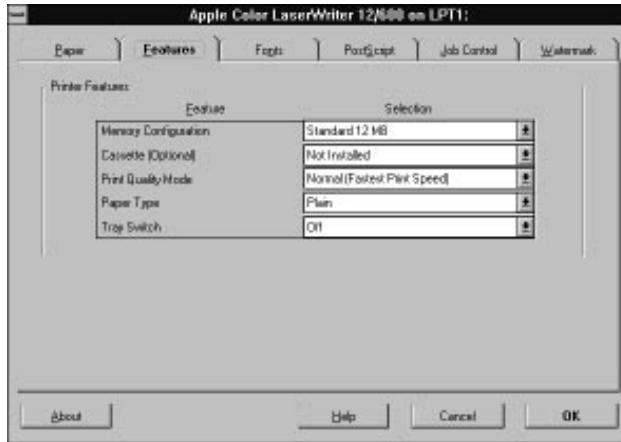
- **Send TrueType Fonts to This Printer as** Tells the driver what kind of PostScript fonts to create for TrueType fonts. Select one of these options:
  - Type 1 to synthesize outline PostScript fonts.
  - Type 3 to synthesize bitmapped PostScript fonts.
  - Type 42 to package TrueType fonts for the PostScript printer.
  - Don't Send to use TrueType fonts that are resident in the printer or are supplied by print-manager software. (No TrueType fonts are resident on the printer as it is shipped from the factory.)

- **Substitute PostScript Fonts for TrueType Fonts on This Printer** When checked, tells the driver to substitute PostScript fonts available to the printer for TrueType fonts. The driver uses the TrueType Substitutions table to determine which PostScript font to use for each TrueType font installed on your system. Substituting PostScript fonts for TrueType fonts speeds printing (especially when the PostScript fonts are resident in the printer).
- **TrueType Substitutions for All Printers** Lists all the TrueType fonts installed on your system, and for each TrueType font, shows which PostScript font is substituted for a TrueType font. This table is used only when you select the “Substitute PostScript Fonts for TrueType Fonts on This Printer” option.
- **For This TrueType Font** Shows a list of all the TrueType fonts installed on your system.
- **Substitute This Font** Lets you select how font substitution is done. Shows a list of the PostScript fonts that are substituted for the TrueType fonts. Each list box lists all the PostScript fonts available to the printer. PostScript fonts available to the printer include all the fonts resident in the printer’s ROM, as well as all the Type 1 fonts that you have downloaded to the printer’s RAM or hard disks. Each list box also contains a Send As Type 1 option, which converts the TrueType font to a Type 1 font. The Use Defaults button restores the original PostScript font substitutions.

**IMPORTANT** For information about using Font Downloader, see “Downloading Fonts,” later in this chapter.

## Features

Click the Features tab to display the Features tab dialog box, which lets you configure the printer software to use optional printing features that you install on the Color LaserWriter 12/600 PS. Use this dialog box to set up any optional features you may purchase, such as additional memory or the 250-sheet feeder.



The Features tab dialog box lets you configure the printer to use the following options:

- **Memory Configuration** The amount of RAM installed in the printer.
- **Cassette** Indicates whether you have installed the optional 250-sheet feeder.
- **Tray Switch** Turns tray switching on or off.
- **Paper Type** Plain or Transparency.
- **Print Quality Mode** Normal (fastest print speed) or Best (slower print speed).

## Job Control

Click the Job Control tab to display the Job Control tab dialog box, which controls such options as when the PostScript header and the PostScript error handler are sent to your printer.

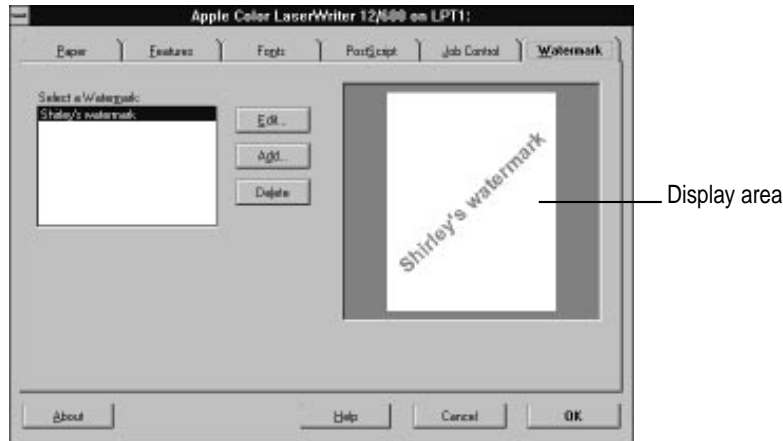


The following list describes the printer settings in the Job Control tab dialog box.

- **Printer Mode** By default, the printer is set up to receive data in either binary or ASCII format. There is no need to switch between these manually.
- **PostScript Header** The PostScript header contains instructions that a PostScript printer needs to print documents created by the driver. If your printer is connected directly to your computer only, you can save time by choosing the Download button to send the PostScript header only once—when you switch on your printer. Download Each Job tells the driver to send the PostScript header with every document. Already Downloaded tells the driver not to send the PostScript header with documents. Download tells the driver to send the header when you choose the Download button.
- **Error Handler** Tells the driver to send a special PostScript error handler with every document you print. The error handler prints a page with a PostScript error message when a document fails to print correctly. You can use this option as an aid in troubleshooting print job problems.
- **Font Control** This advanced feature tells the driver not to download fonts when printing documents. Use this option if you know that the fonts you use in your documents are always available to the printer.

## Watermark

Click the Watermark tab to display the Watermark tab dialog box, which contains options for defining, editing, and deleting watermarks.

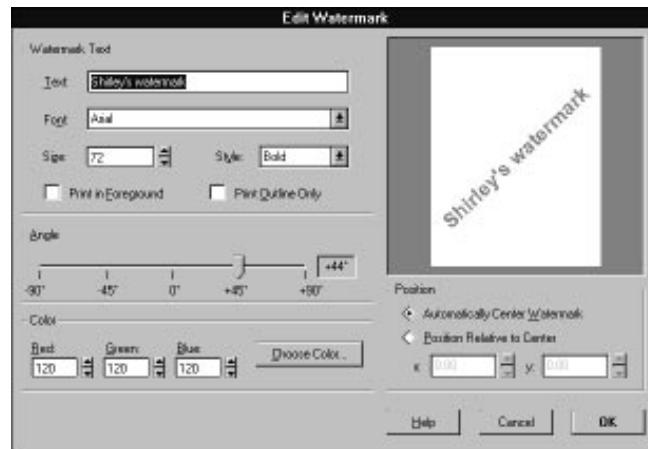


The following list describes the settings in the Watermark tab dialog box.

- **Select a Watermark** Lists available watermark definitions, which can be selected and edited or deleted.
- **Edit** Displays the Edit Watermark dialog box, summarized below.
- **Add** Displays the Add Watermark dialog box, which has the same features as the Edit Watermark dialog box, summarized below.
- **Delete** Deletes the selected watermark definition.
- **Display area** A bitmap area that displays a portrait image of what the page will look like when printed.

## Edit Watermark

Choose the Edit button in the Watermark tab dialog box to display the Edit Watermark dialog box.



The following settings are available in the Edit Watermark dialog box:

- **Text** Displays the text of the selected watermark for editing.
- **Font** Lists all TrueType and ATM fonts and the 13 base PostScript fonts that either reside in the printer or can be downloaded to the printer.
- **Size** Lets you specify a font size between 7 and 600 points.
- **Style** Lets you specify a font style: Regular, Bold, Italic, and Bold Italic, as available.
- **Print in Foreground** Tells the printer to print the watermark in the foreground rather than in the background (the default). Choose this setting if you cannot see the watermark on the printed page.
- **Print Outline Only** Tells the printer to print only the outline of the watermark. Choose this setting if the watermark is covering graphic images in the document.
- **Angle** Lets you specify the angle at which the watermark will display on the page.

- **Color** Lets you specify red, green, and blue values for the color in which the watermark is printed. As an alternative, Choose Color brings up a Color dialog box that lets you view and select a color for the watermark.
- **Position/Automatically Center Watermark/Position Relative to Center** Tells the driver how to position the watermark. Automatically Center Watermark centers the watermark on the page. Position Relative to Center lets you specify x and y coordinates for the watermark relative to the center.

## Downloading fonts

The Color LaserWriter 12/600 PS uses downloadable PostScript fonts, which are a type of soft font. The PostScript Printer Driver automatically downloads any Type 1 fonts from your computer's hard disk to the printer's memory as needed for each document that you print. You can also use the driver to manually download fonts to the printer's memory or to a hard disk installed or connected to the printer when you don't want to download fonts for each document. Manually downloading fonts can speed printing.

*Note:* The Color LaserWriter 12/600 PS has a set of built-in fonts that do not need to be downloaded. These fonts are listed in Appendix A.

Whether it is better to let Windows download fonts automatically or to manually download fonts yourself depends on the number and frequency with which fonts are used in a document and the size of your printer's memory or hard disk.

Downloading a Type 1 font to a PostScript printer usually takes from 15 to 20 seconds. When a program prints a document containing a font that is not resident in your printer, Windows automatically downloads the font with the document. However, after the document prints, any fonts that have been downloaded with the document are cleared from the printer's memory. This means that each time you print a document that contains fonts not resident in the printer, the fonts must be downloaded.



By contrast, when you manually download a Type 1 font with the Font Downloader, the font remains in printer memory (RAM) until you switch off or restart the printer or when memory limitations are exceeded. Manually downloading frequently used fonts therefore reduces printing time because the fonts do not have to be sent to the printer each time they are used. Keep in mind, however, that fonts manually downloaded to RAM reduce the overall amount of memory available for printing and so may affect the printing of documents that do not contain the downloaded fonts.

When you manually download a Type 1 font to a hard disk attached to the printer, the font is available to the printer and no longer has to be downloaded. This can speed up printing.

In addition to downloading fonts, you can also use the Font Downloader to perform various printer management tasks, such as listing and removing downloaded fonts, manually downloading PostScript language files, clearing the printer font cache, and resynchronizing your printer with the Windows driver.

See your network administrator for more information about performing these tasks on your network, or choose the Help button in the Font Downloader dialog box to see instructions for these tasks.

## Downloading fonts manually to RAM or to the hard disk

Fonts need to be downloaded only once. Users who want to use fonts that have already been downloaded should use the Job Control tab dialog box (described later in this chapter) to turn on Do Not Download Fonts. Otherwise, the fonts will be downloaded again, wasting time and system resources.

**Before you begin** If you are downloading fonts to a hard disk, you must add the hard disk to the device list (and initialize it if necessary), as explained later in this chapter.

- 1** From the Program Manager, open the Control Panel.

- 2** Double-click the Printers icon.

The Printers dialog box appears.

**3** If it is not already selected, select the Color LaserWriter 12/600 PS from the Installed Printers list.

**4** Click Setup.

The Setup dialog box appears.

*Note:* You can also open the Setup dialog box from within many Windows programs. Check your program documentation to see if you can change your printer setup from within your program.

**5** Click Fonts.

**6** Click Font Downloader.

The Font Downloader dialog box appears.

**7** Select the destination device from the list box.

To download to RAM, choose “memory,” or to download to a hard disk, choose the name of the hard disk.

**8** Select the fonts you want to download from the Fonts Available list.

Fonts that are already present in the printer’s ROM do not need to be downloaded. For a list of these fonts, see Appendix A or print a list of font samples by choosing Print Font Samples in the Apple Printer Utility for Windows.

**9** Click Download.

The Downloader informs you of its progress as it downloads fonts.

*Note:* While downloading, you can use other programs, but you can’t print.

**10** After you are finished downloading fonts, click Exit.

You are returned to the Setup dialog box.

**11** Click OK to close the Setup dialog box.

**12** Click Close to close the Printers dialog box.

**13** Choose Exit from the Settings menu to close the Control Panel.

You can confirm that the fonts were downloaded by printing a list of font samples with the Apple Printer Utility for Windows.

## Using a hard disk

You can add an internal or external hard disk to the Color LaserWriter 12/600 PS. A hard disk can store many soft fonts so they don't need to be downloaded each time you use them, thus expediting your printing. Chapter 5 explains how to install a hard disk.

After the hard disk is installed, you must add it to the device list and initialize it, as explained in the next two sections.

### Adding a hard disk to the device list

**1 From the Program Manager, open the Control Panel.**

**2 Double-click the Printers icon.**

The Printers dialog box appears.

**3 If it is not already selected, select the Color LaserWriter 12/600 PS from the Installed Printers list.**

**4 Click Setup.**

The Setup dialog box appears.

*Note:* You can also open the Setup dialog box from within many Windows programs. Check your program documentation to see if you can change your printer setup from within your program.

**5 Click Fonts.**

**6 Click Font Downloader.**

The Font Downloader dialog box appears.

**7 Click Device Installer.**

A dialog box opens.

**8 Click Add New.**

Another dialog box opens.

**9 Make sure “Magnetic disk” is selected, then click Add.**

**10 Complete the dialog box as follows:**

- Fill in the Available Memory box with the number of kilobytes your hard disk can store.
- If you have Font Metrics files for the fonts, you can check the Read Font Metrics Files checkbox.
- Make sure the Volatile checkbox is *not* checked.
- Make sure the Writable checkbox is checked.

**11 Click Add.**

A dialog box opens.

**12 Type a name for the hard disk.**

**13 Click a button to indicate which SCSI number the hard disk has.**

If it's an internal hard disk, the SCSI number is 0.

**14 Click OK.**

You return to the Device Installer dialog box.

**15 Click Close.**

If the hard disk installed is already initialized in Apple HFS format, you can now download fonts. If not, go on to initialize the hard disk.

## Initializing the hard disk

If you attach a hard disk to the printer to store fonts, you must initialize it (if it is not already in Apple HFS format) before you can use it. You can do so by following the steps below.

**WARNING** Initializing the hard disk erases all the data on it. Initialize the hard disk only if you're sure it's new or if it's OK to erase it.

- 1** From the Program Manager, open the Control Panel.
- 2** Double-click the Printers icon to display the Printers dialog box.
- 3** If it's not already selected, select the Color LaserWriter 12/600 PS from the Installed Printers list.
- 4** Click Setup.

The Setup dialog box appears.

*Note:* You can also open the Setup dialog box from within many Windows programs. Check your program documentation to see if you can change your printer setup from within your program.

- 5** Click the Fonts tab.
- 6** Click Font Downloader.

The Font Downloader dialog box appears.

- 7** Click Other.

A dialog box opens.

- 8** Click the Format Device button, then click OK.
- 9** Select the disk name and click OK.

Initializing the hard disk takes a few minutes. The Ready/In Use light on the printer blinks until initialization is complete.

## Printing to a PostScript file

As an alternative to printing your document on the printer, you can save a PostScript language description of your document as a disk file. PostScript language descriptions of documents can be useful for

- creating document archives
- printing documents without using the program that created them (at a service bureau, for example)
- diagnosing printing problems

You may also want to print an Encapsulated PostScript (EPS) file. You can use EPS files to export single pages from one program to another. EPS files can include any combination of text, graphics, and images, but they do not describe complete documents. For example, by saving an EPS file, you can insert a page of a document created with one program as an illustration in a document created by another program.

*Note:* PostScript files are normally ASCII text files that can be opened with any word processing program. However, if you select the Send Data in Binary option in the PostScript Options dialog box, the PostScript files may include binary characters that make them unsuitable for use with a word processor.

You can use either of two methods to create PostScript files. If your program's Print dialog box has a Print to File checkbox, you can use this checkbox to create a PostScript file; this is the preferred method. Refer to your program documentation for information. If your program's Print dialog box does not have a Print to File checkbox, however, you need to make temporary changes to your printer setup to create a PostScript file, as described next.

## Using the driver to print to a PostScript file

Using the driver to print to a PostScript file is a three-step process. First, change your printer setup, then use your program to create the file, and finally reset your printer setup for normal printing.

### Step 1: Changing your printer setup to print to a PostScript file

- 1 From the Program Manager, open the Control Panel and double-click the Printers icon.**

The Printers dialog box appears.

- 2 If it is not already selected, select the name of the PostScript printer that you are using from the Installed Printers list.**

- 3 Select Connect.**

The Connect dialog box appears.

- 4 Select FILE from the Ports list box.**

You may have to scroll through the list to find this selection.

- 5 Choose OK to close the Connect dialog box and return to the Printers dialog box.**

- 6 Choose Setup.**

The driver Setup dialog box appears.

- 7 After changing (or confirming) your printer settings, choose OK to close the dialog box.**

*Note:* Choose settings in the PostScript Options dialog box that will produce a file that prints correctly on the destination printer. For example, select the “Use PostScript Level 2 Features” option if you are sure that you will be printing the file only on Level 2 printers, such as the Color LaserWriter 12/600 PS. If you plan to use a printer that does not support binary communication, disable the “Send Data in Binary” option. Selecting the “Optimize for Portability” option creates PostScript files that print successfully from different programs on a wide variety of printers and imaging devices; it is recommended that you enable this option.

- 8 Choose Close to close the Printers dialog box.**

- 9 Choose Exit from the Settings menu to close the Control Panel.**

Your computer is now set up to create PostScript files when you choose the Print command from a Windows program.

## **Step 2: Printing to a PostScript file**

- 1** Start the program and open the document for which you want to create a PostScript file.
- 2** If necessary, select the Print Setup command from the File menu, change the settings as appropriate, and select OK.
- 3** Select the Print command from the File menu.

Your program's Print dialog box appears.

- 4** Choose OK.

A dialog box appears that asks you to name the file.

- 5** Enter a pathname and filename for the file.

If you don't specify a pathname, the PostScript file is placed in your program's default directory.

- 6** Choose OK.

The PostScript file is created, and you are returned to your program.

## **Step 3: Restoring your printer setup options**

After creating PostScript files, you need to restore your original printer setup options before you can use your printer again.

- 1** From the Program Manager, open the Control Panel.
  - 2** Double-click the Printers icon.
- The Printers dialog box appears.
- 3** If it is not already selected, select the printer model from the Installed Printers list.
  - 4** Choose Connect.

The Connect dialog box appears.

- 5** In the Ports list box, select the port to which your PostScript printer is connected.
- 6** Choose OK.

The Connect dialog box closes, and you are returned to the Printers dialog box.



- 7 If you changed any printer settings to print to file, choose Setup to display the Setup dialog box. Undo any changes you made and then choose OK.

The Printers dialog box appears.

- 8 Select OK to close the Printers dialog box.
- 9 Choose Exit from the Settings menu to close the Control Panel.

## DOS notes

If you are using DOS programs, refer to the manual that came with your program and follow the instructions for using a PostScript printer. Most DOS programs are PostScript compatible.

### Capturing a print queue for DOS printing

From DOS, you can use the NetWare `CAPTURE` command to map the parallel port to a print queue.

- Log in to the NetWare network and enter the `CAPTURE` Command, using the following syntax:

```
CAPTURE /q=queue_name local=lptnumber server=server_name  
job=new
```

Unless you specify otherwise, the command assumes that you are mapping the LPT1 port to a queue.

## Using the Apple Printer Utility for Windows

The Apple Printer Utility program supplied with the printer software lets the printer administrator control various aspects of how the printer works. For information about installing and using the Apple Printer Utility for Windows, see Chapter 3.



# 8

## UNIX Users



The details of setting up your UNIX workstation depend on which type of UNIX you're running. In most cases, the setup requires superuser privileges and knowledge of the `/etc/hosts` and `/etc/printcap` files and should be done by your local network or printer administrator, as described in Chapter 4.

Once this setup is complete, your network or printer administrator will tell you the name of the printer's local print queues and what sort of documents should be sent to which queue.

## Printing from a UNIX workstation to the printer

You don't need any special software to use the printer. On most UNIX systems, you use either the `lpr` or `lp` command to print documents over a TCP/IP network to the printer. (The documents must be in PostScript format.)

### Example for `lpr`

```
lpr -PKeithsLW file.ps
```

### Example for `lp`

```
lp -d KeithsLW file.ps
```

The way you print and choose printing options can differ from one application program to another. To find out more about printing from your application programs, read the documentation that came with the programs.

# 9

## Loading Paper



This chapter describes how to load the standard paper cassette and the multipurpose tray with paper. It describes how to load plain paper, letterhead, three-hole punched paper, and transparencies for printing.

You can purchase additional printing options for use with your Color LaserWriter 12/600 PS, including a 250-sheet feeder, which contains a universal cassette. (You can also buy the universal cassette as a separate optional item and use it instead of the standard paper cassette that came with the printer.) For instructions on attaching options, see Chapter 5.

The way you control the printer from your computer depends on the type of computer and program you are using. For general information about printing with a Macintosh, see Chapter 6. For information about printing with an IBM PC or compatible computer using Microsoft Windows, see Chapter 7. For specific information about printing with a particular program, refer to the documentation that came with the program.

**WARNING** The Color LaserWriter 12/600 PS is not designed to handle printing on envelopes or labels. Those materials could cause damage to the printer.

## Choosing paper

The Color LaserWriter 12/600 PS produces the best results on paper labeled “laser-quality” (16- to 24-pound stock). The printer can accept stock of up to 28 pounds from the multipurpose tray.

To avoid paper problems, keep the following potential trouble sources in mind:

- **Temperature** Some letterheads are printed with low-temperature dyes that vaporize and smear at the temperatures inside the printer. Some glossy, coated letterheads may lose their coating in the printer. Using high-quality stationery should ensure satisfactory results.
- **Paper texture** The printer may not print well on rough or highly textured paper. Try a few sheets to test the quality.
- **Paper finish** The printer may not print well on some papers with a glossy finish. Again, test a few sheets of any unusual paper stock you wish to use.
- **Paper color** The printer expects white paper and prints colors based on that assumption. If you use colored paper, you should expect peculiar results.

It is always best to use off-the-shelf paper products rather than unusual types of paper.

The Color LaserWriter 12/600 PS produces high-quality transparencies for overhead projection. If you experience difficulties when attempting to print transparencies with automatic feed, use manual feed instead.

## Automatic or manual printing with the printer

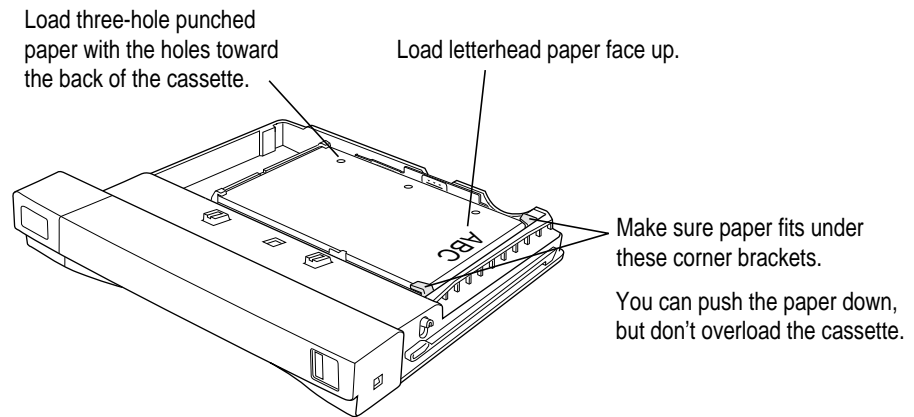
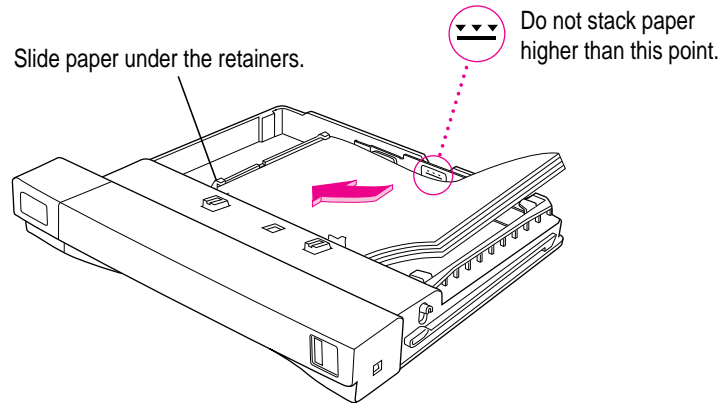
You can automatically print using paper from the paper cassette or using paper or transparencies stacked in the multipurpose tray. You can also manually feed paper and transparencies into the printer using the multipurpose tray.

For information about selecting automatic or manual paper feeding, or selecting the cassette or multipurpose tray to print from:

- If you have a Macintosh, see “Printing” in Chapter 6.
- If you have an IBM PC or compatible computer using Microsoft Windows, see “Printing from Windows Applications” in Chapter 7.

## Using the standard paper cassette

The standard paper cassette holds up to 250 sheets of paper. You can fill the cassette with U.S. letter-size paper (or A4 paper, depending on the type of paper cassette you have). You can use plain paper, letterhead paper, or three-hole punched paper. To refill the paper cassette, insert paper as shown in the following illustrations.

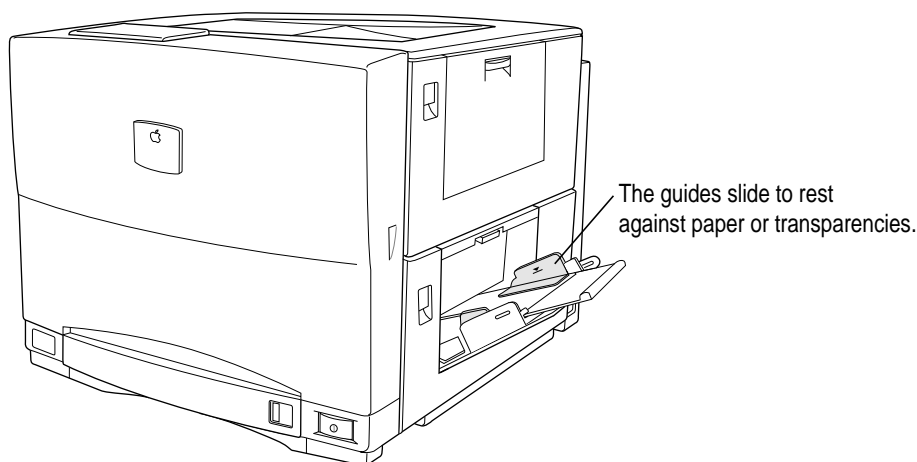
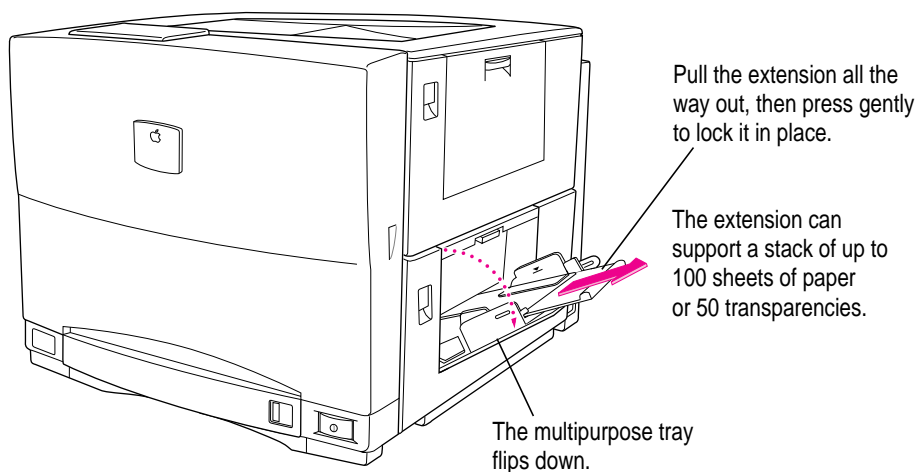


## Using the multipurpose tray

The multipurpose tray is built into the printer. You can use the multipurpose tray for automatic and manual feed printing.

### Opening the multipurpose tray

To use the multipurpose tray you must first open it. Pull on the latch at the top of the tray and then lower the tray slowly. Pull open the extension to adjust the tray so that your paper does not extend over the edge.

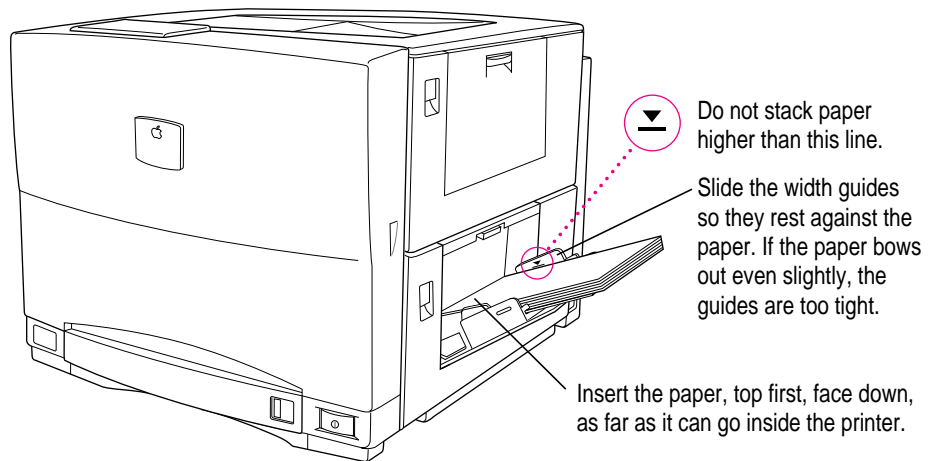




## Placing paper and transparencies in the multipurpose tray

You can use the multipurpose tray for all your printing jobs. You can keep a small stack of paper in the tray and let the printer feed the paper automatically, or you can use the multipurpose tray for manual feed printing.

With the Auto Select feature on in the Print dialog box, the printer draws paper automatically from any source that holds the correct size paper. To tell the printer the size of paper in the multipurpose tray, use the Apple Printer Utility. The printer software can then determine correctly when to draw paper automatically from the multipurpose tray. For more information about defining the size of paper in the multipurpose tray, see Chapter 2 if you have a Macintosh, or Chapter 3 if you have an IBM PC or compatible computer.



For manual-feed printing, place a single sheet of paper or transparency film in the multipurpose tray.

The multipurpose tray holds up to 100 sheets of paper. When the printer expects to find paper in the tray (for example, during a manual feed print job), the Paper Out light comes on to let you know that you should put paper in the tray.

*By the way:* You can have the Color LaserWriter 12/600 PS print using a first sheet from the multipurpose tray and remaining sheets from a paper cassette (or vice versa.) For example, you can place letterhead paper in the multipurpose tray and use it for printing the first page of a letter, and print all following pages on plain paper from the standard paper cassette (or the optional feeder, if you have one installed).

For more information about selecting paper trays for printing, see Chapter 6 if you use a Macintosh or Chapter 7 if you use an IBM PC or compatible computer.

### Tips for avoiding problems

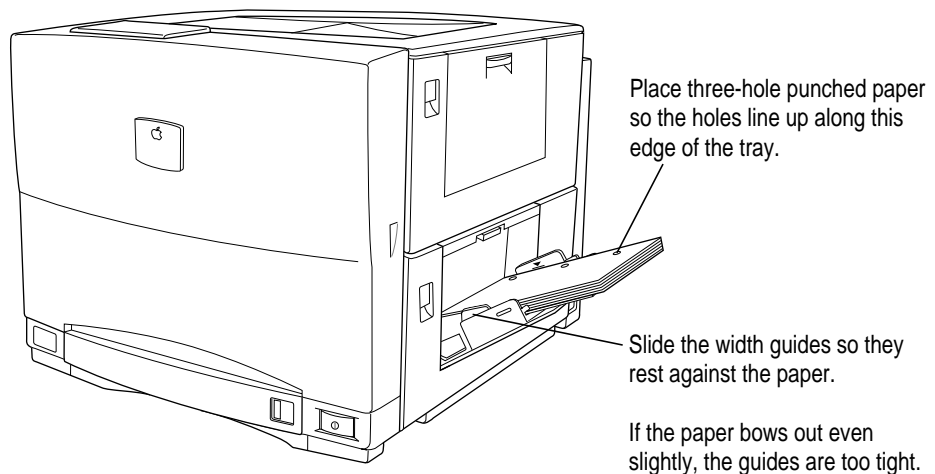
Here are some suggestions to help you avoid problems with paper jams:

- Make sure the paper lines up straight and doesn't enter the printer skewed at an angle.
- Make sure the paper guides keep the paper evenly aligned, but don't set the guides so tight that the paper stack bulges.
- Make sure the paper is as flat as possible; if the leading edge is curled, straighten it out before you put it in the multipurpose tray.

### Loading three-hole punched paper in the multipurpose tray

You can load a stack of three-hole punched paper in the multipurpose tray for automatic printing. You can also print on three-hole punched paper manually by feeding one sheet at a time.

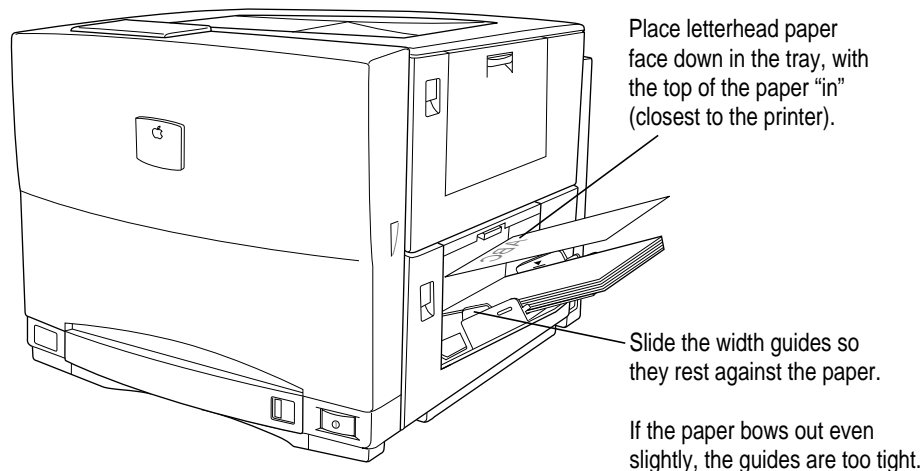
This illustration shows how to load a stack of three-hole punched paper in the multipurpose tray.



## Loading letterhead paper in the multipurpose tray

You can load a stack of letterhead in the multipurpose tray for automatic printing. You can also print letterhead manually by feeding one sheet at a time.

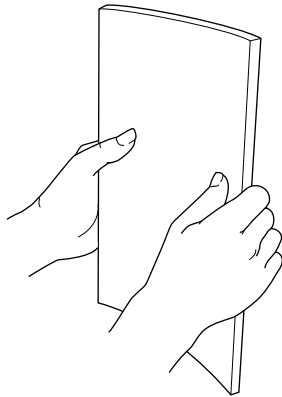
This illustration shows how to load a stack of letterhead in the multipurpose tray.



## Loading transparencies in the multipurpose tray

You can load one transparency at a time into the multipurpose tray for manual printing, or you can place a stack of about 50 transparencies in the tray for automatic feed.

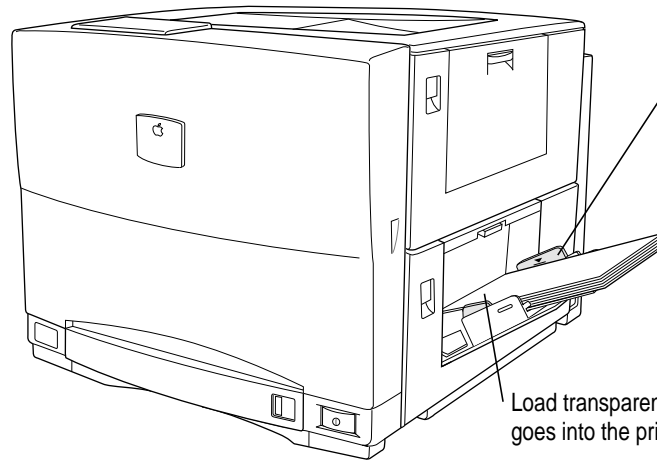
**IMPORTANT** When you print overhead transparencies, use the multipurpose tray. (This helps avoid paper jams.) Use only Color LaserWriter 12/600 PS Transparencies Letter or Color LaserWriter 12/600 PS Transparencies A4 with this printer. (See Appendix A for information about ordering these products.) The printer may not print on other types of transparencies, and quality will suffer. Use the face-down tray (on top of the printer) for delivering printed transparencies. If you use the face-up tray, be sure to remove each printed transparency from the face-up tray before you print another one.



To make sure the edges are aligned, gently tap the stack of transparencies on a flat surface. Fan the edges of the stack before you insert it.

To avoid leaving fingerprints (and ensure the best image quality), handle transparencies by their edges.

**IMPORTANT** Insert transparencies so the white strip goes into the printer first. Some transparencies have short strips that don't extend fully across the page. Align these transparencies with the short strip on the left-hand side of the stack. Inserting transparencies incorrectly causes them to jam.



Slide the width guides so they rest against the transparencies. If the transparencies bow out even slightly, the guides are too tight.

Load transparencies so the white strip goes into the printer first.

If a transparency has a partial strip, align the strip on the left as it goes into the printer.

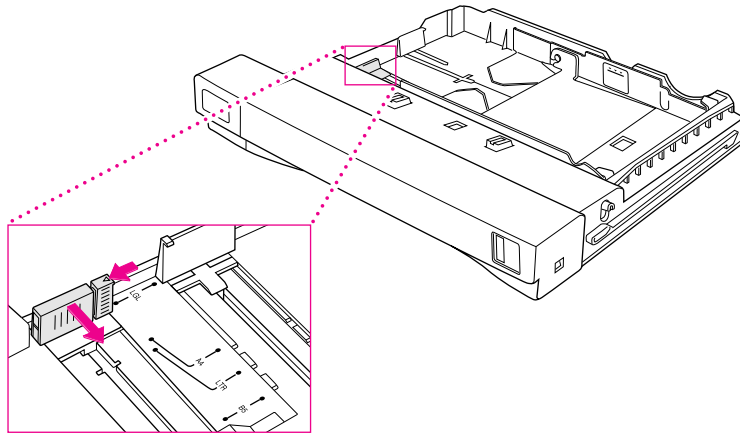
If a transparency has a full-width paper strip, make sure the paper side is up as it goes into the printer.

Use only transparencies recommended for use in the Color LaserWriter 12/600 PS.

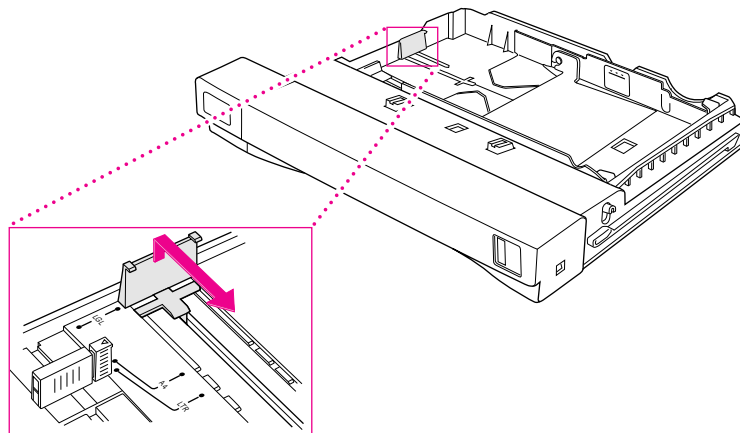
## Loading the optional 250-sheet universal cassette

- 1** Slide the cassette out of the printer. (It may be in the optional sheet feeder.)
- 2** Set the width guide to match your paper's width.

The cassette is marked with positions for paper of U.S. letter, A4, B5, and legal sizes.



- 3** Set the length guide to match your paper's length.



**4** Insert your paper within the guides.

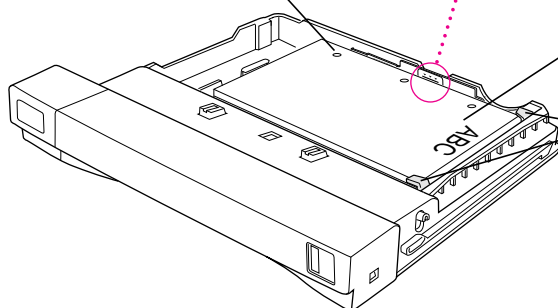
Load three-hole punched paper with the holes toward the back of the cassette.



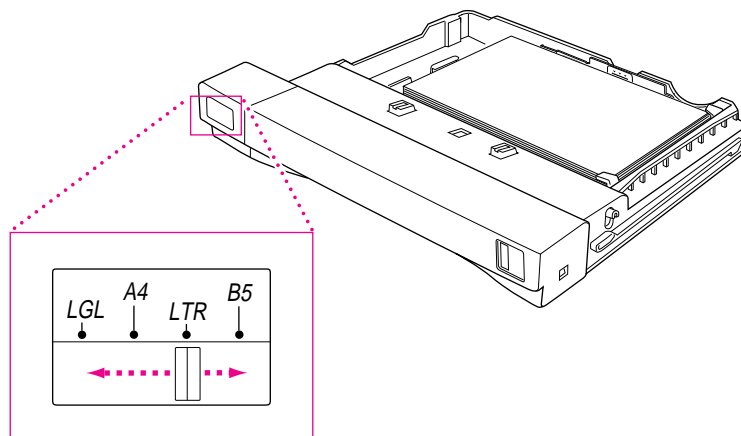
Do not stack paper higher than this point.

Load letterhead paper face up.

Make sure paper fits under these corner brackets.



**5** Set the size guide on the front to match your paper's size.



Size guide

Setting this guide indicates to the printer the size of the paper in the cassette.

**6** Insert the paper cassette into the printer (or into the 250-sheet feeder).





# 10

## Maintenance



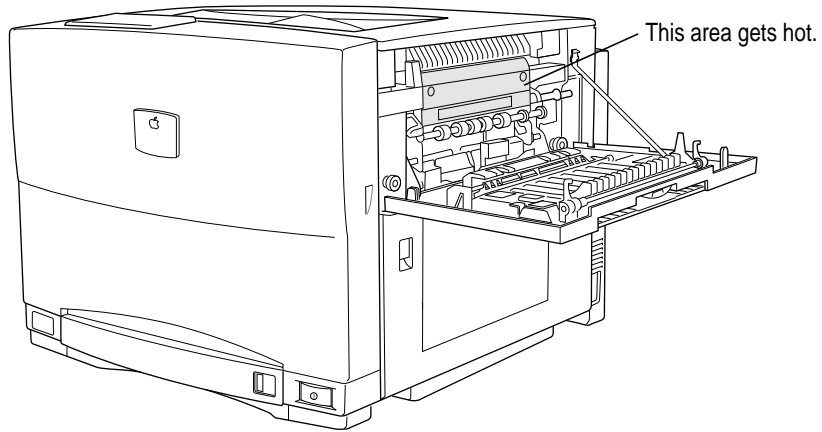
The Color LaserWriter 12/600 PS is designed for trouble-free service. Maintenance involves putting in a new toner cartridge when a color runs out, replacing the bottle containing fuser oil, and replacing the photoconductor cartridge and toner disposal box. In addition, there are a few minor cleaning tasks you may want to perform.

The recommended service interval is 60,000 pages to check any service wear on the fuser and associated parts. This service can be arranged through an Apple-authorized service provider, or you can replace the fuser yourself. For instructions on replacing the fuser, see Appendix F.

**IMPORTANT** You'll find instructions for replacing toner cartridges, fuser oil, and the photoconductor cartridge and toner disposal box in the packages that contain the replacement items.

## Safety first

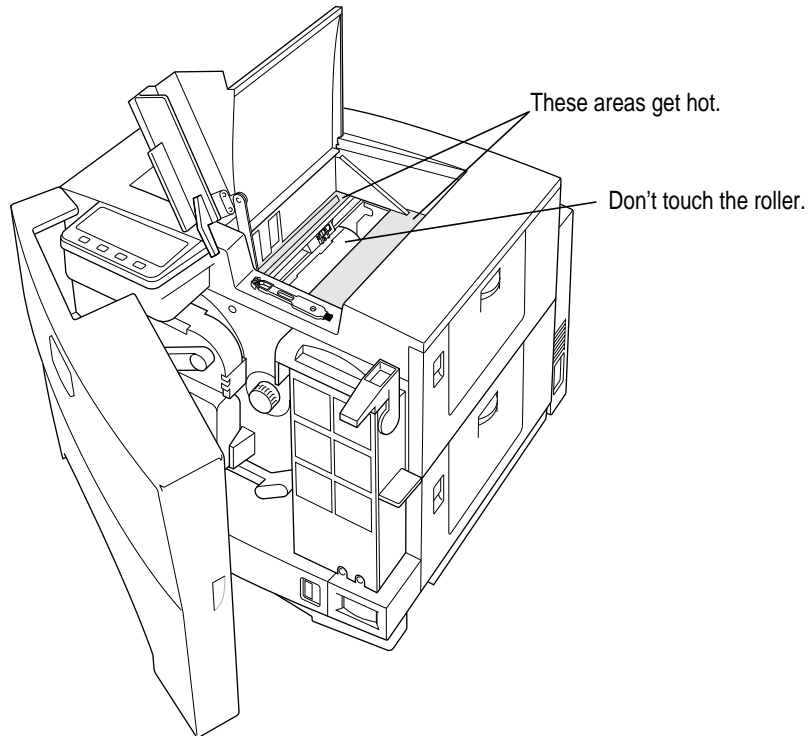
The fuser assembly in the Color LaserWriter 12/600 PS operates at very high temperatures—around 400° F (204° C). Allow the rollers to cool 30 minutes before performing maintenance and troubleshooting.



## Precautions during maintenance

To prevent damage to the printer while performing maintenance, observe the following precautions.

- Don't lubricate the printer.
- Don't attempt to disassemble the printer.
- Don't place anything on top of the printer.



## Regular maintenance

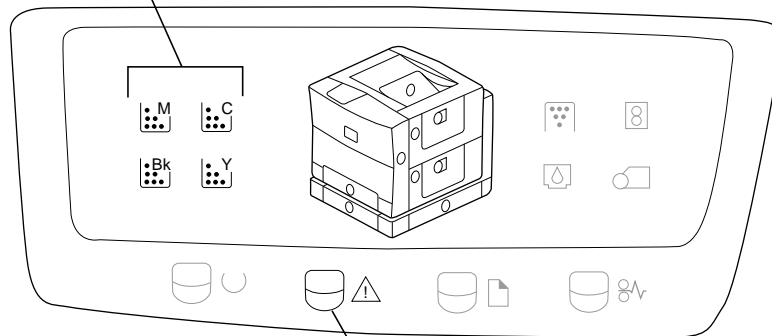
You can perform most regular maintenance tasks, replacing toner cartridges, fuser oil, the photoconductor cartridge, and toner disposal boxes. In addition, when the fuser wears out, you can replace it yourself, following the instructions in Appendix F (or call an Apple-authorized service provider to do it for you).

For information about ordering the replacement supplies, see Appendix A.

## Low toner

The toner cartridges hold the toner powder that forms the printed images. Each cartridge should yield about 4,000 pages. If you print many graphic images, you may need to change cartridges more often. If your pages start to look too light, or if you see thin vertical white lines in dark images, it may be time to change the cartridge. Also, the status panel lets you know when toner is low.

A light indicates which color is low.



When toner is low, the Alert light glows and a toner light comes on.

When you see these lights, it can mean one of two things:

- The toner powder needs to be redistributed inside the toner cartridge.
- The cartridge needs to be replaced.

If the lights come on in the middle of a printing job, and the output is still satisfactory, continue printing if you wish. You won't harm the printer by doing so.

Check the status panel to see which toner color is running low. Then take that cartridge out, rock it gently back and forth a few times (as described in the cartridge installation procedure) to redistribute the toner, and reinsert the cartridge. If the light goes out, you can continue to use the same cartridge. It's probably a good idea, however, to order or purchase a replacement cartridge after this kind of early warning.

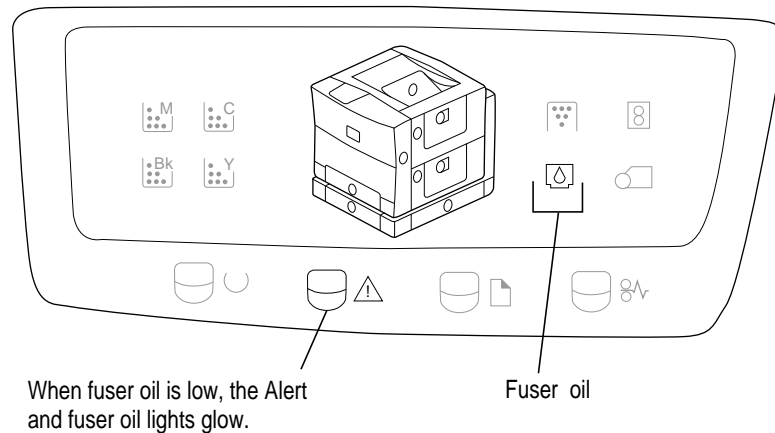
If the light stays on, change the cartridge. Instructions for replacing a cartridge come in the package with the new cartridge.

**IMPORTANT** Use only an Apple Color LaserWriter Toner Cartridge with the Color LaserWriter 12/600 PS.

*Note:* Don't throw away used toner cartridges. See the instructions that come with your new cartridge for information on how to return the used cartridge to the manufacturer. By returning used cartridges, you help reduce waste and preserve the environment.

## Low fuser oil

When the bottle containing fuser oil is nearly empty, the Alert and fuser oil lights glow. (When the fuser oil compartment is empty, the printer stops working until you replace the oil.)

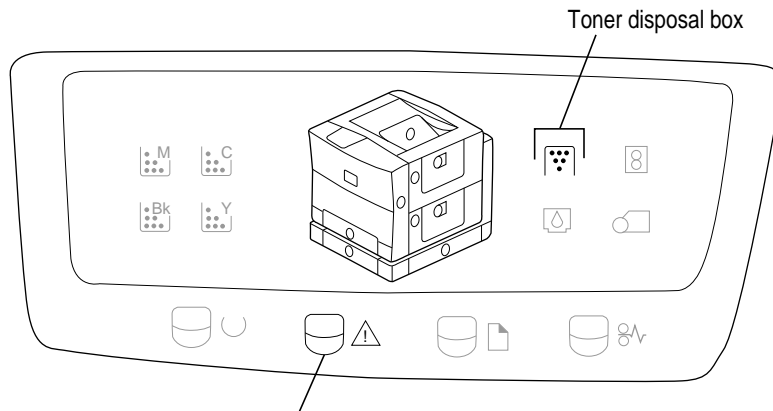


For information about ordering the replacement supplies, see Appendix A.

Instructions for replacing the fuser oil come in the package with the new bottle of fuser oil.

## Toner disposal box is full

When the toner disposal box is full, the Alert and toner disposal lights blink (and the printer stops working). For information about ordering the replacement supplies, see Appendix A.



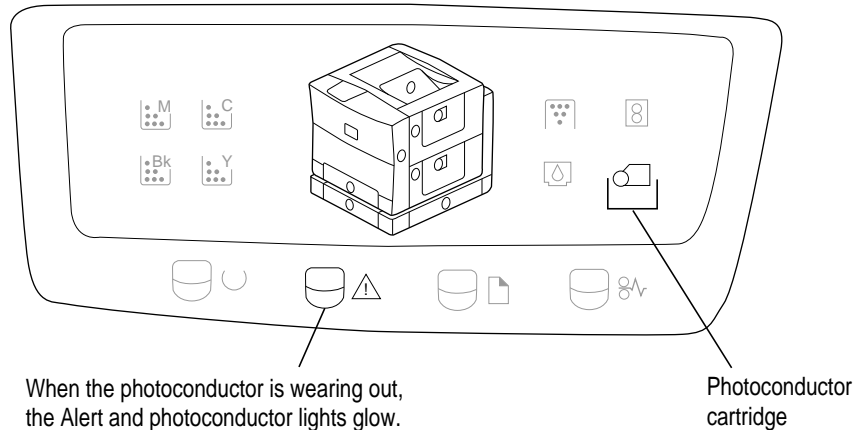
When the toner disposal box is full, the Alert and toner disposal box lights blink.

Instructions for replacing the toner disposal box come in the package with the photoconductor cartridge and two toner disposal boxes. (You use two toner disposal boxes during the lifetime of one photoconductor cartridge. When you replace a photoconductor cartridge, you also replace the toner disposal box. Periodically, however, you must replace a toner disposal box without also replacing the photoconductor.)

*Note:* Don't throw away used toner disposal boxes. See the instructions that come with the photoconductor cartridge for information on how to return used toner disposal boxes to the manufacturer. By returning used toner disposal boxes, you help reduce waste and preserve the environment.

## Photoconductor cartridge is wearing out

When the photoconductor cartridge is near the end of its life, the Alert and photoconductor cartridge lights glow. When the photoconductor is completely worn out, the printer stops working until you replace the photoconductor cartridge. For information about ordering the replacement supplies, see Appendix A.



Instructions for replacing the photoconductor cartridge come in the package with the new photoconductor and two toner disposal boxes. (You use two toner disposal boxes during the lifetime of one photoconductor cartridge.)

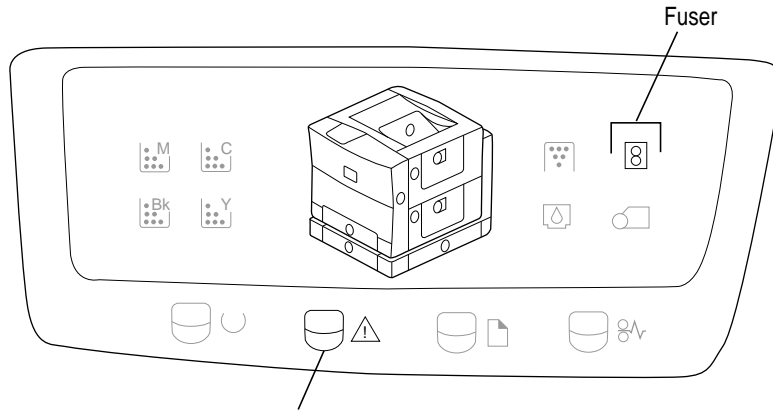
If the light comes on in the middle of a printing job, and the output is still satisfactory, continue printing if you wish. You won't harm the printer by doing so. The printer stops automatically if there is chance it could be damaged.

*Note:* Don't throw away the used photoconductor cartridge. See the instructions that come with the new photoconductor for information on how to return the used photoconductor to the manufacturer. By returning the used photoconductor cartridge, you help reduce waste and preserve the environment.

## Fuser needs replacement

When the fuser is worn out, the Alert and fuser lights glow. As the fuser approaches the end of its life, the status panel shows a warning, prompting you to order a replacement kit. When the fuser is completely worn out, the printer stops working.

For information about ordering replacement supplies, see Appendix A.



When the fuser is wearing out, the Alert and fuser lights glow.

In Appendix F you'll find instructions for replacing the fuser, together with a transfer drum cleaning unit, a separation discharger, an ozone filter, and an air filter.

## Cleaning the exterior

Unplug the power cord and then wipe the exterior of the printer with a clean, dry towel or lint-free paper. Don't allow lint or foreign liquids inside the printer.

Use a mild soap or detergent if necessary, but *never* use an ammonia-based cleaner. Be careful not to get any liquid in the power cord port or anywhere inside the printer.

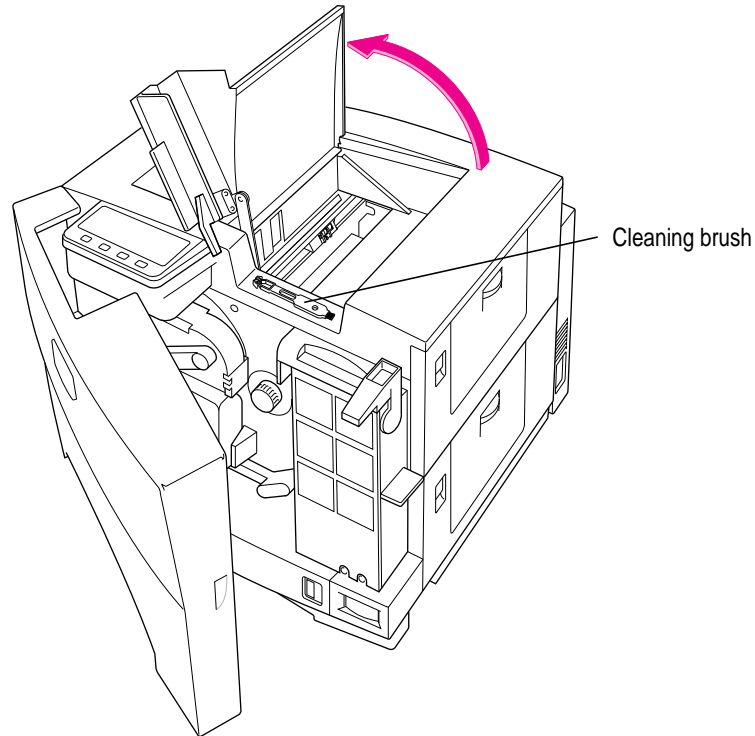
**WARNING** Never use ammonia-based cleaners on or around the Color LaserWriter 12/600 PS. They may react chemically with the toner and with the printer's plastic case.



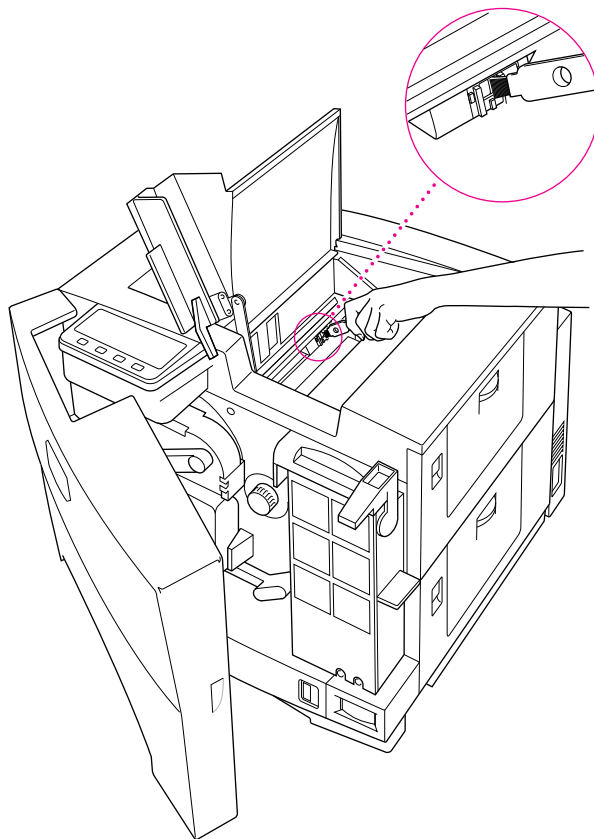
## Cleaning the density sensor and separation discharger wire

Clean the density sensor and separation discharger wire regularly to keep the printer running smoothly.

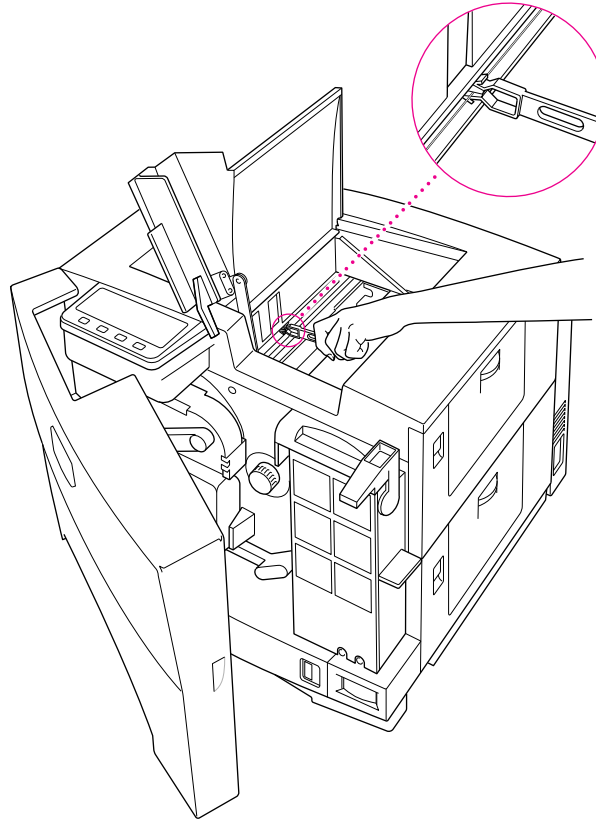
- 1 Open the printer's door and top cover and remove the cleaning tool from its clips.



- 2** Lightly brush off any dust that may have settled on the sensors.



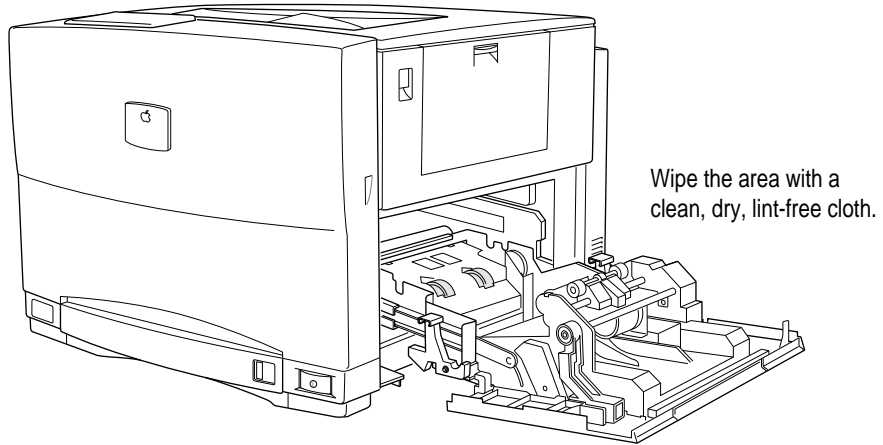
- 3** Position the felt tips on either side of the separation discharger wire and run the tool along the wire once or twice.



- 4** Replace the tool in its clips, close the top cover, and close the printer's door.

## Cleaning the paper pickup area

The paper pickup mechanism handles a lot of paper. Dust from the paper can accumulate on the rollers and on the mechanism. It's important not to let lint or dust interfere with the operation of the printer. Take time to clean the paper pickup area occasionally.



# 11

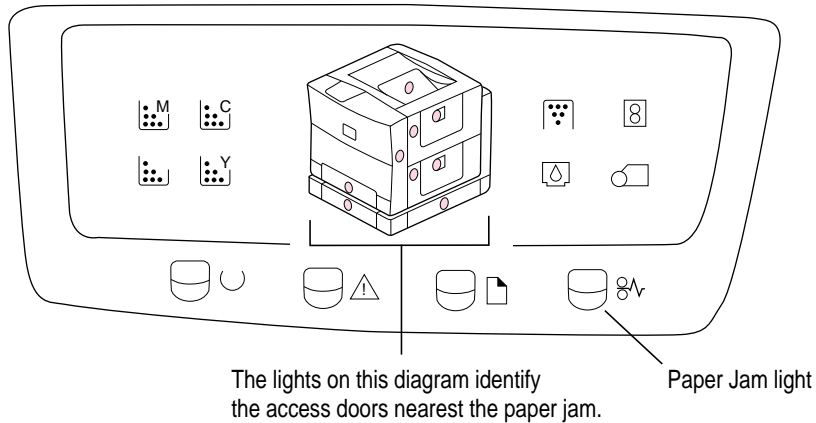
## Clearing Paper jams

.....

This chapter provides solutions to problems you may encounter with paper jams while using your Color LaserWriter 12/600 PS. The first section discusses how to read the printer's indicator lights to help you identify the approximate locations of paper jams. The second section shows the steps for clearing paper jams.

## Checking the indicator lights for paper jams

When paper is jammed somewhere in the printer, the Paper Jam light glows orange, and lights on the status panel indicate the location of access doors near the paper jam.



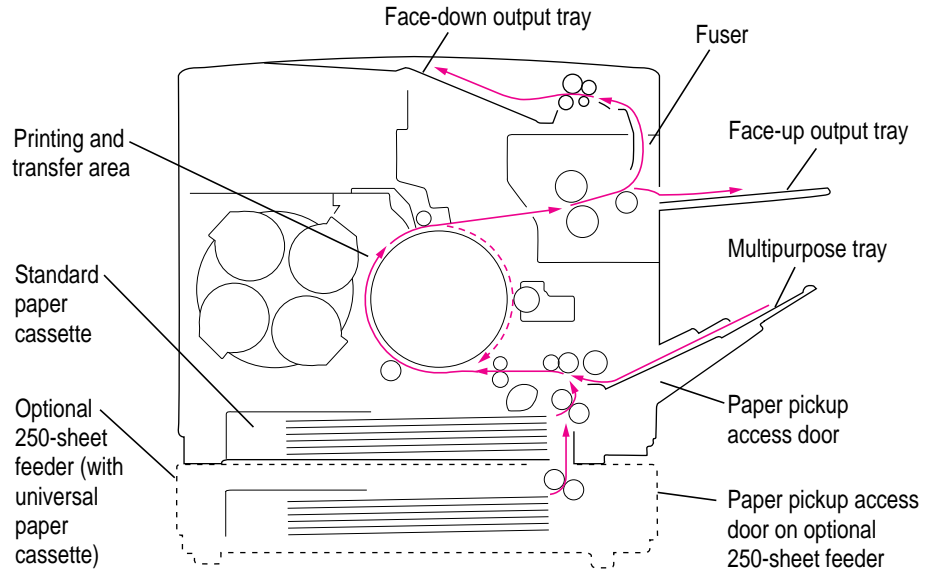
If you see other lights flashing, see Chapter 10 or Appendix G for information about the status panel.

- If you have connected an external hard disk, make sure it's turned on.
- Check the technical specifications of the hard disk to make sure it supplies at least 5 volts of termination power.

## Checking for and clearing paper jams

Paper jams can occur in three areas in the printer:

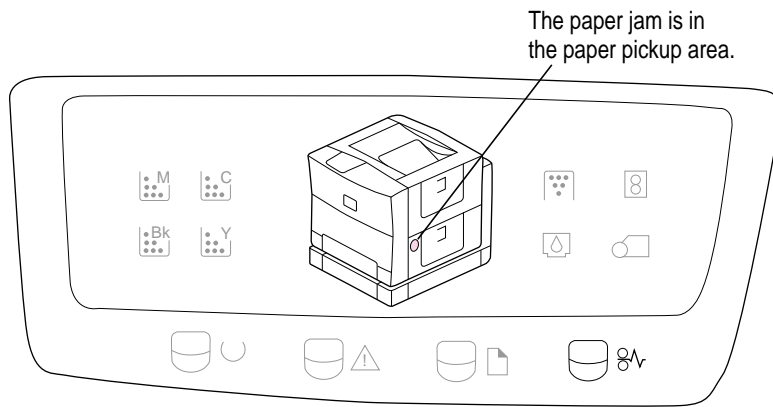
- where paper goes into the printer (pickup area and paper cassette)
- where printing happens (transfer drum)
- where paper comes out of the printer (fuser and output trays)



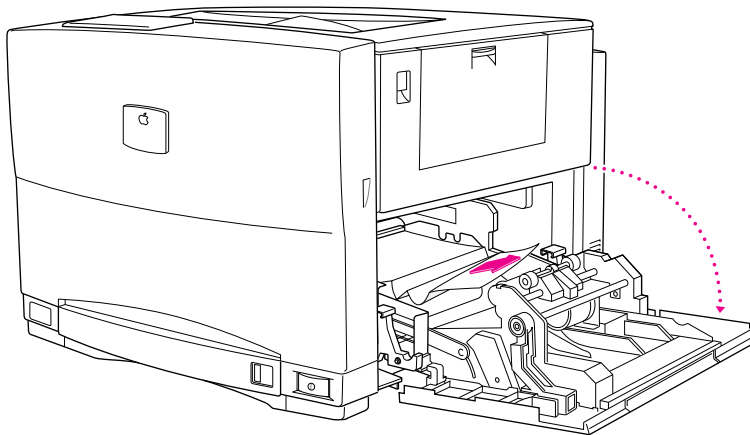
**IMPORTANT** If you experience paper jams after you first set up the printer, check all areas of the printer to make sure that the cardboard and orange plastic packing materials have been removed.

## Clearing paper from the paper pickup area

Make sure the multipurpose tray is closed before you open the door to the paper pickup area.

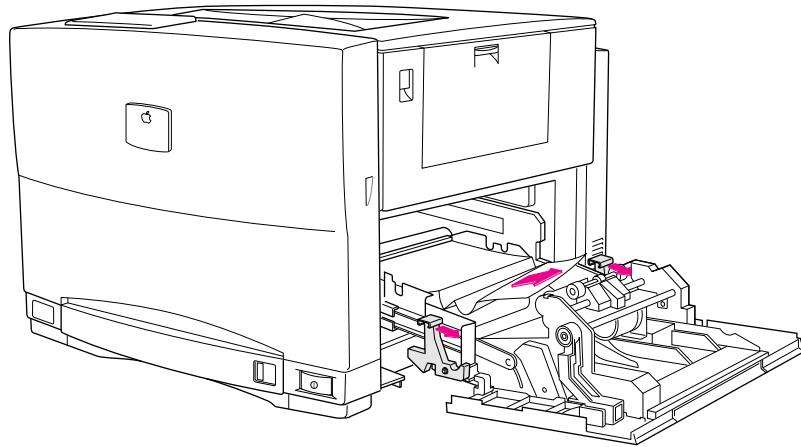


Gently remove the jammed paper.



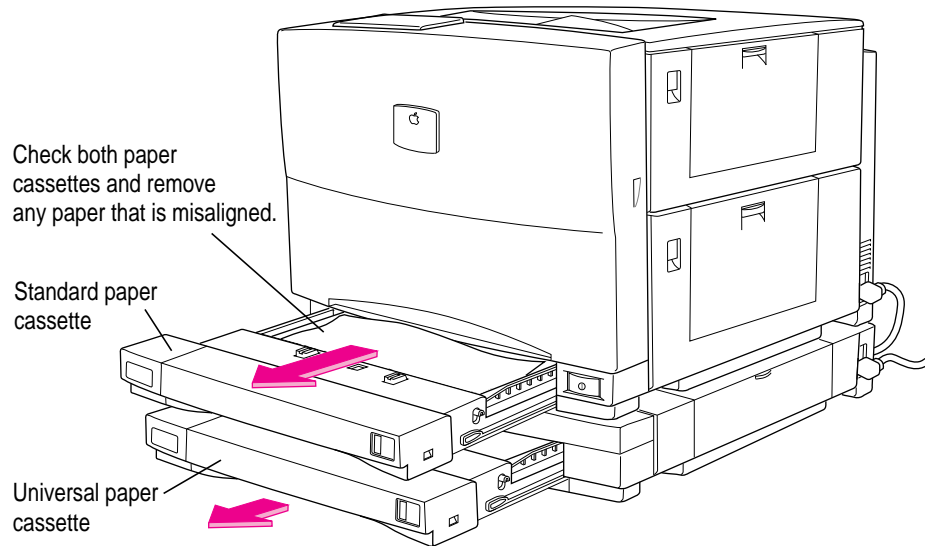


If you can't see or reach the jammed paper, pull the mechanism out for easier access. After you remove the paper, slide the mechanism back into the printer.



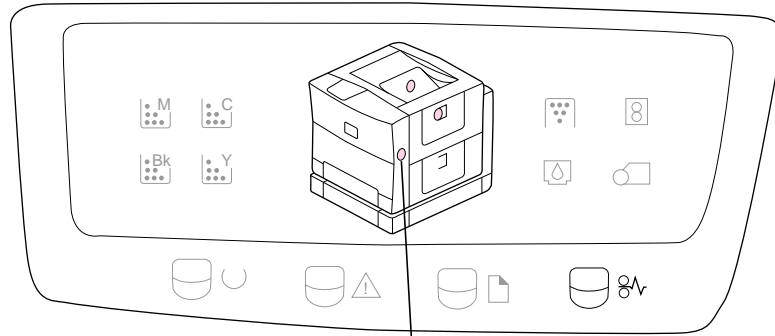
**IMPORTANT** After you remove the paper, wipe off the rollers with a clean, dry, lint-free cloth. (This keeps paper dust from accumulating.)

If you still can't find the problem in any of the places identified on the status panel, the paper jam may be inside the paper cassette. (Sometimes a sheet of paper gets tangled while still in the cassette.) Slide the paper cassette out of the printer. Inspect the stack of paper, and remove any paper that is misaligned.



If you have installed an optional 250-sheet feeder, see “Clearing Paper from the Optional Feeder,” later in this chapter.

## Clearing paper from the transfer drum

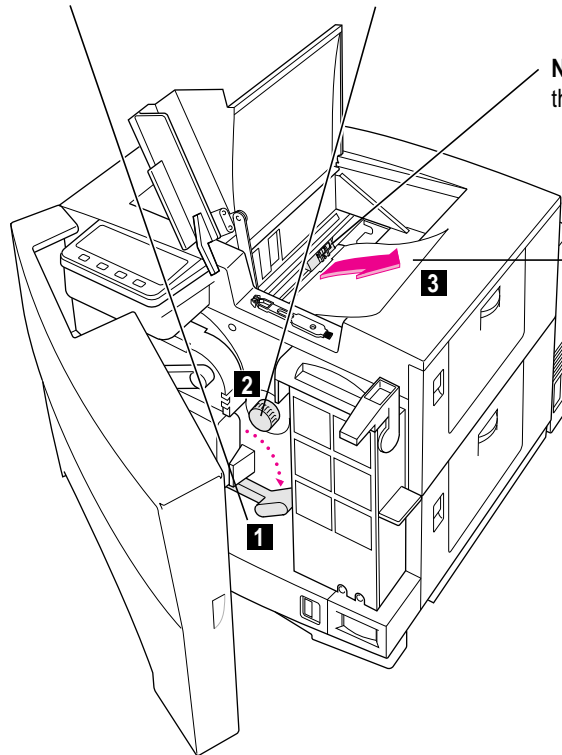


The paper jam is in the transfer drum area.  
You must open the front door and the top cover.

To unlock the transfer drum,  
push this lever.

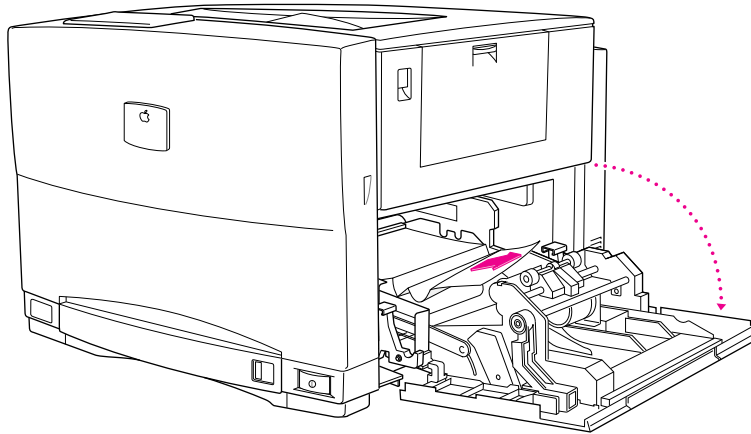
If you need to rotate the drum to release  
the jammed paper, turn this knob.

**Note:** Don't let loose toner get on  
the window of the density sensor.

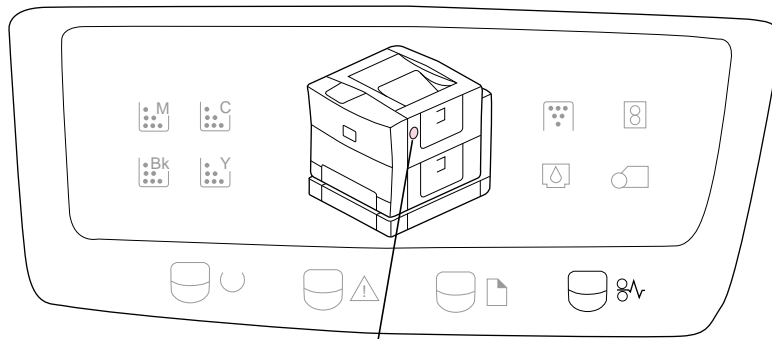


Gently remove the jammed  
paper. You may have to pull it  
loose from the small clips on  
the drum. Pull the paper at a  
slight angle (not straight up).

If you can't see the paper when you rotate the transfer drum, close the locking lever, close the top cover, and close the printer's door. Then open the access door to the paper pickup area and look for the paper jam there.



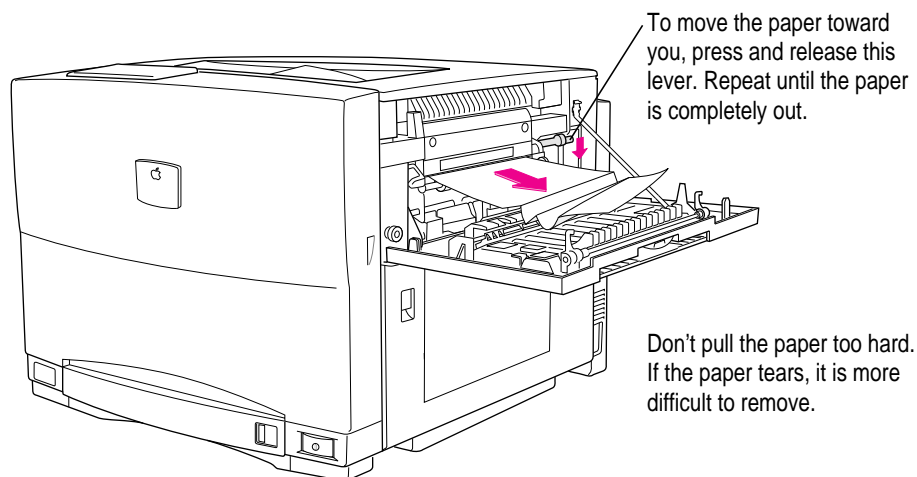
### Clearing paper from the fuser



The paper jam is in the fuser area.

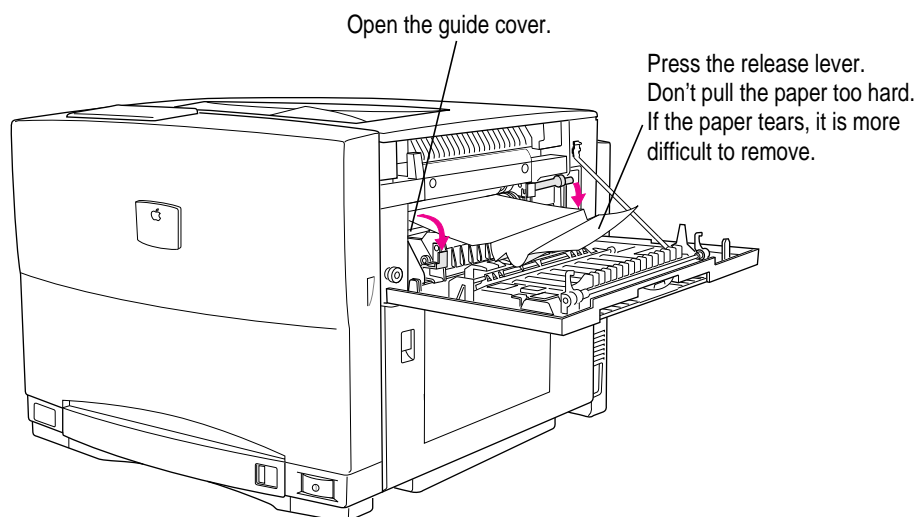
- 1 If it's open, close the face-up output tray.

**2 Open the fuser access door.**



**3 Remove the jammed paper.**

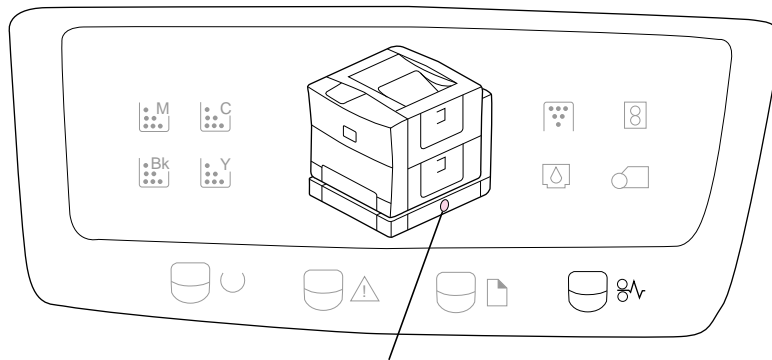
If the paper is hard to see or reach, you can open the guide cover for easier access.



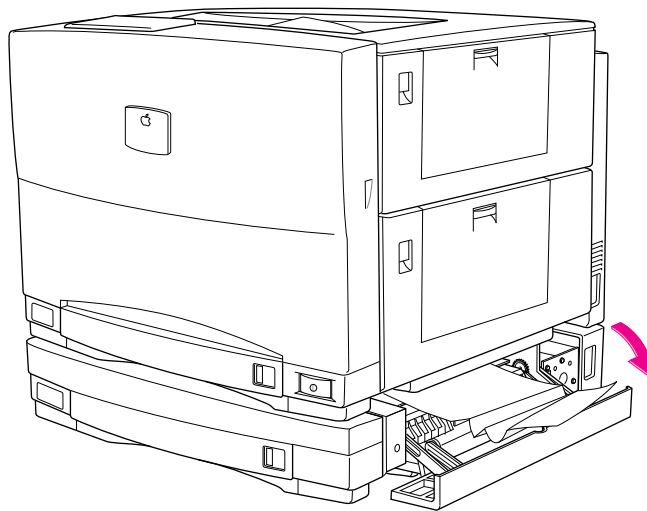
**4 Close the fuser access door and resume printing.**

## Clearing paper from the optional feeder

The optional 250-sheet feeder has its own paper pickup area where paper may get jammed.



The paper jam is in the paper pickup area on the optional 250-sheet feeder.



If you can't find the paper jam, close the access door and open the paper cassette. (Paper might get caught just as it's leaving the paper cassette.) Slide the paper cassette out of the printer. Inspect the stack of paper, and remove any paper that is misaligned.

# 12

## Fixing Image Problems



This chapter suggests ways you can improve the quality of images printed on your Color LaserWriter 12/600 PS.

- The first section describes general problems with print quality.
- The second section deals with problems printing in color.

### General print quality problems

#### **Print is faded.**

If areas of your printed page are too light or colors are missing, try these steps:

- Redistribute toner in the related toner cartridge. Remove the cartridge from the printer and shake it gently.
- If the toner cartridge is empty, replace it.
- Clean the density sensor with the brush. (For instructions, see Chapter 10.)
- Try printing on a high-quality paper to see if that helps.

**Spots or blotches appear on printed pages.**

Try these steps:

- Try printing on a high-quality paper to see if that helps.
- Make sure you're printing the image on the correct side of the paper.
- Replace the toner cartridge containing the relevant color.
- Clean the inside of the printer to remove paper dust and toner particles.  
(See "Cleaning the Paper Pickup Rollers" in Chapter 10 for instructions.)
- Replace the photoconductor cartridge.

**Vertical lines (black or blank) appear on consecutive pages.**

Try these steps:

- Replace the toner cartridge containing the relevant color.
- Replace the photoconductor cartridge.
- Clean the rollers inside the printer. (For instructions, see Chapter 10.)

**Spots, blotches, or blank areas appear on consecutive pages.**

Try these steps:

- Try printing on a high-quality paper to see if that helps.
- Replace the toner cartridge containing the relevant color.
- Replace the photoconductor cartridge.
- Clean the separation discharger wire. (For instructions, see Chapter 10.)

**Blank areas appear in an area that should be printed.**

Try these steps:

- Replace the toner cartridge containing the relevant color.
- Try printing on a high-quality paper to see if that helps.
- Make sure you're printing the image on the correct side of the paper.
- Replace the photoconductor cartridge.



**A page prints completely black.**

Try these steps:

- Make sure the photoconductor cartridge is properly installed. (For instructions, see Chapter 1.)
- Replace the photoconductor cartridge.
- Call an Apple-authorized service provider.

**A page prints completely blank.**

Try these steps:

- Make sure the sealing tape has been removed from the toner cartridge. (For instructions, see Chapter 1.)
- Replace the toner cartridge.
- The printer may have picked up two sheets of paper and printed on one but not the other.
- Call an Apple-authorized service provider.

**Some printed segments in a page appear faded.**

Try these steps:

- Make sure the paper is not damp.
- Try printing on a high-quality paper to see if that helps.

**Stains appear on the back of a printed page.**

Try these steps:

- Clean the separation discharger wire. (For instructions, see Chapter 10.)
- Clean the density sensor. (For instructions, see Chapter 10.)
- Try printing on a high-quality paper to see if that helps.
- The transfer cleaning brush may need to be replaced. Call an Apple-authorized service provider.

**Flakes of toner come off the printed page.**

Try these steps:

- Make sure you removed the two orange spacers from the fuser area when you unpacked and set up the printer. (For instructions, see Chapter 1.)
- Try printing on a high-quality paper to see if that helps.
- Replace the photoconductor cartridge.
- Call an Apple-authorized service provider.

## Color print quality problems

### **Horizontal bands appear on the printed page.**

When you print solid color images you can expect some horizontal banding (fine horizontal lines that are more obvious in solid color areas). To minimize banding, try these steps:

- Banding is more likely with 30 to 60 percent print coverage. Try a different pattern with more white space or more coverage.
- Use light background color, rather than dark.
- Replace the toner cartridge containing the associated color.
- Replace the photoconductor cartridge.

### **You cannot get smooth color gradients in printed pages.**

Try these steps:

- Make sure the application program you're using lets you print the colors you want.
- Replace the toner cartridge containing the associated color.
- Replace the photoconductor cartridge.

### **White gap appears between adjacent color.**

- From the Print Quality pop-up menu (in the Print Options dialog box), choose Best.
- Change the colors. Choose colors that are closer to each other in the spectrum. (For example, with red and green, there's more white gap; with blue and green, the white gap is reduced.)

**Text or objects on the page are blurry.**

The Color LaserWriter 12/600 PS uses a compression scheme to provide 600 dpi, nearly continuous-tone color printing using as little as 12 MB of RAM. Because of the compression, some details and fine lines in colored objects can appear blurred. Try these steps:

- Add more RAM. If you're printing legal-sized pages on a Color LaserWriter 12/600 PS with 12 MB of RAM, the printer uses a different compression scheme. If you increase RAM to 16 MB or more, the print quality of legal-size pages improves.
- Use thicker lines or fewer colors. Solid colors such as black, cyan, magenta, yellow, red, blue, or green look best.
- Use a different program. Image-manipulation programs may cause text and fine lines to look blurry when printed. Use a word-processing, desktop publishing, or illustration program.

**"Drop-outs" appear on legal-size paper.**

If you're printing legal-sized pages on a Color LaserWriter 12/600 PS with 12 MB of RAM, the printer uses a different compression scheme. Small areas of a legal-size document may not print because information has been lost during decompression. If you increase RAM to 16 MB or more, the print quality of legal-size pages improves.

# 13

## Troubleshooting



This chapter provides solutions to problems you may have printing with the Color LaserWriter 12/600 PS from Macintosh, Windows, DOS, and UNIX computers.

*Note:* For easier troubleshooting, it's a good idea to turn off background printing.

### Problems covered in other places

For help in clearing a paper jam, see Chapter 11.

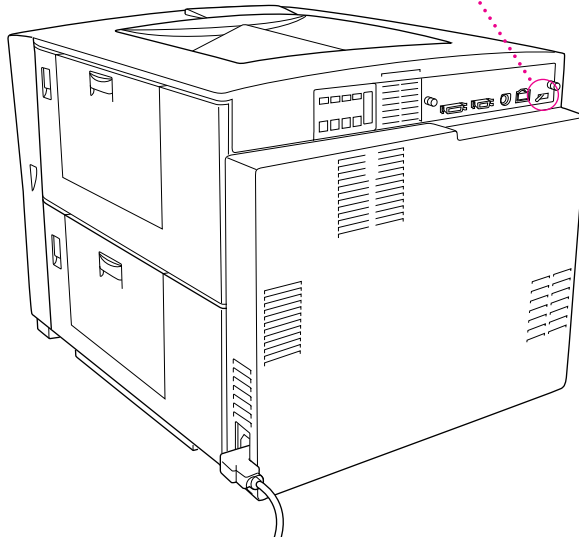
For suggestions to improve the print quality of documents you've printed, see Chapter 12.

To diagnose and fix problems identified by the status panel on the printer, see Chapter 10 or Appendix G.

## Can't communicate with the printer

If you cannot use the Apple Printer Utility to communicate with the printer (for example, if you inadvertently turn off communication to all ports), you must reset the configuration switch on the back of the printer.

Flip the switch to the left-hand position. Then restart the printer and return the switch to the right-hand position.



## Can't close the printer's door

If something prevents you from closing the door, try these steps:

- Make sure the transfer drum lever is closed correctly. (See the illustration “Anatomy of the Printer” that appears at the beginning of Chapter 1.)
- Make sure the fuser oil cover is closed.
- Make sure the top cover of the printer is closed.
- Make sure the disposal box cover is closed.

## Can't turn the toner carousel

If you press and turn the knob, but the carousel won't turn, press the toner cartridge firmly to make sure it is installed all the way.

## Macintosh troubleshooting

If you are using the printer from a Macintosh computer, use this section for troubleshooting tips.

### **The Chooser does not appear in the Apple () menu.**

If the Chooser isn't listed in the Apple menu, the System file on your startup disk may be outdated, or you may have removed the Chooser from the Apple Menu Items folder in the System Folder on your startup disk. You can obtain the current system software from an Apple-authorized dealer.

Make sure that you have only one System Folder on your startup disk.

### **Can't find the printer driver icon in the Chooser.**

Make sure that the LaserWriter 8 printer driver is properly installed. The printer driver may be on your startup disk but may have been moved to the wrong location. If necessary, drag the driver into the Extensions folder inside the System Folder.

Also make sure that you have only one System Folder on your startup disk. Refer to the information that came with your Macintosh.

### **The printer is not listed in the Chooser.**

If you've selected the LaserWriter 8 icon but your Color LaserWriter 12/600 PS is not named in the list of printers, one of the following may be the cause:

- The printer has been turned off. Make sure it is plugged in and turned on, and wait for the startup page to print.
- The communication settings are not set correctly. See "Adjusting Communication Settings" in Chapter 1 and "Viewing and Changing Communication Settings" in Chapter 2. See "Can't Communicate With the Printer," earlier in this chapter.

- Someone may have renamed the printer. (Check the startup page for the printer's name.)
- If you are using an AppleTalk network that contains zones, you may not have selected the correct zone for the printer.
- There's a problem in the network cable system somewhere between your computer and the printer you want to use. Make sure that all the cables are properly connected. If you still can't resolve the problem, the printer's electronics or the network connector boxes may not be functioning properly. Call an Apple-authorized dealer.
- The printer has the same name as other printers on the network. If that's the case, the printer automatically appends a number to the end of its name when it's turned on. The number may change each time you turn on the printer. The printer administrator can change the name using the Apple Printer Utility, as described in Chapter 2, or the Apple Printer Utility for Windows, as described in Chapter 3.
- Check the Network control panel to make sure the correct network is selected.

**A desktop printer icon appears again as soon as you drag it to the trash.**

You must always have at least one desktop printer icon. If you drag your last desktop printer to the Trash, the computer instantly creates another one just like it.

**An X appears over the desktop printer icon.**

The X indicates that the desktop printing software is not working.

- You may have started the computer using a different startup disk or temporarily turned off all the software extensions. When you restart the computer as usual, the icons will return to normal.
- You may have removed the desktop printing software that created the printer icons. If you meant to do so, you can drag the icons to the Trash. If not, you can reinstall the software as explained in Chapter 2.



**Apple Printer Utility can't find an external hard disk.**

You've attached an external hard disk to the printer. The Apple Printer Utility can't recognize an external hard disk if

- the disk has not been initialized
- you turned the disk on after turning on the printer

**An “out of memory” message appears when you try to print.**

The printer may have insufficient memory to print if

- the document contains too many fonts that need to be downloaded from your computer to the printer
- the document contains complex images
- you use a lot of fonts in your document but have not selected Unlimited Downloadable Fonts in the Page Setup Options dialog box

If a page contains very complex images, try to remove some of the complex detail from that page (or spread the information over two pages) and try again to print it.

If you encounter the “out of memory” message frequently, you can remedy this by increasing the amount of memory in the printer or installing a hard disk. See Chapter 5.

**Options don't appear in the Print dialog box.**

Make sure the hardware options are properly installed in the printer, as described in Chapter 5.

Open the Chooser and click the LaserWriter 8 icon. Click the Setup button, then click Auto Setup in the dialog box that appears.

**Background printing is disabled**

If the Chooser shows background printing turned off, and the buttons are dimmed so you can't turn it on again, PrintMonitor has probably been removed from the Extensions folder. On the disks that came with your Macintosh, find the PrintMonitor and drag it to the System Folder on your computer. (You need the original PrintMonitor along with Desktop PrintMonitor in the Extensions folder.)

**Nothing is printed; no paper comes out of the printer.**

Try the following steps:

- Make sure the printer is turned on.
- If you are using background printing, check for error messages. (Double-click the desktop icon for the printer you're using.)
- If you have several printer icons on your desktop, make sure the one you printed to is the same as the one where you're looking for the printed document.
- Try printing again, but select the Print Detailed Report option. (Choose the Print command, click the Options button, then choose the Print Detailed Report from the PostScript Errors pop-up menu.)
- Check the Chooser to be sure the printer is selected. Be sure to select the printer's name, as well as the LaserWriter 8 icon and, if necessary, the AppleTalk network zone.
- Check the Paper Out light. If it is on, add paper and replace the paper cassette. If it is blinking, make sure the paper cassette is securely in place.
- Check for a paper jam as described in Chapter 11.
- Check the network cables.
- Turn the printer off and back on. Check the startup page.
- Reinstall the printer software on your computer's startup disk.

**A message on the screen says the printer can't print.**

Try these steps:

- Make sure that the printer is turned on.
- Check the network cables.
- Make sure your startup disk has the LaserWriter 8 printer driver in the Extensions folder, which is inside the System Folder.
- Make sure the printer is selected in the Chooser. Be sure to select the printer's name as well as the LaserWriter 8 icon and, if your network has zones, the correct AppleTalk network zone.
- Make sure that the printer has paper correctly installed.

### **Sometimes printing the first page takes longer than I expect.**

The printer automatically goes into an energy-saving mode after it's been idle for a while. When you print while it's in this mode, the printer takes about three minutes to warm up before it can print the first page.

The printer administrator can adjust this feature by using the Apple Printer Utility on a Macintosh computer (see Chapter 2) or the Apple Printer Utility for Windows on a Windows computer (see Chapter 3).

## **IBM PC or compatible troubleshooting**

If you are using the printer from an IBM PC or compatible computer, use this section for troubleshooting tips.

### **A message on the screen says the printer can't print.**

Try the following steps:

- Make sure that the printer is turned on.
- Check the network or parallel cables.
- Make sure that the PostScript Printer Driver has been installed as described in Chapter 7.
- You must send PostScript to the printer. PCL won't work, and nothing prints.

### **Nothing is printed; no paper comes out of the printer.**

Try the following steps:

- Make sure the printer is turned on.
- If you're using Novell NetWare 3.x, make sure banner pages are disabled.
- Send only PostScript files to the printer; do not send straight text or PCL files.
- Check the "List of Printers" box to see that your printer is selected. See Chapter 7 for details about installing and selecting the printer driver.
- Try printing the document again, but choose Download PostScript Error Handling in the Printer Setup PostScript Options dialog box.

- Check the Paper Out light. If it is on, add paper and replace the paper cassette.
- Check for a paper jam as described in Chapter 11.
- Check the printer cables.
- Check the position of the port configuration switch as described in “Adjusting Communication Settings” in Chapter 1.
- Turn the printer off and back on. Check the startup page.
- Check the Protocol options on the PostScript tab dialog box. Choose Serial/Parallel for a parallel connection, None for Ethernet. If you are using a parallel connection, make sure Send Data in Binary is not selected.
- Reinstall the printer driver. See Chapter 7 for details about installing the printer driver.
- Increase timeout values in the PostScript printer options tab dialog box.
- Check your NetWare configuration. Make sure the queue is set up and captured. For RPRINTER, make sure that the dedicated print server is running and connected. Make sure your Apple Printer Utility and NetWare file server configurations match.
- In the Job Control dialog box, select Send Error Handler. Then try again to print the job. If there’s a problem with the job, an error page is printed. This lets you know that the printer’s working, but something’s wrong with the job.

### **Sometimes printing the first page takes longer than I expect.**

The printer automatically goes into an energy-saving mode after it’s been idle for a while. When you print while it’s in this mode, the printer takes about a minute to warm up before it can print the first page.

The printer administrator can adjust this feature by using the Apple Printer Utility on a Macintosh computer (see Chapter 2) or the Apple Printer Utility for Windows on a Windows computer (see Chapter 3).

### **My printer driver settings are ignored.**

Some applications have built-in options such as orientation, scaling, and number of copies that supersede those in the printer driver. See the application’s manual to determine whether such options exist. If they do, they override the printer driver settings. Consult the Read Me file that came with your Color LaserWriter 12/600 PS for specific application incompatibilities.

**My printer won't draw paper from the multipurpose tray.**

You must use the Apple Printer Utility to tell the printer what paper size is available in the multipurpose tray. Otherwise, the printer draws paper from the paper cassette instead.

**When I print a document in multipage layout, an error page is the only thing printed.**

In the Job Control tab dialog box, select PostScript Header: Download Each Job. The job should print properly. Do not click the Download Now button or the problem may happen again.

## Novell NetWare troubleshooting

**My text documents print fine, but I have problems with spreadsheets and graphics.**

If you're using NetWare 3.x, make sure banner pages are disabled. Try removing the banner page, auto-end capping, tabs expansion, and form feeds. Use the DOS `CAPTURE` command to set the following printing options:

```
/nb /na /nff /nt /ti=30
```

If you're using NetWare 4.x, banner pages must be PostScript.

## UNIX troubleshooting

If you are using the printer from a UNIX workstation, use this section for troubleshooting tips.

**When I print a text file, the lines stairstep off the page.**

You need to use a print queue that adds a carriage return at the end of each line. To set up the print queue, the printer administrator follows the instructions in "Getting UNIX Users Started Using the Printer" in Chapter 4. To learn the names of your local print queues, see your printer administrator, or look in your `/etc/printcap` file.

**The document generates PostScript errors.**

The Color LaserWriter 12/600 PS is a PostScript-only printer. Before you can print ASCII files, you must filter them into PostScript.

**The banner page prints only the system and remote printer names.**

The `lpd` printing protocol does not provide the user name or filename in a way that can be included in the banner page.

### **Sometimes printing the first page takes longer than I expect.**

The printer automatically goes into an energy-saving mode after it's been idle for a while. When you print while it's in this mode, the printer takes about three minutes to warm up before it can print the first page.

The printer administrator can adjust this feature by using the Apple Printer Utility on a Macintosh computer (see Chapter 2) or the Apple Printer Utility for Windows on a Windows computer (see Chapter 3).

### **I can't ping the printer by IP name or IP address.**

Follow these steps:

1. Try to ping yourself or another host. If this ping fails, your IP software is not running, or your network is down.
2. Turn the printer off and then back on. This sometimes fixes the problem itself, and it also causes the startup page to print. Use the startup page to verify the printer's IP address.
3. Verify that the IP address on the configuration page is identical to the IP address in the `/etc/hosts` file.
4. Check the network cabling to make sure the printer is physically connected to the network.
5. Make sure that the IP address is not a duplicate of one already in use on the network.

### **The BOOTP server is not responding.**

If you chose to use a BOOTP server to assign the printer's IP address while setting up the printer, but the server is not responding, follow these steps:

1. Check the `/etc/bootptab` file to verify
  - that the `lp` entry is a valid IP address and that it matches the address in the `/etc/hosts` file
  - the `ha` entry is the correct Ethernet address (found on the printer's startup page) with no colons separating the bytes
  - the `ht` entry is either `ether` or `ethernet`
2. Turn the printer on and off and immediately verify that the `bootpd` is running. On many UNIX systems, you can accomplish this by typing `ps -e` or `ps -ax` at the UNIX prompt on the server. If the daemon is not running, type `bootpd -t15` or consult the UNIX man page on `bootpd`.
3. Turn the printer off and then back on.

### **The RARP server is not responding.**

If you chose to use a RARP server to assign the printer's IP address while setting up the printer, but the server is not responding, follow these steps:

1. Make sure that the server running RARP is on the same subnet as the printer.
2. Check the `/etc/ethers` file to verify that it contains the correct Ethernet address and hostname.
3. Check the `/etc/hosts` file to verify that it contains a valid IP address and the same hostname as in the `/etc/ethers` file.
4. Verify that the `rarpd` daemon is running on the server. On many UNIX systems, you can accomplish this by typing `ps -e` or `ps -ax` at the UNIX prompt on the server. If the daemon isn't running, type `/usr/etc/rarpd -a`.
5. Turn the printer off and then back on.

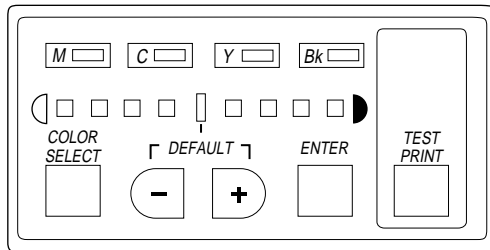
## Density control panel

The printer has been adjusted at the factory to produce the best possible image quality. All Color LaserWriter 12/600 PS printers come with these default settings in effect.

There are always small variations in color between different printers. If you have two Color LaserWriter printers on the same network, you can use the density control panel to make subtle changes to match the two printers.

Because the color-matching methods assume the printer is in the default condition, changing the settings may produce images of an inferior quality. If you want to perform your own color correction, however, you can use the controls on the panel to adjust the color balance of each color.

- 1 Press the Color Select button to select the color you want to change.



- 2 To increase the density of the color, press the + button; to decrease the density, press the – button.

The indicators light up to show progress toward increased or decreased color density.

- 3 Press the Color Select button to select the color you want to change.
- 4 Repeat steps 1 through 3 for each color you want to change.
- 5 When you are finished changing color density, press Enter.
- 6 Press Test Print to verify that the new settings are what you want.

These changes affect all print jobs from now on.

- 7 To return to the default setting for a color, select the color and press the + and – buttons together.

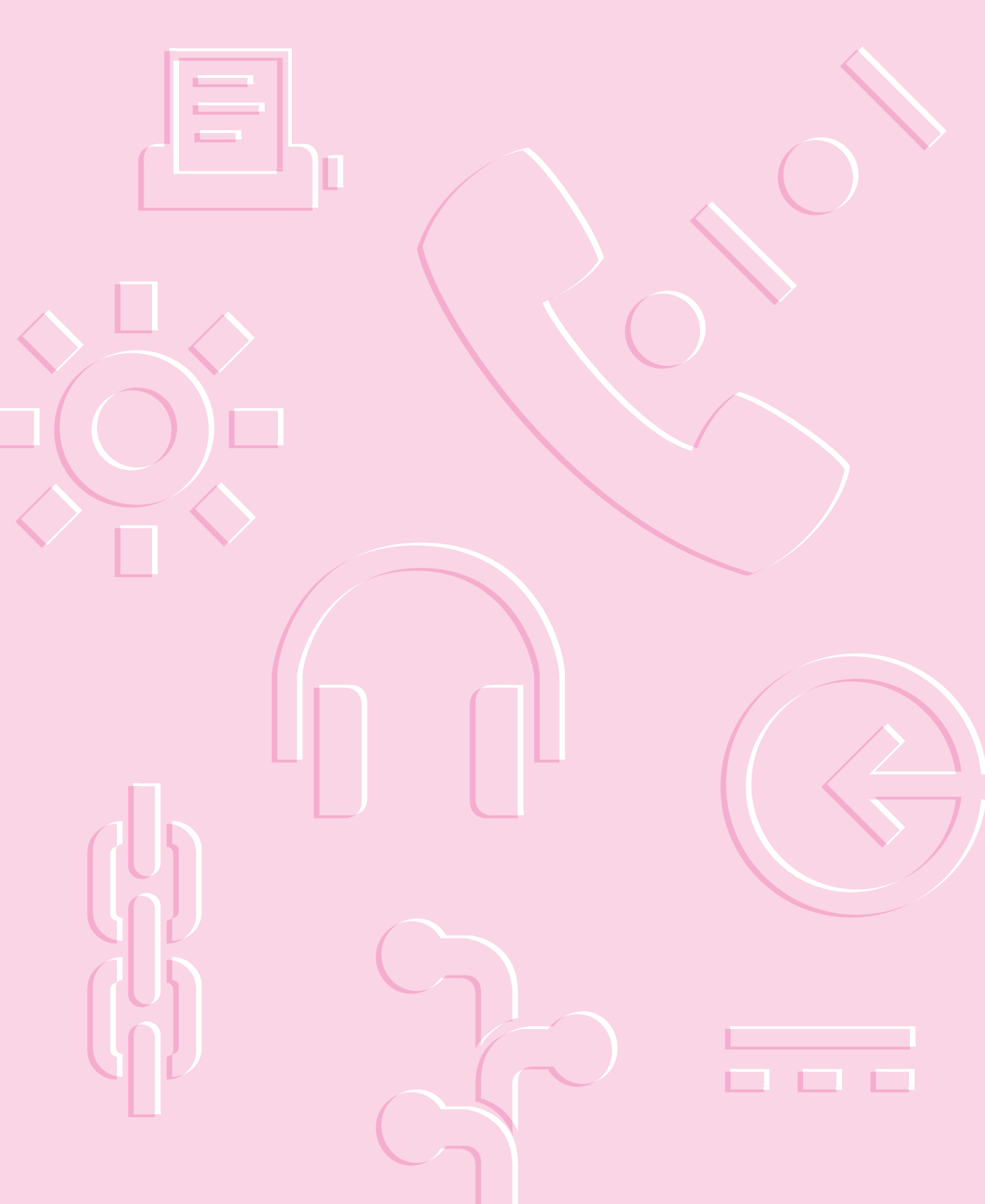


# Appendixes

- Appendix A Technical Information and Printer Supplies
- Appendix B Setting Up the Printer as an ATPS Remote Printer
- Appendix C Using Fonts With the Printer
- Appendix D Working With ColorSync
- Appendix E Packing and Moving the Printer
- Appendix F Replacing the Fuser
- Appendix G Diagnosing Problems for Service
- Appendix H Removing the Macintosh Desktop Printing Software



*part*





## Appendix A

### Technical Information and Printer Supplies

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#### Specifications

##### Marking engine

- Canon HX LBP print engine
- 3 ppm in color
  - 12 ppm in black, cyan, magenta, or yellow
  - 1 ppm for a transparency
- 600 x 600 dpi with Color PhotoGrade
- Enhanced 600 dpi grayscale imaging (effective 200-line screen halftone, 122 gray levels)

##### Laser

- Type: Semiconductor laser GaAlAs
- Wavelength: 780 nm
- Output power: 1 mW

## Controller

- AMD Am29030 25-MHz microprocessor
- 8 MB of ROM (including 39 Type 1 fonts)
- 12 MB of RAM (expandable to 40 MB)
- 128 KB parameter SRAM
- SCSI interface for internal/external hard disk(s)
- LocalTalk interface
- High-speed parallel interface (IEEE P1284 ECP, bidirectional)
- Ethernet interface with three protocols:
  - EtherTalk
  - Novell NetWare IPX (PSERVER or RPRINTER)
  - TCP/IP (BSD 1pd)
- External Ethernet transceivers available for:
  - Thin Coaxial
  - Twisted Pair (10Base-T)
  - Thick Coaxial (IEEE 802.3 AUI)
- Two-position communication configuration switch
- All ports/protocols simultaneously active
- Color-rendering acceleration
- Data compression/decompression system
- Forgery tracking system
- Adobe PostScript Level 2 (version 2014)

## Theory of operation

Here is an abbreviated summary of how the printer operates:

- Controller sends a compressed page to the video ASIC (application-specific integrated circuit), which decompresses the page at once and sends it to the laser circuitry in the engine.
- The laser, on a scan-line-by-scan-line basis, pulses color by color and paints each successive layer of the image on the photoconductor drum. The color order is magenta-cyan-yellow-black. Laser light hits the photoconductor on all the dots where toner should appear.

- The toner carousel rotates to bring the appropriate color toner cartridge into contact with the photoconductor. (This contact is between the toner developer rollers and the photoconductor.) Toner jumps from the toner charge to the photoconductor.
- At the same time, paper enters the system from the paper cassette and wraps around the transfer drum. The paper is clipped onto the transfer drum at one end and held around the drum by an electrostatic charge.
- When all applicable colors have been applied, the paper, released from the transfer drum, exits through the hot fixing assembly rollers and out to the top tray or face-up tray.

### **True 600 dpi printer**

The Color LaserWriter 12/600 PS is a true 600 dpi printer because every aspect of its architecture is designed to a 600 dpi specification. In addition, its multilevel capability can assign levels of color or gray (rather than simply on or off) to each pixel, thereby further enhancing print quality.

### **Printer fonts**

The following fonts are resident in the printer ROM:

- AvantGarde Book, AvantGarde BookOblique, AvantGarde Demi, AvantGarde DemiOblique
- Bookman Demi, Bookman DemiItalic, Bookman Light, Bookman LightItalic
- Courier, Courier Bold, Courier BoldOblique, Courier Oblique
- Helvetica, Helvetica Bold, Helvetica BoldOblique, Helvetica Narrow, Helvetica Narrow Bold, Helvetica Narrow BoldOblique, Helvetica Narrow Oblique, Helvetica Oblique
- Helvetica Condensed, Helvetica Condensed Bold, Helvetica Condensed BoldOblique, Helvetica Condensed Oblique
- NewCentury Schoolbook Bold, NewCentury Schoolbook BoldItalic, NewCentury Schoolbook Italic, NewCentury Schoolbook Roman
- Palatino Bold, Palatino BoldItalic, Palatino Italic, Palatino Roman
- Symbol

- Times Bold, Times BoldItalic, Times Italic, Times Roman
- Zapf Chancery MediumItalic
- Zapf Dingbats

### **Speed**

- Prints 12 pages per minute maximum in black, magenta, cyan, or yellow; 3 pages per minute maximum in 2 or more colors using letter-size paper; and 1 transparency per minute. Actual speed depends on the images printed.

### **Printer life expectancy**

- Minimum life expectancy is 5 years or 300,000 pages in black and white or 150,000 color pages, with no monthly page limit. Recommended maintenance interval is 60,000 pages due to wear on fuser and rollers.

### **Toner cartridge life expectancy**

- 4,000 pages per color when printing documents with average page coverage of 5%

### **Photoconductor cartridge life expectancy**

- 40,000 pages in black and white or 10,000 pages in color, continuous printing
- 13,000 pages in black and white or 6,500 pages in color, intermittent printing (that is, printing only single-page documents, an unlikely situation)

### **Fuser oil life expectancy**

- 10,000 pages

### **Fuser assembly life expectancy**

- 60,000 pages

### **Transfer drum cleaner life expectancy**

- 60,000 pages

### **Printing materials**

Uses 16- to 28-pound laser-quality bond (60 to 90 g/m<sup>2</sup>). Accepts most textured and colored stock. Accepts Color LaserWriter 12/600 PS A4 and Color LaserWriter 12/600 PS Letter transparencies.

The paper used should not scorch, melt, transfer material, or release hazardous emissions when heated to 200° C (392° F) for 0.1 seconds.

## **Paper sizes and capacity**

Supports U.S. letter and A4 in the standard paper cassette. The paper cassette holds 250 sheets of 20-pound (75 g/m<sup>2</sup>) paper. The multipurpose tray can hold up to 100 sheets of standard U.S. letter paper, and other paper sizes up to U.S. legal. Optional 250-sheet universal cassettes are available that support letter, A4, B5, and U.S. legal paper sizes.

## **Suggested paper brands**

Apple has tested the following papers and found them to be acceptable.

- Ausydat-lay (A4, France) 100 g/m<sup>2</sup>
- Boise Cascade Laser, 20 and 24 pound
- Classic Crest, 24 pound
- Hammermill Laser Print, 24 pound
- Legacy Laser Paper, 24 pound
- Nekoosa Laser 1000, 24 pound
- Neusiedler (A4, Austria) 100 g/m<sup>2</sup>
- Xerox 4024 (LTR and A4), 20, 24, and 28 pound
- Nekoosa Laser 1000, 24 pound

Recycled paper is not recommended. It tends to produce more paper dust, degrading image quality and causing more frequent replacement of the fuser.

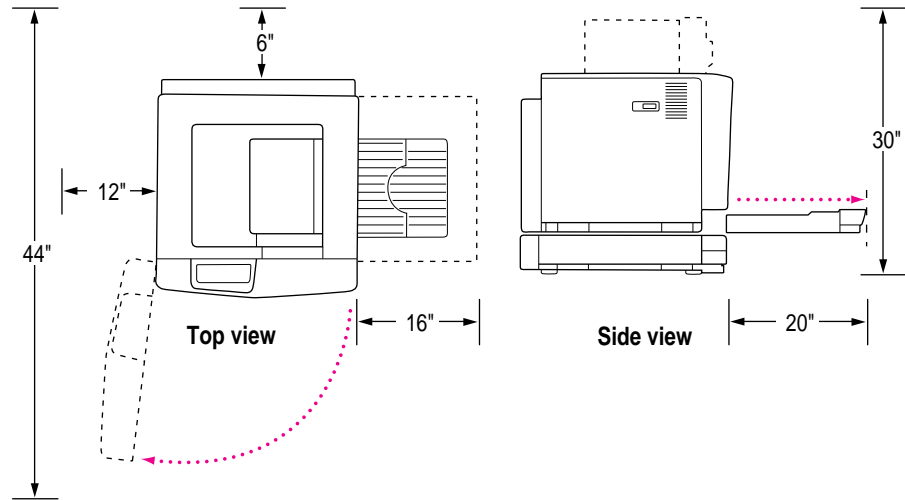
## **Transparencies**

Use only Apple Color LaserWriter 12/600 PS Transparencies A4 or Letter.

## **Dimensions**

- |          |                |
|----------|----------------|
| ■ Height | 18 in. (46 cm) |
| ■ Width  | 21 in. (54 cm) |
| ■ Depth  | 23 in. (58 cm) |

## Space requirements



## Weight (printer body only)

- Approximately 110 lb. (50 kg)

## Environmental information

### Operating

- Temperature 50° to 86° F (10° to 30° C)
- Humidity 20 to 80 percent RH non-condensing (for optimum print quality, operate at 35 to 70 percent RH)

### Storage (toner cartridge and printer)

- Temperature -4° to 104° F (-20° to 40° C)
- Humidity 10 to 95 percent RH non-condensing

## Acoustic noise

- Standby, less than 45 dB
- Printing, less than 55 dB

## Wait times

- Either 120 or 240 V, 3.5 minutes maximum
- Either 100 or 220 V, 4.5 minutes maximum



## Voltage requirements

- 100 to 120 V (50/60 Hz)
- 220 to 240 V (50 Hz)
- Voltage tolerance  $\pm 10\%$

## Power consumption

### Energy-saving mode

- Approximately 42 W (meets EPA Energy Star)

### Standby average

- 100/120 V, approximately 215 W
- 220/240 V, approximately 238 W

### Operating average

- 100/120 V, approximately 535 W
- 220/240 V, approximately 524 W

### Maximum power consumption

- 100/120 V, approximately 1.1 KW
- 220/240 V, approximately 1.0 KW

## About PostScript Printer Description (PPD) files

Installing the Macintosh printer software also installs PPD files to support the following Apple LaserWriter printers:

- LaserWriter
- LaserWriter Plus
- Personal LaserWriter NT
- Personal LaserWriter NTR
- Personal LaserWriter 320
- LaserWriter II NT
- LaserWriter II NTX

- LaserWriter II NTXJ
- LaserWriter IIx
- LaserWriter IIg
- LaserWriter Select 360
- LaserWriter Select 360f
- LaserWriter Select 610
- LaserWriter Pro 400
- LaserWriter Pro 405
- LaserWriter Pro 600
- LaserWriter Pro 630
- LaserWriter Pro 810
- LaserWriter Pro 810f
- LaserWriter 16/600 PS
- LaserWriter 16/600 PS Fax
- LaserWriter 16/600 PSJ
- LaserWriter 4/600 PS
- Color LaserWriter 12/600 PS

You can optionally install the Windows PPD files for these Apple LaserWriter printers:

- LaserWriter Select 360
- LaserWriter Pro 600
- LaserWriter Pro 630
- LaserWriter 16/600 PS

# RAM upgrade specifications

To increase the printer’s RAM, purchase SIMMs with the following specifications:

## SIMM dimensions

- Length: 107.95 mm +/- 0.20 mm (4.25 in. +/- .008)
- Height: 25.4 mm (1.0 in.) maximum

## SIMM sizes and speeds

Size	Configuration	Speed	Connector type
1 MB SIMM	256 Kbit x 32 bit	60 ns or less	72-pin
8 MB SIMM	1 Mbit x 32 bit	60 ns or less	72-pin
16 MB SIMM	4 Mbit x 32 bit	60 ns or less	72-pin

# Ozone emission

Ozone gas is emitted by almost all laser printers and photocopiers. Because ozone can be an irritant, various regulatory agencies have established limits regarding the amount of ozone to which employees may be exposed.

The current OSHA permissible limit for ozone is 0.1 parts of ozone per million parts of air (ppm). The Color LaserWriter 12/600 PS printer produces quantities of ozone far below the current limit specified by OSHA.

To minimize ozone exposure, install the LaserWriter in a well-ventilated area. If there are other laser printers or photocopy machines in the same area, additional air circulation may be required. Do not place the LaserWriter in a small, enclosed space that lacks adequate ventilation. Position the printer so that the fan exhaust does not blow directly into anyone’s face.

# Communication settings

The following table shows the default communication settings. For information about using the configuration switch to adjust communications settings, see “Adjusting Communication Settings” in Chapter 1. To change or view the current communication settings, use the Apple Printer Utility on the Macintosh (see Chapter 2 for details) or the Apple Printer Utility for Windows on an IBM PC or compatible computer (see Chapter 3 for details).

## Right switch position

These are the factory default settings:

Port	Mode	Data	Protocol
Parallel	On	AutoSelect	TBCP

Port	Interface	Mode
LocalTalk	LocalTalk	On
Ethernet	EtherTalk	On
	Netware	On
Parallel	TCP/IP	On

## Accessories

The following list includes both standard and optional parts.

Item	Part number
Color LaserWriter 12/600 PS Setup Kit	M3753G/A
Color LaserWriter Toner Cartridge, Cyan	M3757G/A
Color LaserWriter Toner Cartridge, Magenta	M3760G/A
Color LaserWriter Toner Cartridge, Yellow	M3758G/A
Color LaserWriter Toner Cartridge, Black	M3756G/A
Color LaserWriter 12/600 PS 250-Sheet Feeder	M3762G/A
Color LaserWriter 12/600 PS Universal Cassette	M3874G/A
Color LaserWriter 12/600 PS Internal Hard Disk Drive	M3875G/A
Color LaserWriter Photoconductor Replacement Kit	M3761G/A
110 V Color LaserWriter Fuser Replacement Kit	M3867G/A
220 V Color LaserWriter Fuser Replacement Kit	M4234G/A
Color LaserWriter Fuser Oil	M3755G/A
Color LaserWriter Transparencies A4	M3877G/A
Color LaserWriter Transparencies Letter	M3876G/A
Apple HDI-30 SCSI Cable	M2538LL/A
Apple Ethernet Thin Coax Transceiver	M0329LL/A
Apple Ethernet Twisted Pair Transceiver	M0437LL/A
Apple Ethernet AUI Adapter	M0432LL/A
Apple IEEE-1284 Parallel Cable	M4235ZM/A
Apple SCSI Cable Extender	M0208
Apple SCSI Cable Terminator II (Black)	M5871G/A

# Supplies

In the U.S.A., for Color LaserWriter supplies direct from Apple, call 1-800-600-7805. For your reference, the product reorder numbers are listed below.

In the U.S.A., to locate your local Apple-authorized reseller, call 1-800-538-9696 and ask for extension 525.

For optimal print quality, use Apple printer supplies.

Item	Reorder number
Color LaserWriter Toner Cartridge, Cyan	M3757G/A
Color LaserWriter Toner Cartridge, Magenta	M3760G/A
Color LaserWriter Toner Cartridge, Yellow	M3758G/A
Color LaserWriter Toner Cartridge, Black	M3756G/A
Color LaserWriter Photoconductor Cartridge Replacement Kit (includes 2 toner disposal boxes)	M3761G/A
110 V Color LaserWriter Fuser Replacement Kit	M3867G/A
220 V Color LaserWriter Fuser Replacement Kit	M4234G/A
Color LaserWriter Fuser Oil	M3755G/A
Color LaserWriter Transparencies (Letter Size)	M3876G/A
Color LaserWriter Transparencies (A4 Size)	M3877G/A



## Appendix B Setting Up the Printer as an ATPS Remote Printer

.....

Setting up your Color LaserWriter 12/600 PS printer as a remote ATPS (AppleTalk Print Spooler) printer on a NetWare network requires minimal configuration; most of the network printing capability is built into every Macintosh computer. With the proper software and physical connections, a Macintosh on a NetWare network can print to a NetWare-managed printing queue that can be selected from the Macintosh Chooser.

**IMPORTANT** ATPS is a part of Novell's *NetWare for Macintosh* NetWare Loadable Module (NLM), which must be loaded and configured on your NetWare server. The configurations described in this appendix can be performed only after the Macintosh NLM has been installed.

## Configuring ATPS for the first time on a NetWare 4 server

If you are setting up the printer for access by Macintosh computers on a NetWare 4 network and this is the first time you are configuring ATPS, follow these instructions.

You can configure ATPS from the server console or by running RCONSOLE (remote console) from a client PC.

**1 At the console prompt, type**

```
load install
```

The Install utility starts, and a list of Installation Options appears.

**2 Select the Maintenance/Selective Install option and press Enter.**

An additional list of options appears.

**3 Select Product Options from the list and press Enter.**

A list of product options appears. If the Macintosh NLM is installed and operating, a NW-MAC option will be available.

**4 Select the NW-MAC option and press Enter.**

A list of configuration options appears.

**5 Select Configure Print Services and press Enter.**

A list of print service configuration options appears.

**6 Select Quick Configuration and press Enter.**

A list of lookup parameter options appears.

**7 Select the Printer Model entry and press Enter.**

A list of printer types appears.

**8 Select the LaserWriter Pro 630 option and press Enter.**

This selection provides a printer type similar to the Color LaserWriter 12/600 PS.

**9 In the lookup parameter list, change the zone name to the zone in which the printer is currently located.**



- 10** Select the **Perform Lookup** option and press **Enter**.
- 11** In the list of installed printers, locate and select the newly installed printer from the list. (It should be identified as “Color LaserWriter 12/600 PS.”)
- 12** If necessary, edit the **Spooler’s AppleTalk Name** field and press **Esc** to complete the setup.

*Note:* You can also edit information about the print server or spooler. See the documentation provided with NetWare for more information.

- 13** Press **Esc** to exit the utility.

The NetWare for Macintosh Configuration screen appears.

- 14** Select **Edit SYS:\SYSTEM\AUTOEXEC.BAT** from the list of options and press **Enter**.

A window appears, displaying the file’s contents.

- 15** Insert the following line after the `load afp` statement:

```
load atps
```

This command instructs the NetWare server to load the ATPS service automatically at startup time.

- 16** Press **Esc** until the **Install** utility quits.

- 17** At the system console prompt, type `load atps` and press **Enter**.

The service is loaded and immediately becomes available to network users. A message appears confirming the loading, and the console returns to the command line prompt.

## Configuring ATPS for the first time on a NetWare 3.x server

If you are setting up the printer for access by Macintosh computers on a NetWare 3.x network and this is the first time you are configuring ATPS, follow these instructions.

You can configure ATPS from the server console or by running RCONSOLE (remote console) from a client computer.

**1 At the console prompt, type**

```
load install
```

The Install utility starts, and a list of Installation Options appears.

**2 Select Product Options from the list and press Enter.**

A list of product options appears. If the Macintosh NLM is installed and operating properly, a NW-MAC option will be available.

**3 Select the NW-MAC option and press Enter.**

A list of configuration files appears.

**4 From the list, select the file SYS:\SYSTEM\ATPS.CFG and press Enter.**

A prompt appears, asking if you want to create a new file.

**5 Type `y` and press Enter.**

An empty window appears, providing an area in which to enter configuration information.

- 6** Enter a line of configuration information for each Color LaserWriter 12/600 PS printer. (Enclose the printer name and zone in quotation marks.)

**Example**

```
"Sales Printer:Ethernet Zone"
```

This example identifies the printer "Sales Printer" located in the zone "Ethernet Zone."

You can include a `-h` option at the end of the line to instruct ATPS to make the printer unavailable for direct Macintosh printing; that is, the printer will be accessible only through ATPS queues.

**Example**

```
"Sales Printer:Ethernet Zone" -h
```

*Note:* Other ATPS options are available for configuring the printer. See Novell's *NetWare for Macintosh* documentation for more information on these options.

- 7** Press Esc to quit editing.

A prompt appears, asking if you want to save your changes.

- 8** Type `y` and press Enter.

The list of configuration files reappears.

- 9** Select the `SYS:SYSTEM\AUTOEXEC.NCF` file and press Enter.

A window appears, displaying the file's contents.

- 10** Insert the following line after the `load atps` statement:

```
load atps
```

This command instructs the NetWare server to automatically load the ATPS service at startup time.

- 11** Press Esc to exit the editor, then type `y` and press Enter to confirm the changes.

- 12** Press Esc three times to exit the Install utility.

- 13** At the system console prompt, type `load atps` and press Enter.

The service is loaded and immediately becomes available to network users. A message appears confirming the load, and the console displays its prompt.

## Modifying an existing ATPS configuration on a NetWare 3.x server

The procedure for modifying an existing ATPS configuration is similar to the procedure for creating a new configuration. The primary difference is that you are modifying an existing AUTOEXEC.NCF file instead of creating a new one.

**1 At the console prompt, type**

```
load install
```

The Install utility starts, and a list of Installation Options appears.

**2 Select Product Options from the list and press Enter.**

A list of product options appears. If the Macintosh NLM is installed and operating properly, a NW-MAC option will be available.

**3 Select the NW-MAC option and press Enter.**

A list of configuration files appears.

**4 From the list, select the file SYS:\SYSTEM\ATPS.CFG and press Enter.**

A prompt appears, asking if you want to create a new file.

**5 Type `y` and press Enter.**

An empty window appears, providing an area for entering configuration information.

- 6** Enter a line of configuration information for each Color LaserWriter 12/600 PS printer. (Enclose the printer name and zone name in quotation marks.)

**Example**

```
"Sales Printer:Ethernet Zone"
```

This example identifies the printer "Sales Printer" located in the zone "Ethernet Zone."

You can include a `-h` option at the end of the line to instruct ATPS to make the printer unavailable for direct Macintosh printing; this makes the printer accessible only through ATPS queues.

**Example**

```
"Sales Printer:Ethernet Zone" -h
```

*Note:* Other ATPS options are available for configuring the printer. See the *NetWare for Macintosh* documentation for more information on these options.

- 7** Press Esc to quit editing.

A prompt appears, asking if you want to save your changes.

- 8** Type `y` and press Enter.

The list of configuration files reappears.

- 9** Press Esc until the Install utility exits.

- 10** At the system console prompt, type `unload atps` and press Enter.

This command unloads the previous version of ATPS configuration. Now you can reload ATPS using the modified configuration.

- 11** At the system console prompt, type `load atps` and press Enter.

The new configuration is immediately available.





## Appendix C

### Using Fonts With the Printer

.....

A font is a collection of letters, numbers, and symbols in a distinctive typographic design. Your Macintosh computer and Color LaserWriter 12/600 PS printer come with a variety of fonts that look great both on your monitor and on paper.

Fonts come in such a variety of formats that problems can sometimes arise. This appendix provides the information you need to avoid such problems and to solve them if they come up.

#### Kinds of fonts

The Macintosh works with three main kinds of fonts: bitmapped, PostScript, and TrueType fonts.

Apple provides two kinds of fonts with your Macintosh and the Color LaserWriter 12/600 PS printer, bitmapped and TrueType. However, your system can use PostScript fonts as well when it has the proper software installed.

## Bitmapped fonts

Bitmapped fonts consist of “pictures” of a typeface at specific sizes. For example, you might have bitmapped fonts at 10-, 12-, and 18-point sizes installed in your Macintosh computer. For best results you need a separate font file for each size of character you want to use.

The icon of a bitmapped font (also called a *fixed-size font* or *screen font*) has the single letter A on it. The font’s point size appears at the end of its name.



When you request a bitmapped character, your Macintosh looks for an installed bitmapped font in the size you specified. (See “How the Macintosh Looks for Fonts,” later in this appendix.) If it can’t find that font, your Macintosh tries to construct one by scaling a size that it does find.

In most cases, scaled bitmapped fonts don’t look nearly as good as preinstalled ones. Such scaling is one reason for the jagged edges (sometimes called “jaggies”) you’ll see on your screen or in a printed document when you request an uninstalled size (for example, 17-point Geneva).

Bitmapped fonts are designed on grids of 72 dots per inch (dpi)—the standard Macintosh screen resolution. Because of their correspondence to the standard screen resolution, bitmapped fonts in preinstalled sizes always look great on your display.

When you print a bitmapped font, it prints at a resolution of 72 dpi. Because most modern printers can print at resolutions far better than this (your Color LaserWriter 12/600 PS prints at 600 dpi), printed bitmapped fonts almost always have jagged edges or staircase sides.

Fortunately, the Macintosh can use bitmapped fonts in combination with other font formats, reserving bitmaps for the screen and other kinds of fonts for the printer.



## PostScript fonts

PostScript is a page-description language that defines the characters, symbols, and images that appear on each page of a document. A PostScript font comes as a pair of fonts: an outline font for the printer and a corresponding bitmapped font for displaying type on your screen.

*No bitmapped font, no menu entry:* If your system doesn't have the bitmapped font, the PostScript font name won't appear in your font menu.



The Color LaserWriter 12/600 PS is designed specifically to work with PostScript fonts. Even printers that are not PostScript printers can use PostScript fonts if you have Adobe Type Manager software installed. Adobe Type Manager uses printer fonts to generate clean-looking screen text at any size. (Adobe Type Manager is included with your Color LaserWriter 12/600 PS software.)

**IMPORTANT** Adobe Type Manager is not an Apple product. It is made and supported by Adobe Systems Incorporated. Only the version that comes with Apple Macintosh system software version 7.5 is supported by Apple.

PostScript printer fonts have no numbers associated with their names, because a single font can be scaled to any size. Many companies make PostScript fonts; the following illustration shows icons for Adobe, Bitstream, and Fontek PostScript fonts, plus a generic PostScript font icon.



## TrueType fonts

A TrueType font is scalable, describing a typeface without rigidly specifying a size. So it looks good whatever size you choose. TrueType fonts provide sharp text at any size on screen or on paper. You can mix and match TrueType fonts from various font vendors.

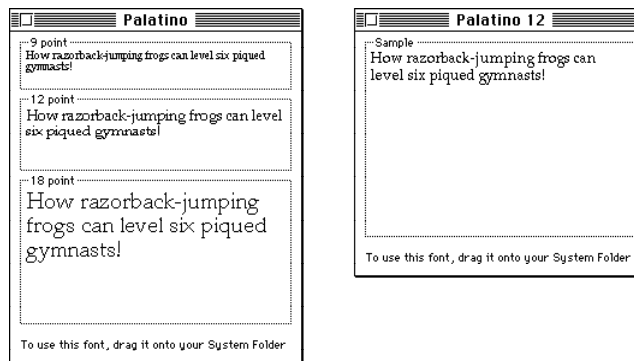


TrueType fonts store individual text characters as mathematical descriptions of lines and curves, rather than as groups of pixels (a bitmap). When a program asks for a character in a particular size, such as 33 points, the Macintosh uses mathematical calculations to enlarge the character's outline to 33 points and fill in the dots for the monitor or printer output.

Sometimes you'll still get jagged edges when you print a document, even when you use a TrueType font. In nearly all cases, this is because there isn't enough memory available to scale the font properly for printing.

Because you don't need a separate font for each character size in order for your printing to look good (as you do with bitmapped fonts), TrueType font names don't have numbers in them.

*How does a font look?* To see a TrueType or bitmapped font on your screen, double-click the font's icon to open it. A sample of that font appears (in three sizes for TrueType fonts and in the size you opened for bitmapped fonts).



You can also use the Key Caps desk accessory to examine fonts. See the documentation that came with your computer for instructions.

## QuickDraw GX imaging technology

A QuickDraw GX font is a TrueType or PostScript font with an additional set of sophisticated features. These features include extremely accurate typographic elements such as ligatures and kerning, plus the ability to skew, rotate, and add perspective to text in extremely flexible ways.

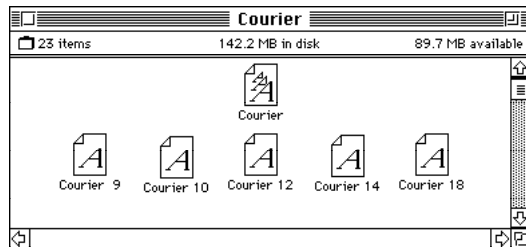
QuickDraw GX is more than a font format; it's a sophisticated printing and display technology that supports complex graphics and advanced typography.

## How TrueType fonts work with other kinds of fonts

Although TrueType fonts offer distinct advantages, your Color LaserWriter 12/600 PS printer can also use other kinds of fonts.

### TrueType and bitmapped fonts

Macintosh computers running System 7 come with both bitmapped (screen) fonts and TrueType fonts installed. This maintains consistency with documents created on Macintosh systems that don't have TrueType fonts.



If both a TrueType and bitmapped version of the same font are available, the Macintosh uses the bitmapped font (providing that the stipulated point size is present). If you want the Macintosh to use the TrueType font, you need to remove the bitmapped font from your system.

For example, if a document uses 12-point Times, available in that size as a bitmapped font and as a TrueType font, the system uses the bitmapped font. If a document uses 4-point Times, the system scales the TrueType font to that size, because a bitmapped version isn't available.

Using only TrueType fonts produces a closer match between the appearance of type on the screen and on paper. However, a document you've already created with bitmapped fonts will be reformatted with the corresponding TrueType fonts, and line breaks in the document may change. Similarly, if a document is created on a system that has TrueType fonts or Adobe Type Manager software installed, it may have different spacing, kerning, and so on, when opened on a system that doesn't have TrueType fonts or Adobe Type Manager software.

### Keeping two font versions available

If you have a TrueType version of a font, you don't need a bitmapped version. However, although keeping both versions of a font takes up more disk space, there are several advantages to doing so.

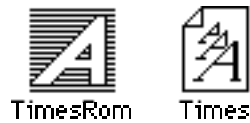
Bitmapped fonts are hand-designed: a graphic artist planned each character in each font to look good on a screen. TrueType fonts are scaled by the computer to match what you request. At smaller point sizes, the bitmaps may appear sharper.

Additionally, scaling fonts takes time—sometimes up to several seconds in slower Macintosh computers; but all Macintosh computers can display a bitmapped font instantly.

## TrueType and PostScript fonts

PostScript fonts were designed as fonts for PostScript printers. However, if you have Adobe Type Manager software installed, your computer can both display and print PostScript fonts.

*Use different names:* To avoid confusing the printer software, be sure that you don't install both TrueType and PostScript versions of the same font. For example, do not have a PostScript font file called *Times* and a TrueType font file called *Times* installed in your system at the same time.



## How the Macintosh looks for fonts

Here's the search order your Macintosh uses to determine which font to display on your screen when you choose a specific size:

1. an installed bitmapped font in that size, if one exists
2. a scaled TrueType font, if no bitmapped font exists
3. an Adobe Type Manager (ATM) version of a PostScript font, if ATM is installed and if no TrueType version exists
4. a scaled bitmap if no ATM font exists

Here's the search order it uses to determine which font to print on your Color LaserWriter 12/600 PS (or any PostScript printer):

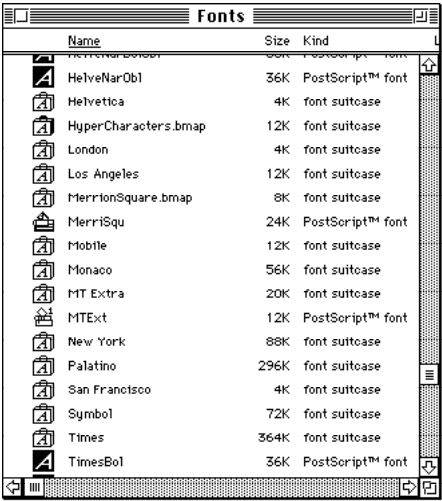
1. the printer's ROM
2. the printer's RAM
3. the printer's hard disk
4. the System Folder where it looks first for a PostScript version of the font, then TrueType, and finally a bitmap version.

# Where fonts are stored

All fonts for your Color LaserWriter 12/600 PS printer reside in special places within the System Folder. To install fonts in System 7, you drag them to the System Folder. Your Macintosh will automatically put them where they belong.

In system software versions 7.1 and 7.5, all the fonts are installed in the Fonts folder within the System Folder.

The Fonts folder can contain a total of 128 font suitcases (described in the next section), plus any number of PostScript fonts, up to the available storage capacity of your hard disk.



**IMPORTANT** Fonts installed in other folders or in the top level of the System Folder may not work correctly. Additionally, bitmapped and TrueType fonts stored outside of suitcases may not work correctly.

## Suitcases

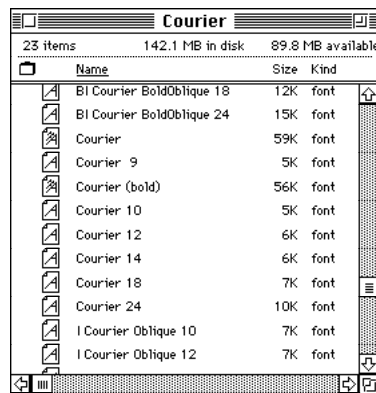
A font suitcase is a special folder for collections of fonts.



Courier

Suitcases provide a convenient way to organize fonts in the same font family. For example, it's a good idea to use a single suitcase (called *Courier*) for all fonts in the Courier font family—all Courier roman fonts as well as fonts with names like Courier Bold and Courier Oblique.

*Note:* PostScript fonts won't go into suitcases; you can, however, organize TrueType fonts in suitcases.



*Combining suitcases:* To merge all the fonts from one suitcase with another, drag one suitcase on top of the other. All the fonts from the dragged suitcase will go into the other, and the dragged suitcase will disappear.

A suitcase can also contain fonts from different font families, although you should keep all fonts of the same family in the same suitcase. All the fonts will still appear in menus with their proper names.

You treat a suitcase as you would a folder. To open a suitcase, you double-click it. To add a font, you drag the font's icon to the suitcase and drop it in. To remove a font, you drag its icon out of the suitcase.

To create a font suitcase, duplicate an existing one and throw away its contents. Then rename the suitcase as appropriate and drag whatever fonts you want into it.

You cannot have more than 128 font suitcases in the Fonts folder.

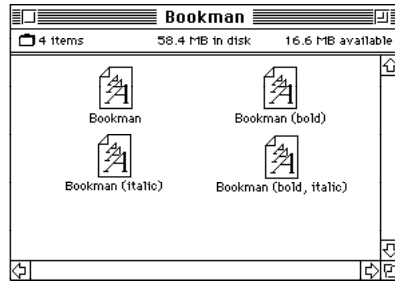
*Size limits for suitcases:* No matter how many fonts you have in a single suitcase, the Fonts folder counts the suitcase as a single unit. There's no limit to the number of fonts in a single suitcase, but the suitcase cannot be larger than 16 megabytes.

**IMPORTANT** PostScript fonts cannot be placed in suitcases; they appear as individual files, loose inside the Fonts folder. Other than the limit imposed by your system's memory (RAM), there's no limit on the number of PostScript fonts you can have.



## Styled fonts

Most fonts that come with your Color LaserWriter 12/600 PS printer have defined styles. For example, if you open the Bookman font suitcase, you see files for bold and italic versions of the font.



But fonts such as Chicago, Geneva, Monaco, and New York do not come with defined styles. If you open the Chicago font (contained in a suitcase in the Fonts folder, which is inside your System Folder), you see only one file.



You can apply a style to a font like this by making a choice from the appropriate menu (Fonts, Style, Format, or some similar menu, depending on the application program). A font predesigned with a given style nearly always looks better than a font with a computer-generated “derived” style.

*About style names:* Predesigned styled fonts sometimes have names you may not be familiar with. For example, *roman* refers to a font without styling, or plain. *Oblique* is similar to italic. *Light*, *demi*, and *extra* are different states of bold.

## Common questions about fonts

Here are some questions that often come up about fonts.

### **What kind of fonts should I buy?**

Bitmapped fonts are best for screen display but don't look as good when you print them. PostScript fonts look great on paper if you have a PostScript printer or Adobe Type Manager.

TrueType fonts are the best all-purpose fonts to use for your Macintosh monitor and non-PostScript printers. If you need to display fonts with extremely accurate typographic features such as ligatures and kerning, install QuickDraw GX on your system and buy QuickDraw GX TrueType fonts.

### **Why don't all of my fonts appear in the Fonts menu?**

You may not have all of your fonts placed correctly. In system software versions 7.1 and 7.5, all the fonts should be installed in the Fonts folder in the System Folder.

Additionally, some application programs let the user decide which fonts should appear in the Fonts menu. Check the manuals that came with your programs.

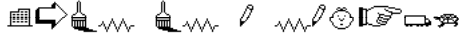
### **Why can't I see my Monaco 9, Geneva 9 and 12, and Chicago 12 bitmapped fonts?**

These fonts are used by your Macintosh to display information correctly. Because the Macintosh needs these fonts, the Finder makes them invisible to prevent users from removing them.

### What does the term *Apple classic fonts* mean?

The Apple classic fonts are the original ten bitmapped fonts that came with the first Macintosh in 1984. These fonts, which all have city names, include Athens, Cairo (a picture font), Chicago, Geneva, London, Los Angeles, Monaco, New York, San Francisco, and Venice. Several of the fonts (Athens, Cairo, London, and San Francisco) came in only one size—18 points.

**This is a sample of Athens.**



**This is a sample of Chicago.**

*This is a sample of Geneva.*

**This is a sample of London.**

*This is a sample of Los Angeles.*

*This is a sample of Monaco.*

*This is a sample of New York.*

**This is a sample of San Francisco.**

*This is a sample of Venice.*

Chicago, Geneva, Monaco, and New York are currently available in TrueType versions. The other classic fonts are still only available in bitmapped versions.

### Why do I sometimes get Geneva or Courier in my printed documents when I have specified other fonts?

Geneva often appears when you're trying to use a TrueType font but don't have enough memory for scaling to operate properly.

Substitute fonts can also appear in a document composed on one Macintosh that has a particular set of fonts but printed on another Macintosh that doesn't have those fonts.

### Why does a document written entirely in Times look different on different Macintosh computers?

Times, an extremely popular font, is manufactured and sold by more than one company. Such fonts usually have small differences, even though they have the same name. For example, the Times font manufactured by Adobe Systems Incorporated has different letterspacing than does the Times font from Apple Computer.

**What is font substitution?**

Font Substitution is an option in the Page Setup dialog box for certain PostScript printers. When font substitution is turned on, these printers will use their built-in equivalents for three bitmapped fonts (Times for New York, Helvetica for Geneva, and Courier for Monaco).

**What's a downloadable font?**

A downloadable font is a TrueType or PostScript font sent to an “intelligent” printer by your system software. (An intelligent printer is one that has a microprocessor built into it.) The printer then uses the font to print your document.

If a printer has sufficient memory, it can hold more than one downloaded font; otherwise, it must request the fonts it needs as necessary. This can be a time-consuming process.

Some printers have hard disks attached to them for holding downloaded fonts. A printer can get the fonts from its hard disk more quickly than it can download them from the computer's hard disk.

Your Color LaserWriter 12/600 PS printer can receive downloaded fonts.



## Appendix D

### Working With ColorSync

.....

The Macintosh does a lot of work to make sure that the colors you see on your monitor closely match the colors you get on your printers, scanners, and other devices. The software that does this work is called ColorSync. Because ColorSync does its work behind the scenes, you don't have to know anything about it. But if you're curious, this appendix explains how ColorSync works and how you can benefit from using it.

#### The problem that ColorSync solves

Providing consistent color with desktop computers is a technical challenge. Reproducing colors consistently from device to device is difficult because colored light on your monitor is very different from printed ink. Different color devices use different methods for representing color information and produce different ranges of colors.

Monitors (and most scanners) produce colors by mixing red, green, and blue light—called RGB color. Most printers produce colors by mixing cyan (a shade of blue), magenta (a bright pink), yellow, and black ink—called CMYK color. Since monitors and printers have different color capabilities, they cannot reproduce each other's colors exactly.

In addition, no two monitors or printers produce exactly the same colors. (You can see an example of the differences among television sets at a consumer electronics store.)

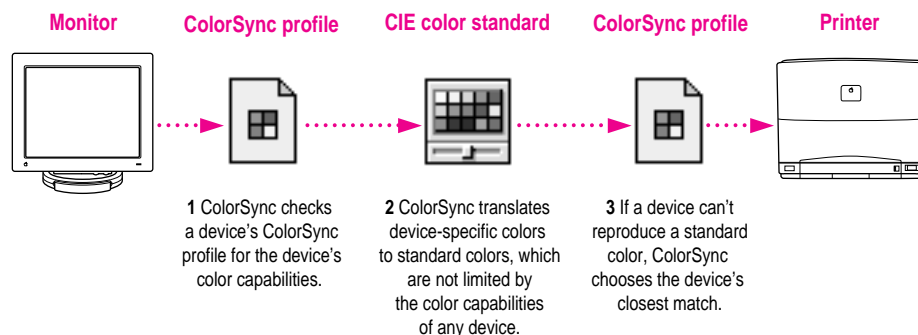
## About ColorSync

ColorSync is a system extension that provides color-conversion capabilities and improves color consistency. ColorSync “translates” the colors used on one device so that they match the colors displayed or printed on another device.

ColorSync color conversion is a central part of Macintosh computing, ensuring that programs, monitors, printers, scanners, and digital cameras use the same scheme for color conversion. This means you can scan an image, display it on your monitor, and print it—with visually matching colors every step of the way.

## How ColorSync works

ColorSync does not convert colors directly from one device to another. Instead, ColorSync takes information about each device’s color capabilities and compares it to an independent color standard. In this way, it converts the colors produced on one device to closely matching colors that can be reproduced on another device.



ColorSync defines the colors a monitor, printer, scanner, or digital camera can reproduce in a ColorSync profile. ColorSync profiles are compatible with the profile specifications of the International Color Consortium (ICC).

Next, ColorSync converts device-specific colors into standard colors. The CIE color standard describes colors in terms of how they are perceived by the human eye under standardized lighting conditions. (CIE stands for the Commission International de l’Eclairage, the International Commission on Illumination, which founded the standard in 1931.)

To maintain consistency, ColorSync previews a device's color capabilities (in the ColorSync profile) and—where necessary—converts standard colors to closely matching colors that the device can reproduce. For example, your monitor may be able to display a vivid red, but your printer inks may not be able to produce that color. ColorSync determines the “next best” color for your printer to use.

## Using ColorSync

The ColorSync profile for a device is automatically installed as part of the device's software. To get the best visual color matching on your system, make sure the following monitor settings are selected:

- For the best color match when printing, select the “page-white” or “D50” system profile for your type of monitor in the ColorSync System Profile control panel.
- For the best visual match between the colors on your monitor and printed colors, select the Page-White Gamma option in the Monitors control panel. To select a gamma option, open the Monitors control panel, then hold down the Option key while you click the Options button. In the Options window, click the Use Special Gamma checkbox to put a check in it. Then choose Page-White Gamma from the menu.
- On a multiscan monitor, make sure that the color temperature, or intensity, is set to 9300 K (the default setting). See the monitor manual for instructions. If the Page-White Gamma option is selected with a color temperature other than 9300K, your monitor colors could look too red or too blue compared to printed colors.

Some color devices allow you to set additional color options that affect the way ColorSync converts colors. See the device manual for more information about using ColorSync with the device.







## Appendix E

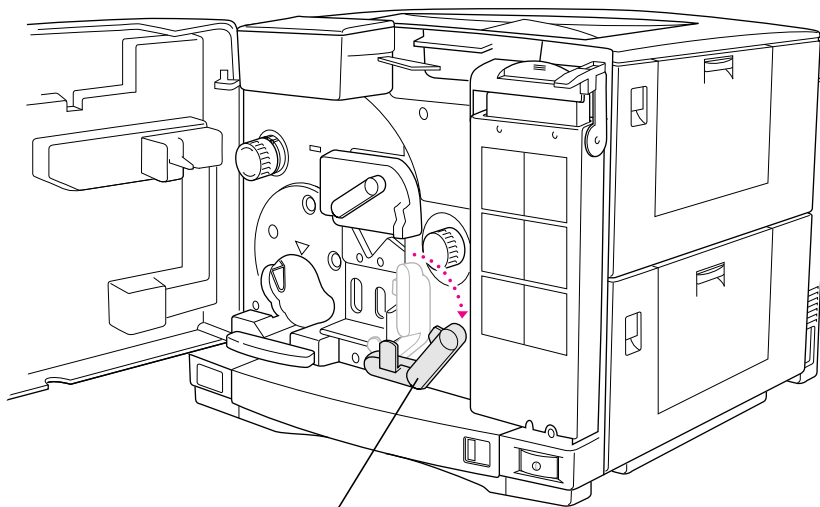
### Packing and Moving the Printer

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If you need to move your printer a long distance, follow these steps.

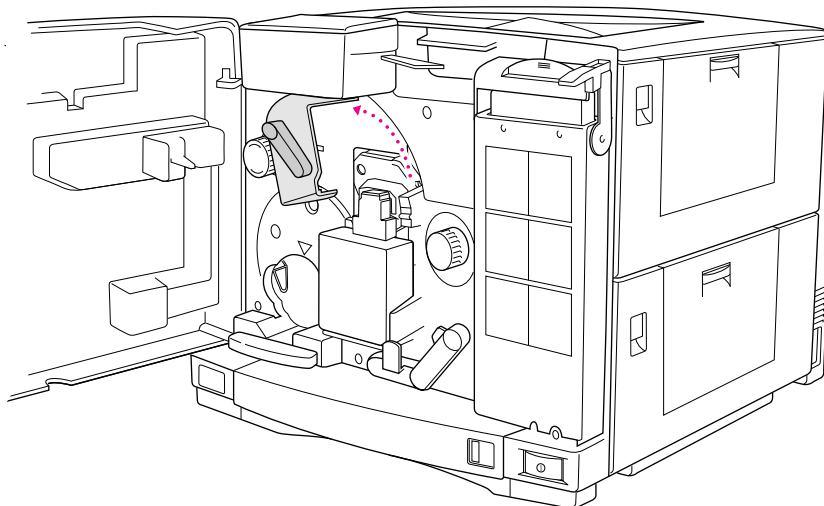
- 1** Turn off the printer and unplug it.
- 2** Remove any paper from the paper cassette and multipurpose tray.
- 3** Remove the power cord and any cables connected to the printer's ports.
- 4** Open the printer's door.
- 5** Remove all four toner cartridges.
- 6** Put each cartridge into its original wrapping, or put it into a resealable plastic bag and seal the bag.

- 7** Move the transfer drum lever to the right.

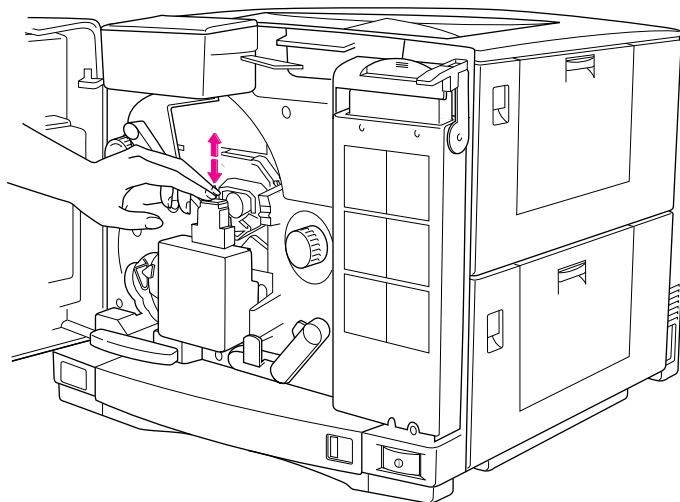


Push the transfer drum lever to the right.

- 8** Open the disposal box cover.



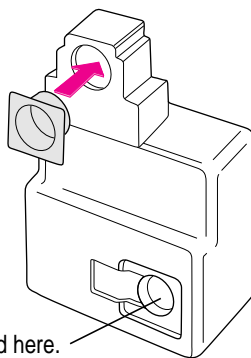
- 9** Tap the toner disposal box to settle the toner.



- 10** Remove the toner disposal box.

- 11** Put the plug into the opening in the toner disposal box.

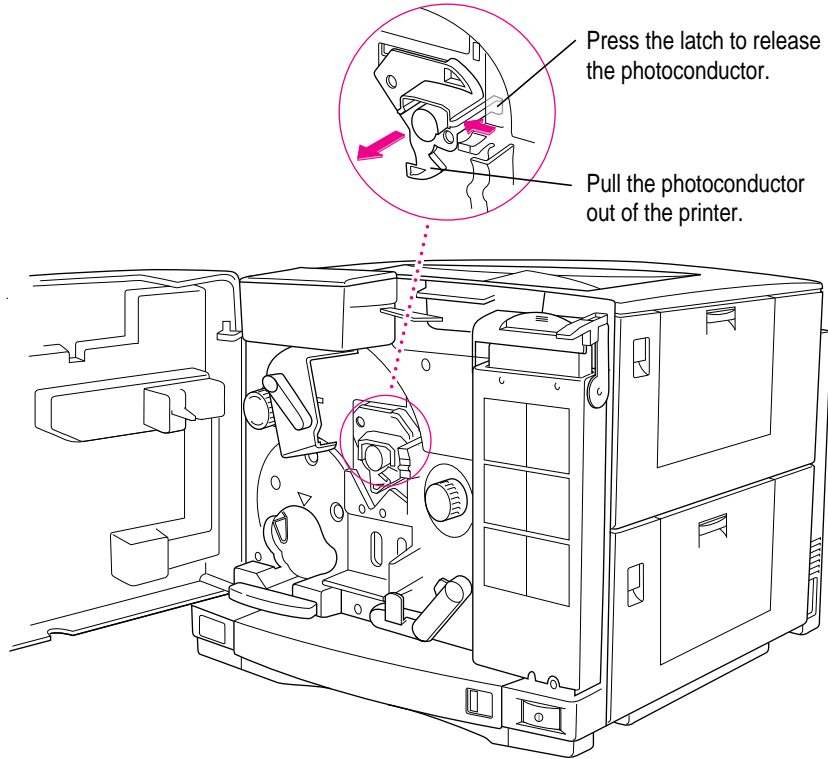
The plug prevents loose toner from leaking out of the box.



The stopper is stored here.  
Pull it loose and use it to  
plug the opening.

- 12** Put the toner disposal box into a resealable plastic bag and seal the bag.

**13 Remove the photoconductor cartridge.**

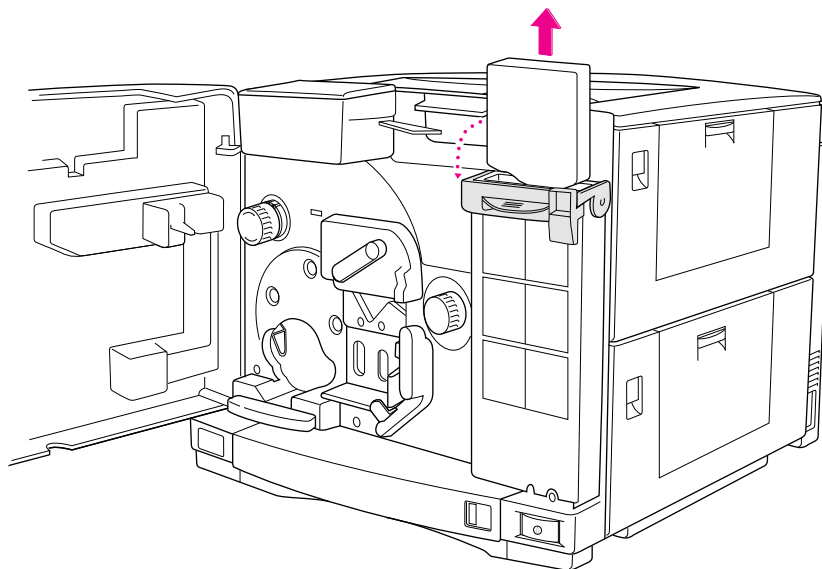


Squeeze the small latch and slide the photoconductor out of the printer.

**14 Place the photoconductor in its orange tray and its original wrapping.**

If you don't have the original packaging, put the photoconductor into a black plastic bag to protect it from exposure to light and contact with any abrasive surface or lint.

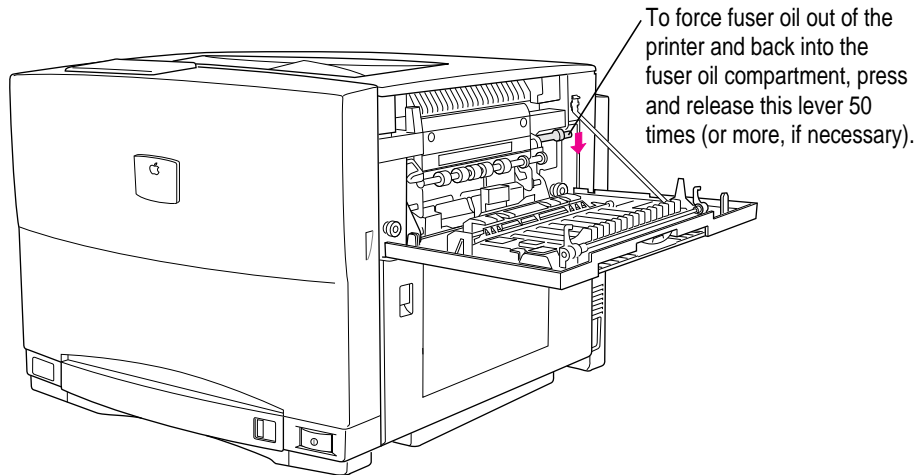
**15** Remove the fuser oil bottle.



Place the bottle in a resealable plastic bag and seal the bag.

**16 Remove all the fuser oil from inside the printer.**

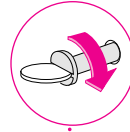
First, use a lever inside the fuser access door to pump fuser oil from inside the printer back into the fuser oil compartment. Then insert a turkey baster or other blunt syringe into the fuser oil compartment and withdraw the oil.



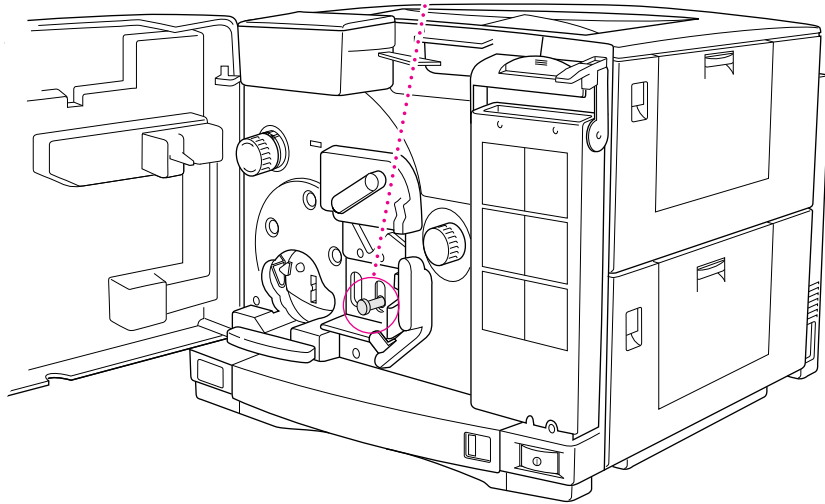
**IMPORTANT** Do not use paper towels, tissues, or anything that leaves lint or debris. It's better to leave a small amount of oil than to get foreign matter into the compartment.

If you leave oil in the printer, spots may appear on the first 20 to 50 pages you print after the move.

- 17** Insert the shipping screw into the printer.



The screw is encased in a sheath. Insert the sheath and turn the screw with a coin until it is tight.



- 18** Close the printer's door.

- 19** Repack the printer in its original packing material.

When the printer arrives at its new location, unpack it and set it up as described in Chapter 1.



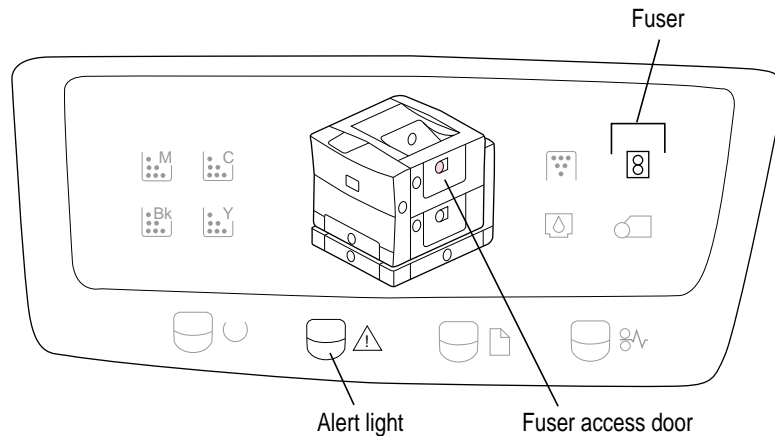


## Appendix F

### Replacing the Fuser

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When the fuser is near the end of its life, the Alert light and fuser indicator on the status panel flash to notify you. (When the fuser is completely worn out, the printer stops working.) You can purchase a Color LaserWriter Fuser Replacement Kit from an Apple-authorized reseller and follow the instructions in this appendix to replace the fuser yourself. Or you may prefer to contact an Apple-authorized service provider to replace the fuser for you.



*Note:* When you replace the fuser, you also replace the air filter, ozone filter, the separation discharger unit, and the transfer drum cleaning unit. All these items are included in the Color LaserWriter 12/600 PS Fuser Replacement Kit.

## Replacing the fuser

- 1 Turn off the printer and unplug it.

**IMPORTANT** Wait 10-15 minutes to let the fuser cool down.

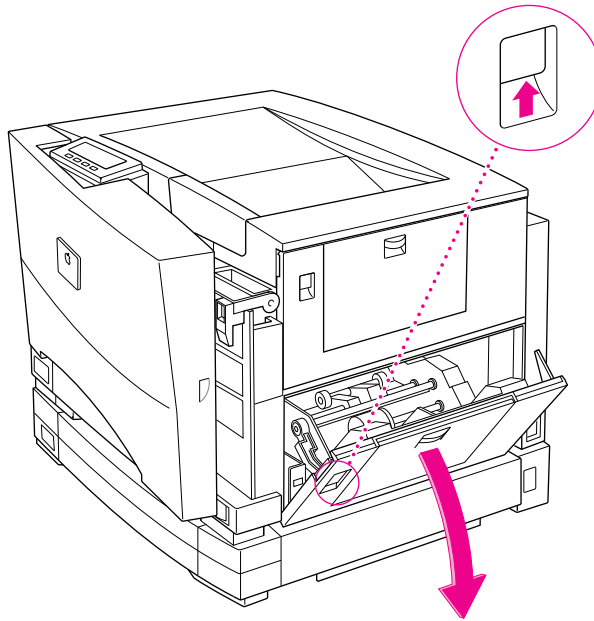
- 2 Open the printer's door.

- 3 Remove the fuser oil bottle and put it (upright) in a safe place.

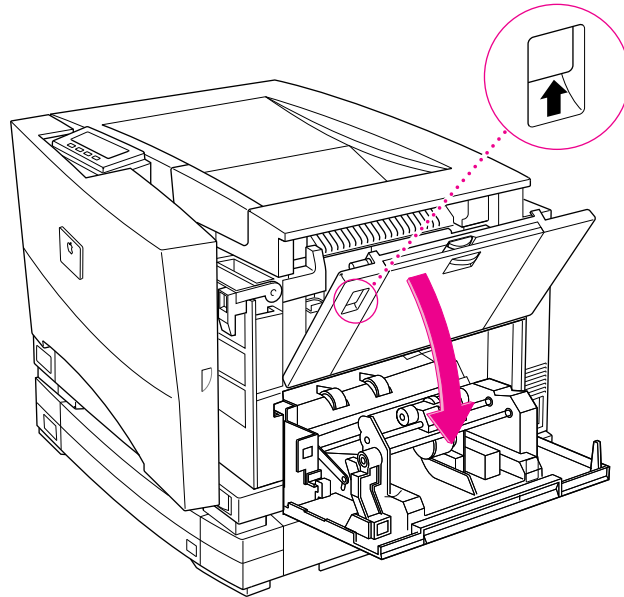
**IMPORTANT** The fuser oil is very slippery. If it spills on the floor, use paper towels or other absorbent material to clean it up immediately.

- 4 If necessary, close the face-up delivery tray.

- 5 Open the door to the paper pickup area.

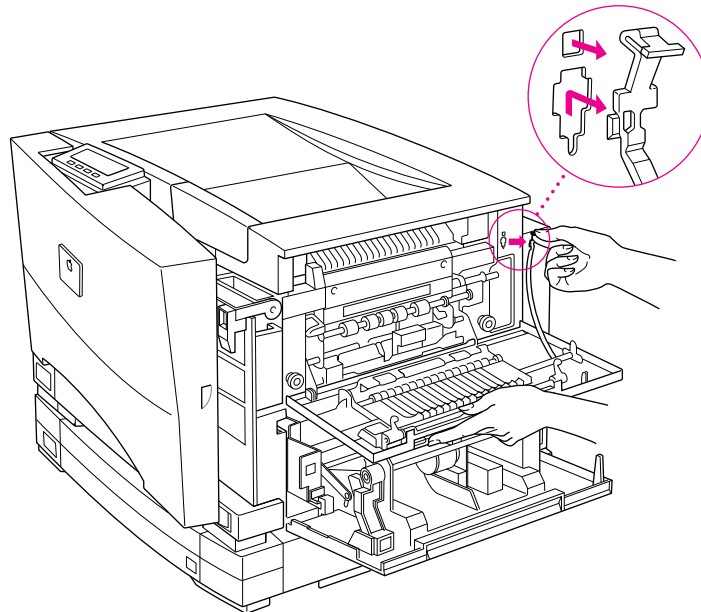


**6** Open the fuser access door.

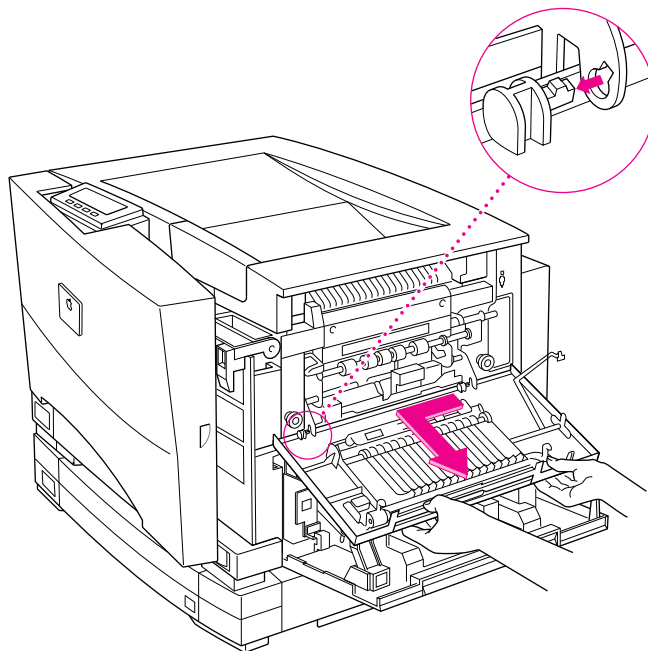


**7** Remove the tab that connects the fuser door strap to the printer.

Pull the top of the tab loose. Then slide the rest up and pull it out.

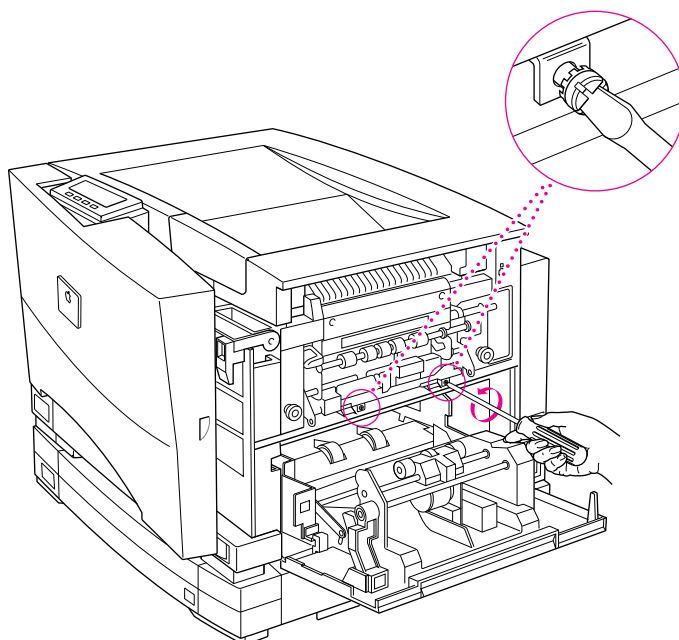


**8 Remove the fuser access door.**

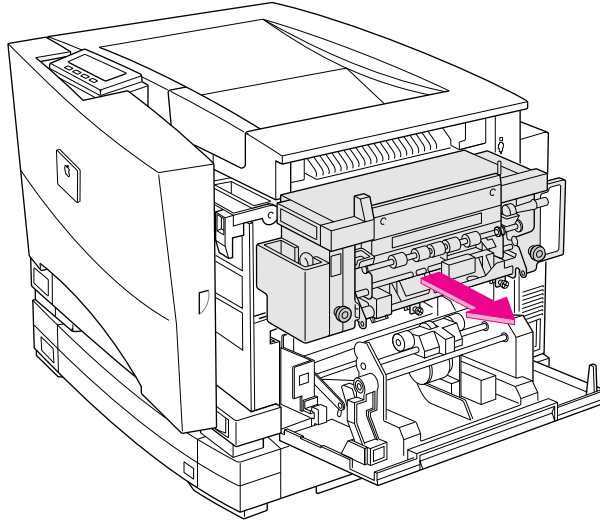


**9 With a large flat screwdriver, loosen the locking screws.**

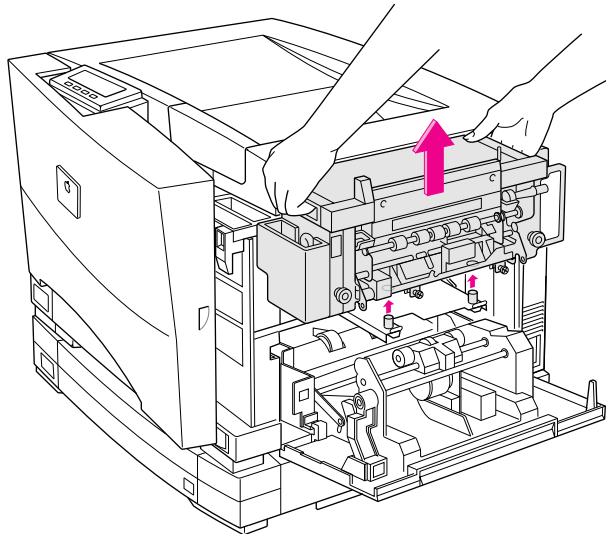
The screws do not come off.



- 10** To slide the fuser unit out of the printer, pull both knobs.



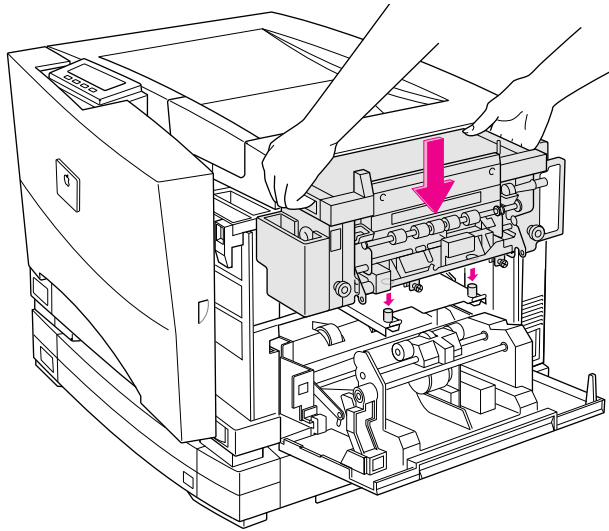
- 11** To remove the fuser, insert your hands into the pockets and lift.



**IMPORTANT** Don't drop the fuser. If any oil spills, clean it up immediately. (The oil is very slippery.)

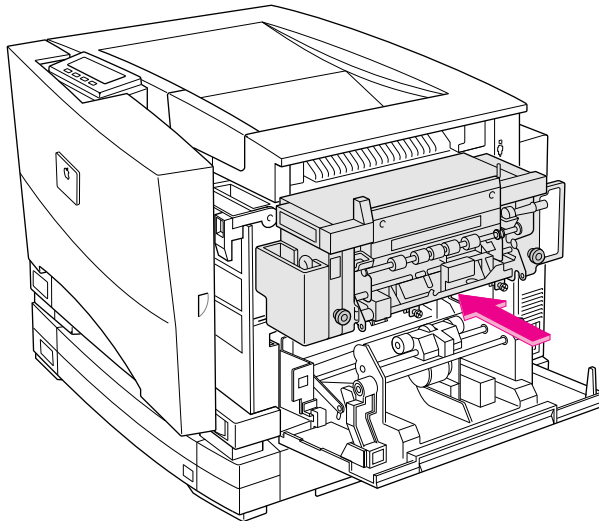
**12**    **Unpack the new fuser and remove all the packing materials.**

**13**    **Lower the new fuser into place in the printer.**

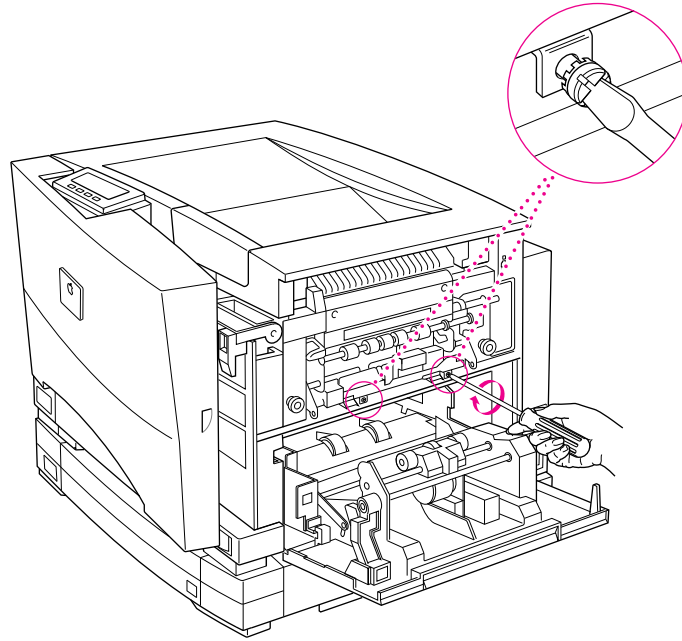


**14**    **Push the fuser back into the printer.**

Push firmly. If the fuser isn't all the way in, you won't be able to tighten the two locking screws.

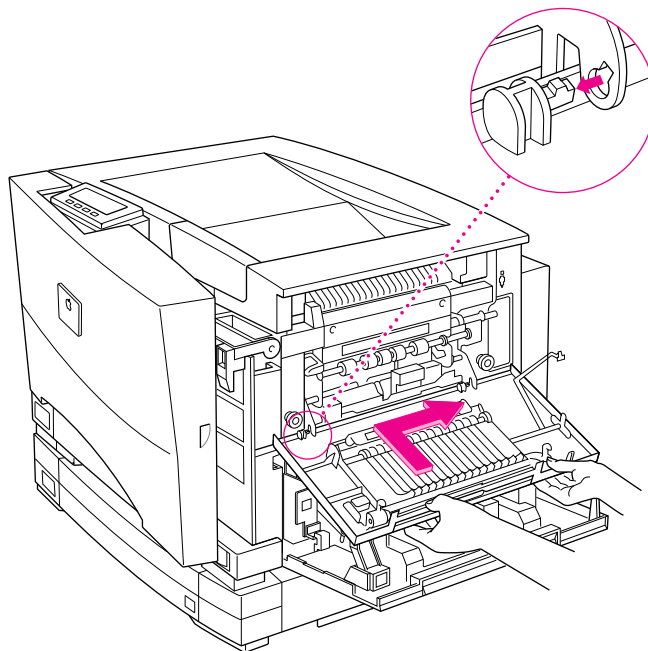


- 15** With the screwdriver, tighten the two locking screws.

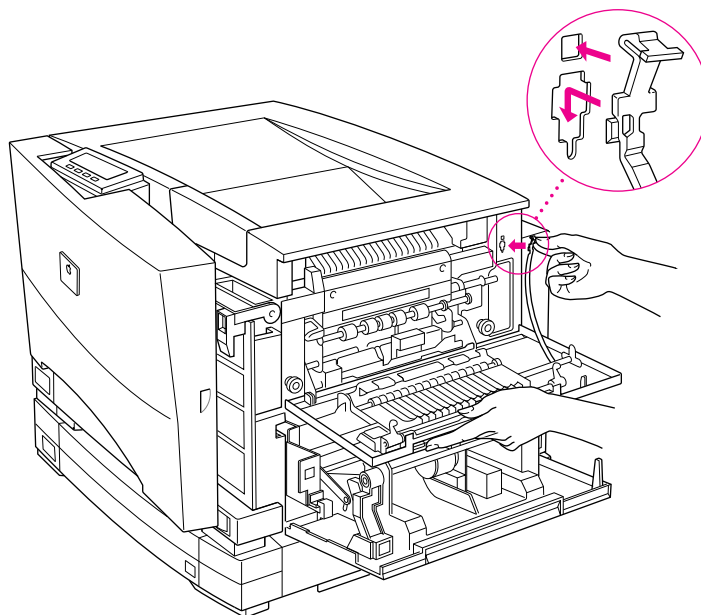


If the screws won't tighten and lock, the fuser isn't in far enough. Push it firmly.

**16** Reattach the fuser access door.



**17** Reattach the fuser door strap.

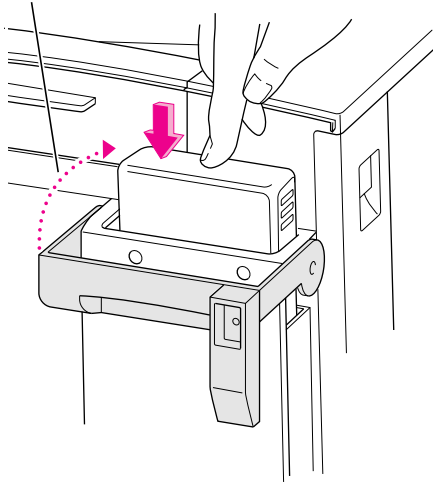




**18** Close the fuser access door and the paper pickup access door.

**19** Replace the fuser oil bottle.

Close the cover.

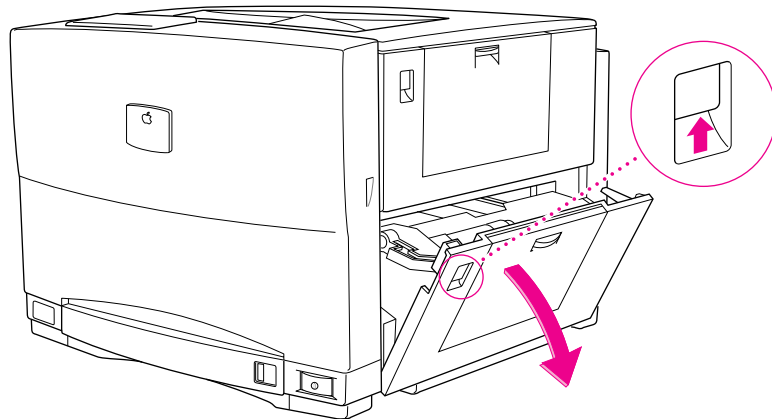


**20** Close the printer's door.

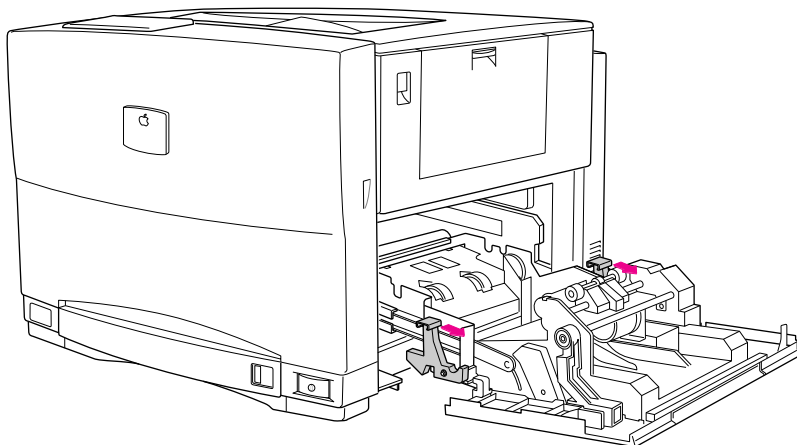
## Replacing the transfer drum cleaning unit

**1** If necessary, close the multipurpose tray.

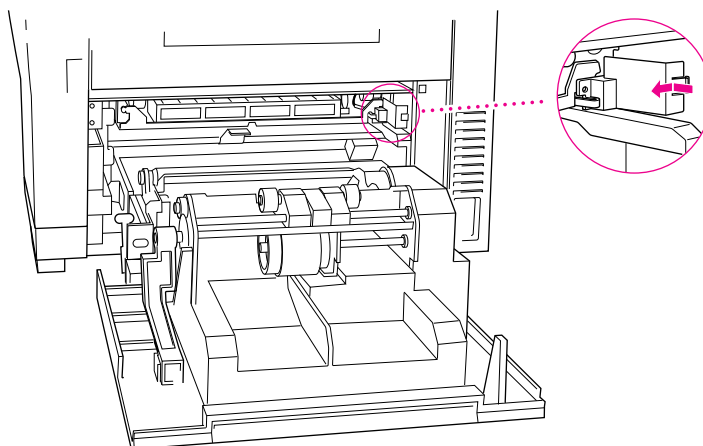
**2** Open the door to the paper pickup area.



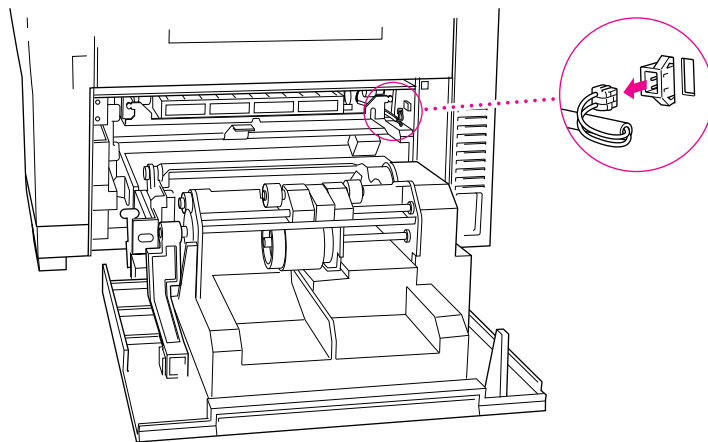
- 3** Pull the paper pickup unit out.



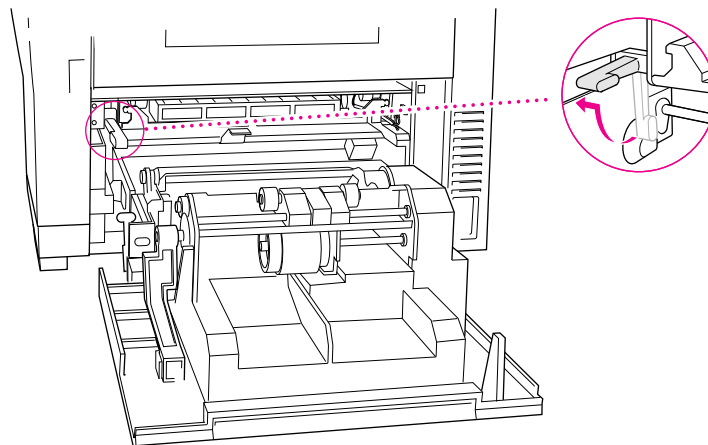
- 4** Remove the connector cover.



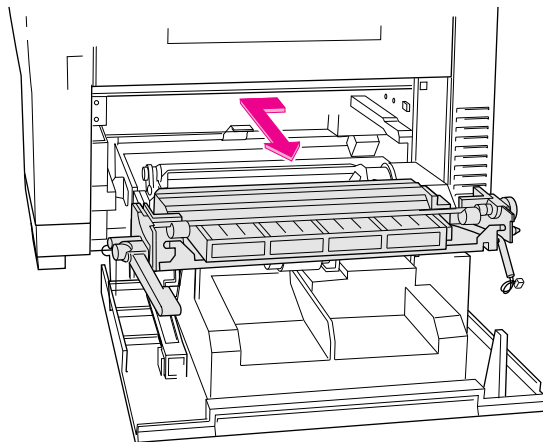
**5** Unplug the cable connector.



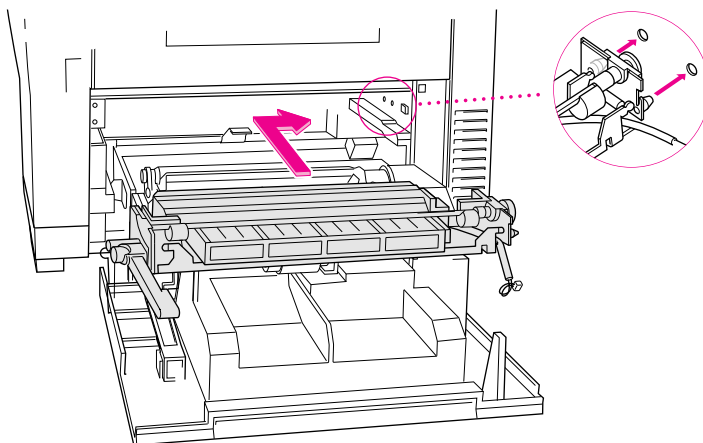
**6** Unlock the lever so you can remove the unit.



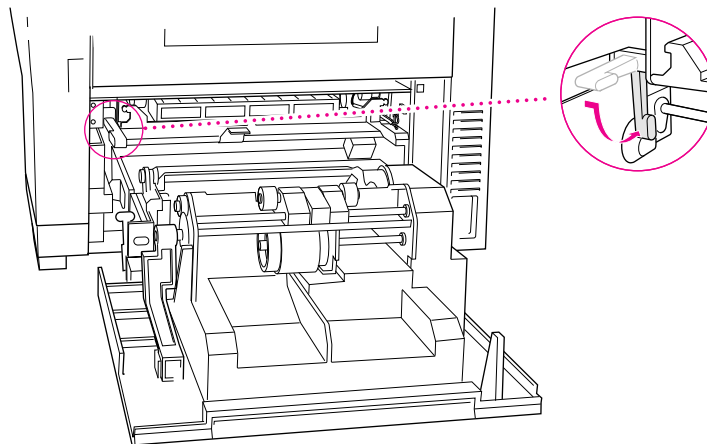
- 7** Slide the unit to the left, then pull it out of the printer.



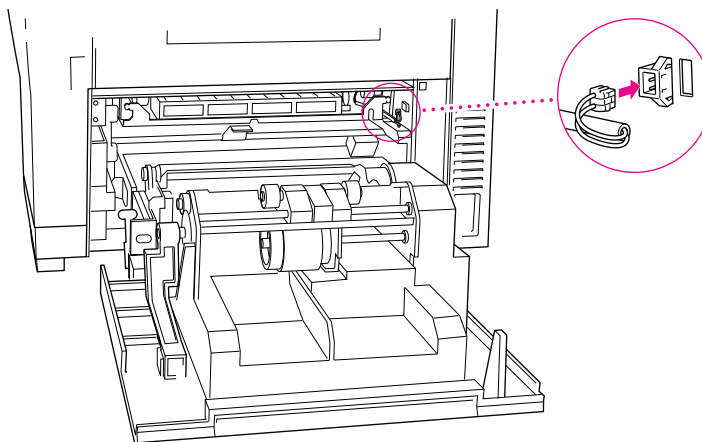
- 8** Insert the new cleaning unit.



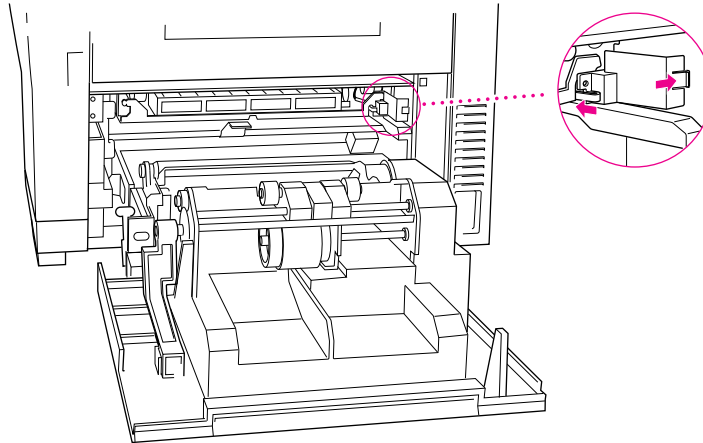
- 9** Lower the lever to a vertical position and snap it into place.



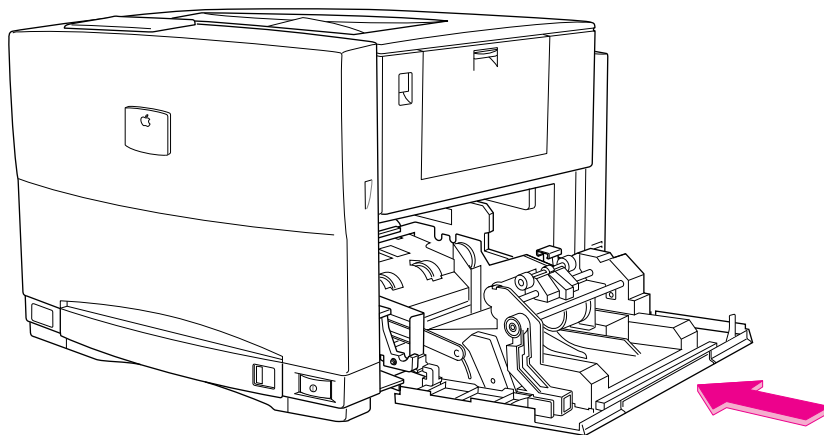
- 10** Plug in the cable connector.



- 11** Replace the connector cover.

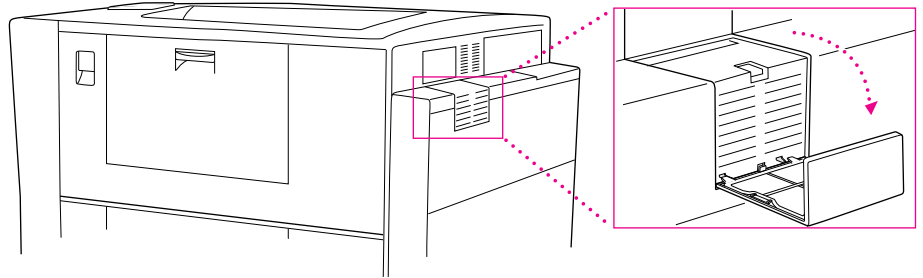


- 12** Push the paper pickup unit back into the printer and close the door.

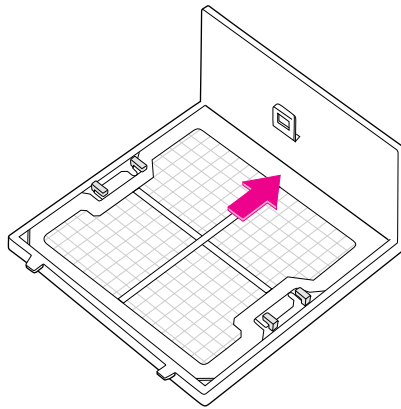


## Replacing the air and ozone filters

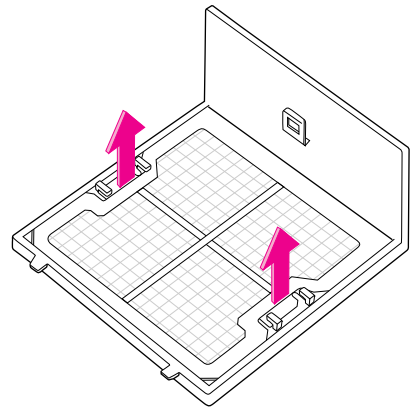
- 1 Remove the cover.



- 2 Unlock and remove the used air filter.

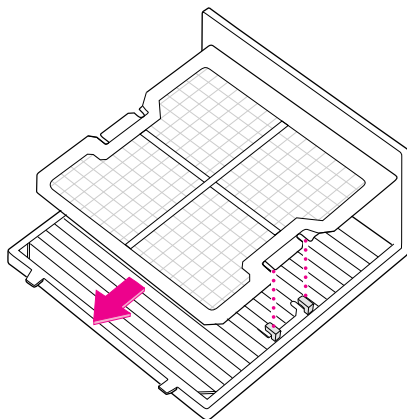


To unlock it, slide the air filter in the direction of the arrow.



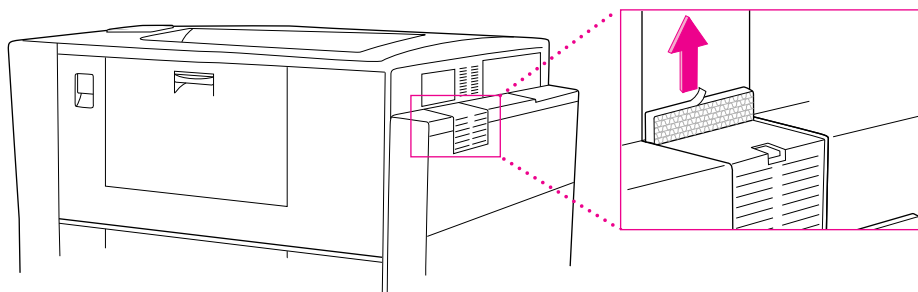
Then lift it off the cover.

- 3** Insert the new air filter and lock it in place.



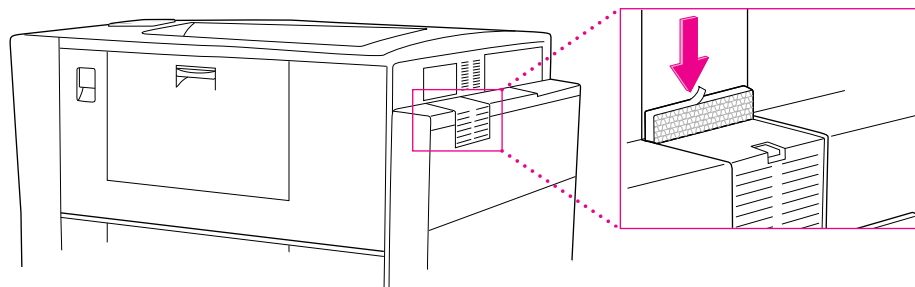
Align the slots with the tabs, then slide the new filter in the direction of the arrow to lock it in place.

- 4** Grasp the tab on the used ozone filter and remove the filter from its slot.

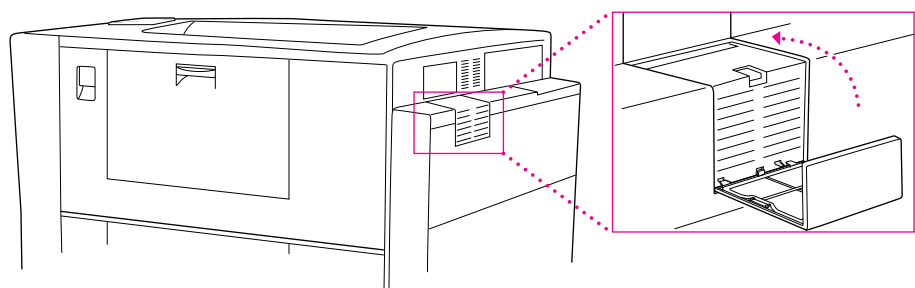




- 5** Place a new ozone filter in the slot.

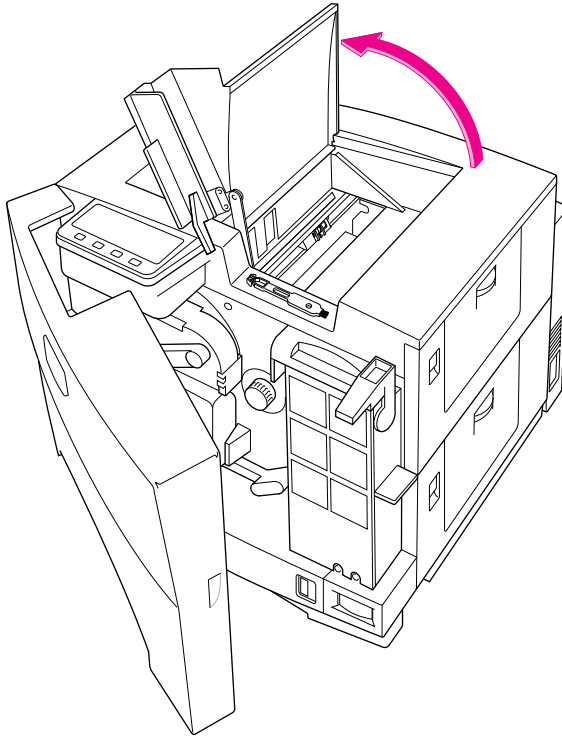


- 6** Replace the cover over both filters.

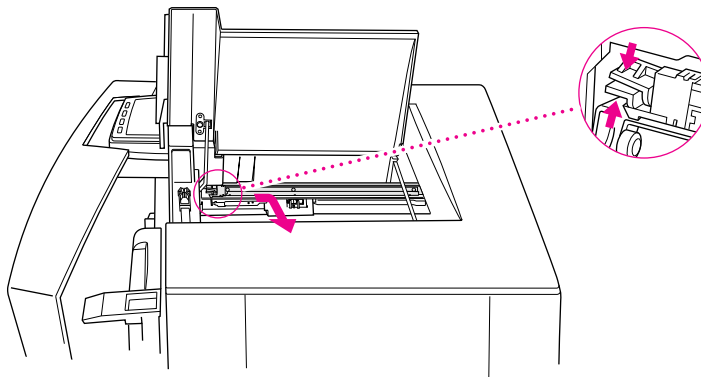


## Replacing the separation discharger unit

- 1 Open the printer's door.
- 2 Open the top cover.

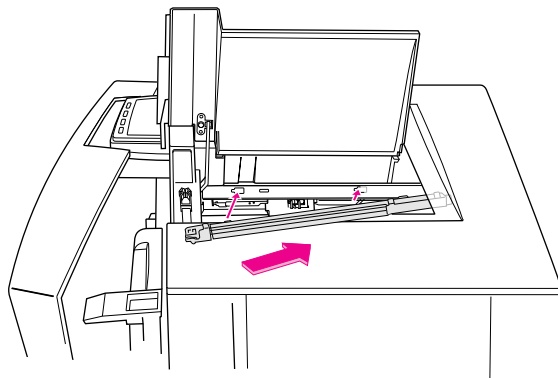


- 3 Remove the used separation discharge unit.

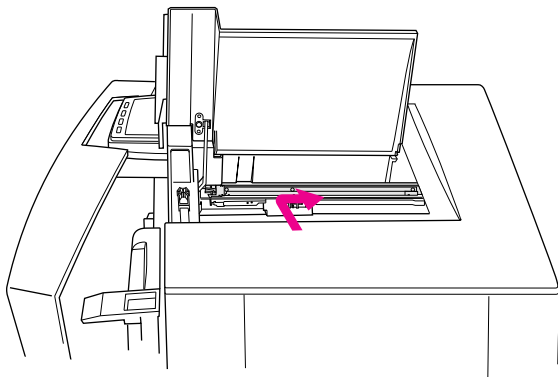


**IMPORTANT** Avoid getting loose toner on the density sensor window.

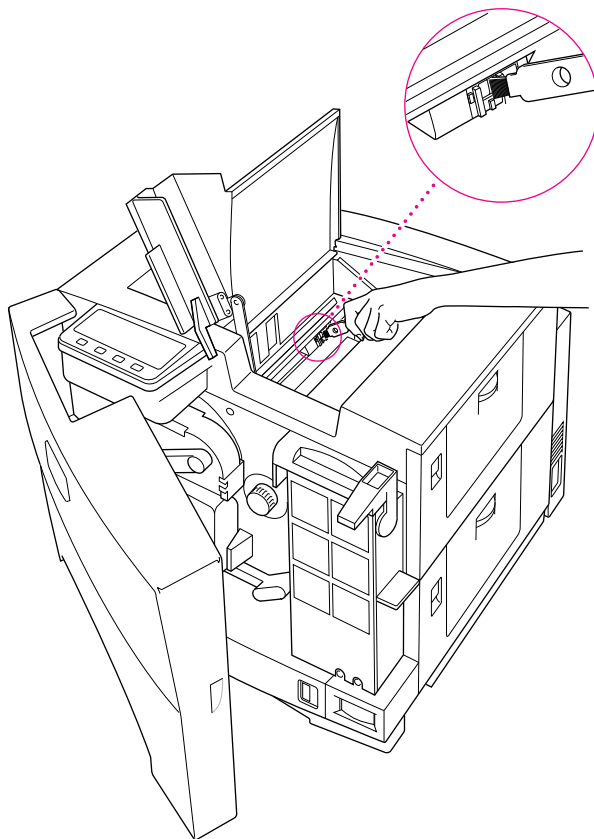
- 5** Insert the new separation discharger unit.



- 6** Slide the separation discharger unit to the left to lock it in place.



- 7** Clean the density sensor.



- 8** Close the top cover.

- 9** Close the printer's door.



## **Appendix G**

### **Diagnosing Problems for Service**

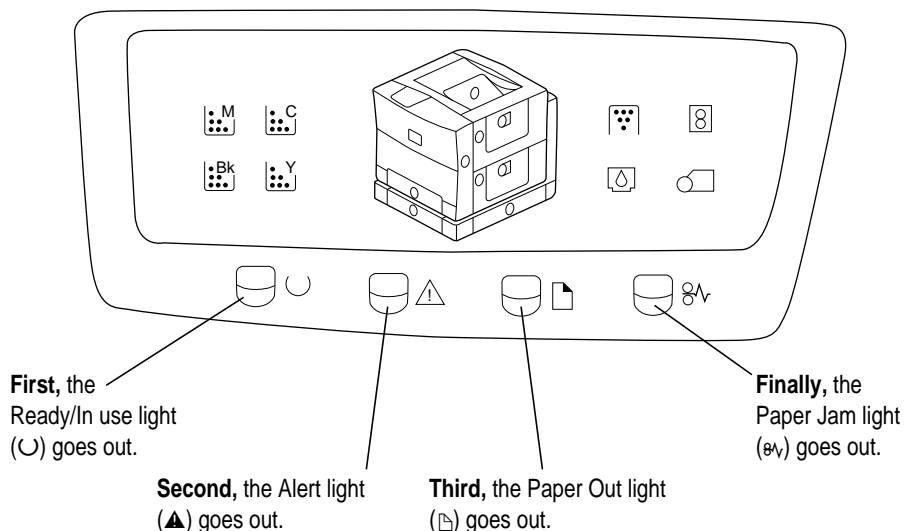
.....

This appendix shows how the status panel behaves when the printer is out of paper, when there's a paper jam, and when it's time for routine maintenance.

Occasionally the printer may have a serious problem that cannot be fixed with routine maintenance procedures. When such a problem occurs, the printer will stop working, and the lights on the status panel will blink in patterns that are meaningful to trained service personnel. If you take time to notice which lights are on and report this on the telephone to an Apple-authorized service provider, it will assist him or her in diagnosing and fixing the problem.

## Normal power-on status panel behavior

Every time you turn on the printer, the lights on the status panel reflect the results of diagnostic tests the printer performs on itself. When everything's normal, the four main lights are on at first. Then they go out, one by one, left to right.



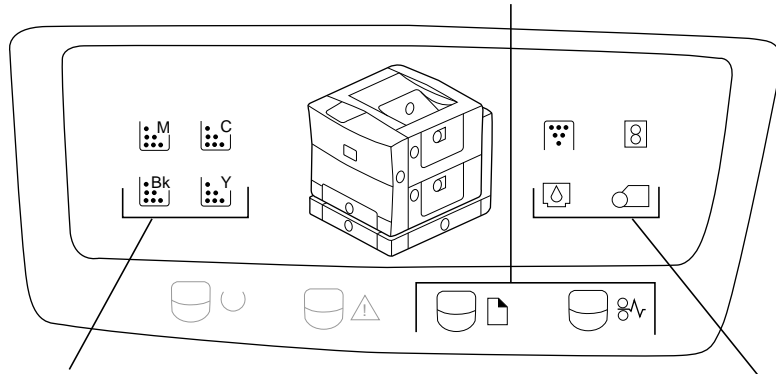
As soon as they all go out, the printer has passed the tests. The green Ready/In Use light (○) blinks for about two minutes during warmup, and then it should glow steadily.

If the status lights do not behave this way, the printer needs attention. The rest of this appendix explains what different lights tell you about the condition of the printer.

## Paper Out and Paper Jam lights both flash

If the Paper Out and Paper Jam lights begin flashing, it indicates a hardware failure. This is an uncommon event, but if it happens, contact your Apple-authorized service provider and report the problem. To help service personnel diagnose the problem, give them detailed information about the behavior of the status panel. The illustration below shows you what to report.

If the Paper Out and Paper Jam lights blink, the printer has a problem.



Report **which lights** (if any) are on in this area of the panel.

Report **how many lights** (if any) are on in this area of the panel.

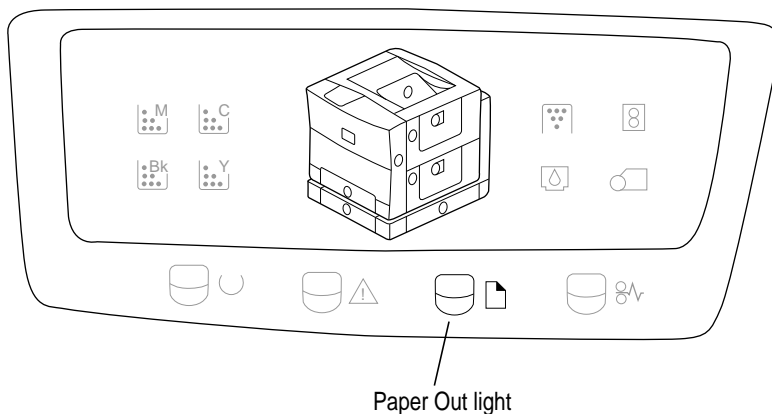
## Two hardware problems you may be able to fix

If you've recently installed memory in the printer, the SIMMs may be the source of the problem. For information about diagnosing faulty SIMMs, see "Problem With Internal Random-Access Memory (RAM)," later in this appendix.

If you've recently installed a toner cartridge, you may not have seated the cartridge properly. For information about diagnosing this problem, see "Problem With the Toner Carousel," later in this appendix.

## Out of paper

If the printer cannot find paper, the Paper Out light glows steadily. Lights on the small printer diagram show which paper cassette needs to be refilled.



When the Paper Out light blinks, the printer is ready for you to feed paper manually.

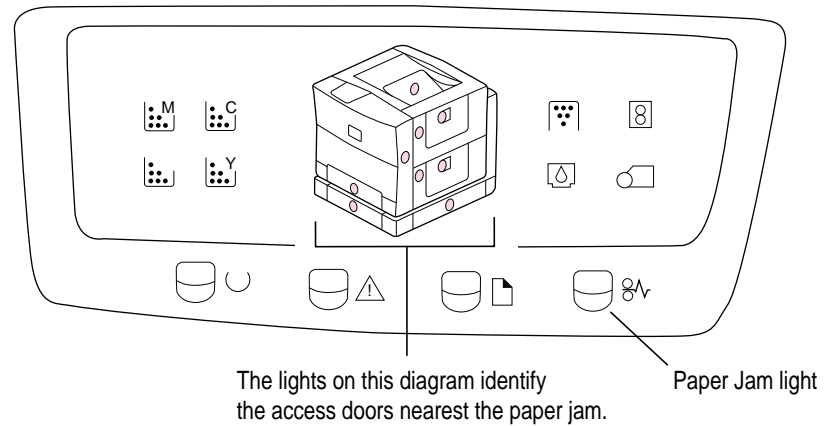
For instructions on loading paper, see Chapter 9 (or the quick reference booklet that hangs inside the printer's door).

For information about recommended papers, see Appendix A.



## Paper jams

If paper is jammed inside the printer, the Paper Jam light glows steadily. Lights on the small printer diagram show which doors provide access to the paper jam.



For instructions on clearing paper jams, see Chapter 11 (or the quick reference booklet that hangs inside the printer's door).

For information about recommended papers, see Appendix A.

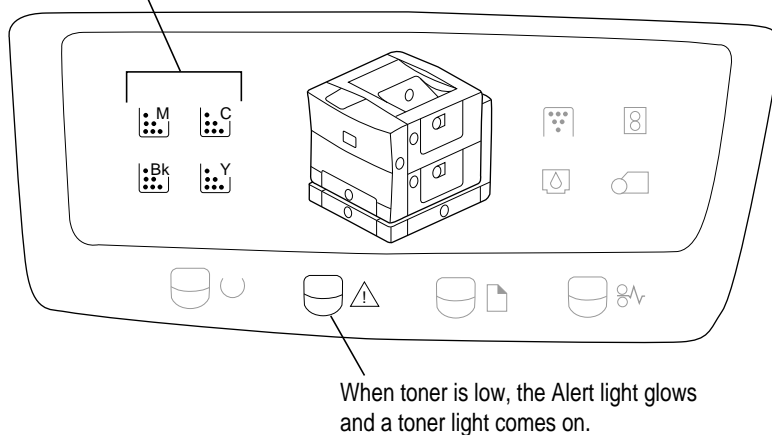
## Regular maintenance

For information about ordering replacement supplies, see Appendix A.

### Low toner

If a toner cartridge is low or empty, the printer keeps working but print quality suffers.

A light indicates which color is low.



When you see these lights, it can mean one of two things:

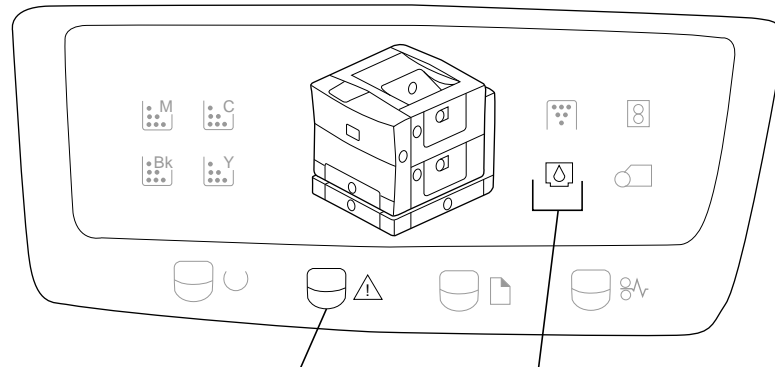
- The toner powder needs to be redistributed inside the toner cartridge. For instructions, see Chapter 10.
- The cartridge needs to be replaced. Instructions for replacing a toner cartridge come in the package with the new cartridge.

If the light comes on in the middle of a printing job, and the output is still satisfactory, continue printing if you wish. You won't harm the printer by doing so.

## Low fuser oil

When the bottle containing fuser oil is nearly empty, the Alert light glows. When the fuser oil compartment is empty, the printer stops working until you replace the oil. For information about ordering replacement supplies, see Appendix A.

Instructions for replacing the fuser oil come in the package with the new bottle of fuser oil.

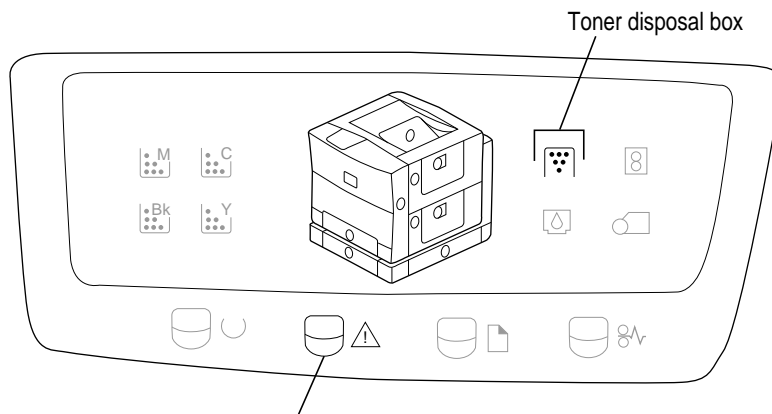


When fuser oil is low, the Alert and fuser oil lights glow.

Fuser oil

## Toner disposal box is full

When the toner disposal box is full, the Alert and toner disposal lights blink. For information about ordering replacement supplies, see Appendix A.



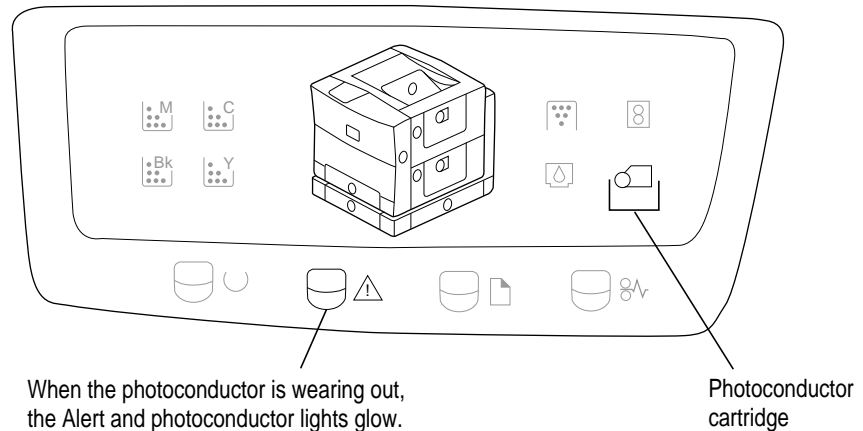
When the toner disposal box is full, the Alert and toner disposal box lights blink.

Instructions for replacing the toner disposal box come in the package with the photoconductor cartridge and two toner disposal boxes. Or you can follow the instructions in Chapter 1 for installing a toner disposal box.

*Note:* Don't throw away used toner disposal boxes. For information on how to return the used toner disposal box to the manufacturer, see the instructions that come in the package with the photoconductor and new toner disposal boxes. By returning used toner disposal boxes, you help reduce waste and preserve the environment.

## Photoconductor cartridge is wearing out

When the photoconductor cartridge is near the end of its life, the Alert and photoconductor lights glow. When the photoconductor is completely worn out, the printer stops working until you replace the photoconductor cartridge. For information about ordering replacement supplies, see Appendix A.



Instructions for replacing the photoconductor cartridge come in the package with the new photoconductor and two toner disposal boxes. (You use two toner disposal boxes during the lifetime of one photoconductor cartridge.)

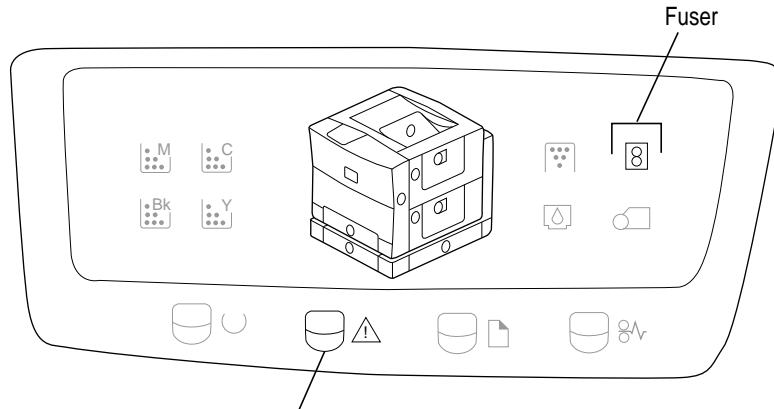
If the light comes on in the middle of a printing job, and the output is still satisfactory, continue printing if you wish. You won't harm the printer by doing so.

*Note:* Don't throw away the used photoconductor cartridge. For information on how to return the used photoconductor to the manufacturer, see the instructions that come with the new photoconductor. By returning the used photoconductor cartridge, you help reduce waste and preserve the environment.

## Fuser needs replacement

When the fuser is wearing out, the Alert and fuser lights glow. As the fuser approaches the end of its life, the status panel shows a warning, prompting you to order a replacement kit. After printing approximately 500 more pages, when the fuser is completely worn out, the printer stops working.

For information about ordering replacement supplies, see Appendix A.

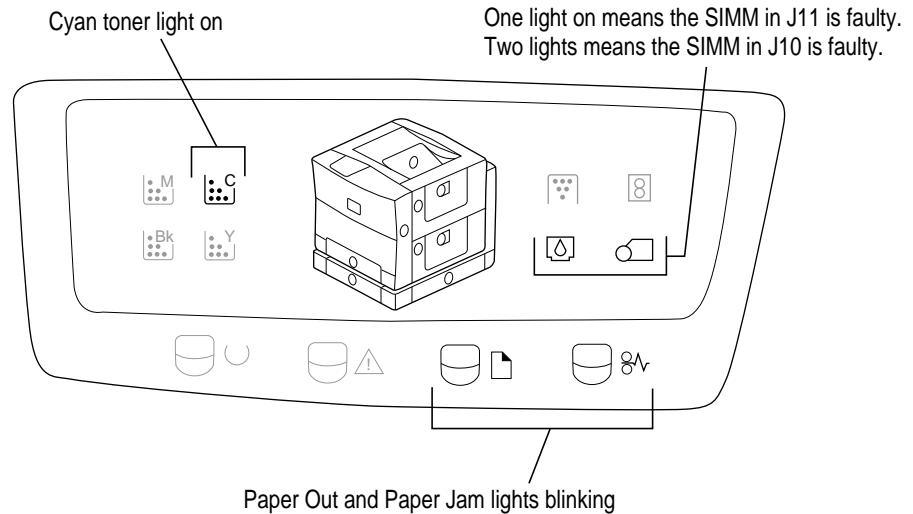


When the fuser is wearing out, the Alert and fuser lights glow.

Instructions for replacing the fuser come in the package with the new fuser, together with a transfer drum cleaning unit, a separation discharger, an ozone filter, and an air filter.

## Problem with internal random-access memory (RAM)

The printer does self-diagnostic tests each time it is turned on. During this testing, the printer verifies the amount of memory installed. If the test determines that a SIMM is faulty, specific status panel lights come on.

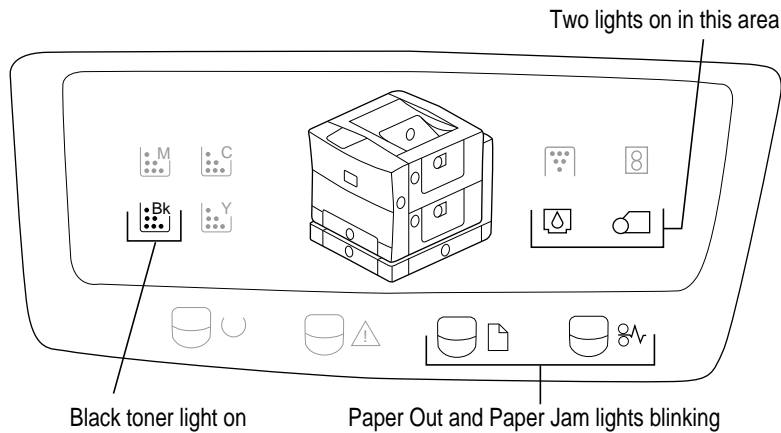


If you have just installed additional RAM, open the printer and make sure the SIMMs are fully seated in the correct sockets that match one of the supported configurations listed in Chapter 5 (and in Appendix A). Try reinstalling the SIMMs, following the instructions in Chapter 5.

If this does not resolve the problem, contact an Apple-authorized service provider.

## Problem with the toner carousel

If you've just installed a toner cartridge but haven't seated it properly in the toner carousel, specific status panel lights come on.



To fix the problem, open the printer's door. Locate the toner cartridge you just installed and press firmly to secure it.

If this does not resolve the problem, contact an Apple-authorized service provider.





## Appendix H Removing the Macintosh Desktop Printing Software

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**IMPORTANT** If you are using QuickDraw GX on your computer, you cannot remove the desktop printer software as described in this appendix.

The printing software you installed on your Macintosh requires at least one printer icon on your desktop and uses from 300 to 500K of your computer's random-access memory (RAM). If you use programs that take up large amounts of memory, and available RAM is low, you can remove the desktop printer software. When you remove the software, your computer uses the original PrintMonitor supplied with your system software.

To remove the desktop printer software, follow the instructions below.

- 1** Quit any programs you are running.
- 2** While holding down the Shift key, choose Restart from the Special menu.

Hold the Shift key down until you see the “Extensions off” message on your screen or until your normal desktop appears.

When the Macintosh desktop appears, an X appears through your desktop printer icons.

- 3** Drag the desktop printer icons into the Trash.
- 4** Open the System Folder and find the PrintMonitor Documents folder.
- 5** Open the PrintMonitor Documents folder and drag to the Trash any files you find.

- 6** Close the PrintMonitor Documents folder.
- 7** Open the Extensions folder in the System Folder.
- 8** Drag the three files—Desktop Printer Extension, Desktop PrintMonitor, and Desktop Printer Spooler—from the Extensions folder into another folder on your hard disk.
- 9** Choose Restart from the Special menu to restart your computer.

When you print documents now, your Macintosh uses the PrintMonitor software. For more information about using PrintMonitor, see the next section.

In the future, if you want to use the desktop printer software again, you can restart your computer with the extensions off (see step 2 of these instructions), drag the three desktop printer files (listed in step 8) into your Extensions folder, and restart the computer.

You can also use the installation disks that came with your printer to reinstall the desktop printer software.

## Monitoring and controlling print requests without desktop printers

If you don't have desktop printers, you must use the PrintMonitor program to monitor and control background printing.

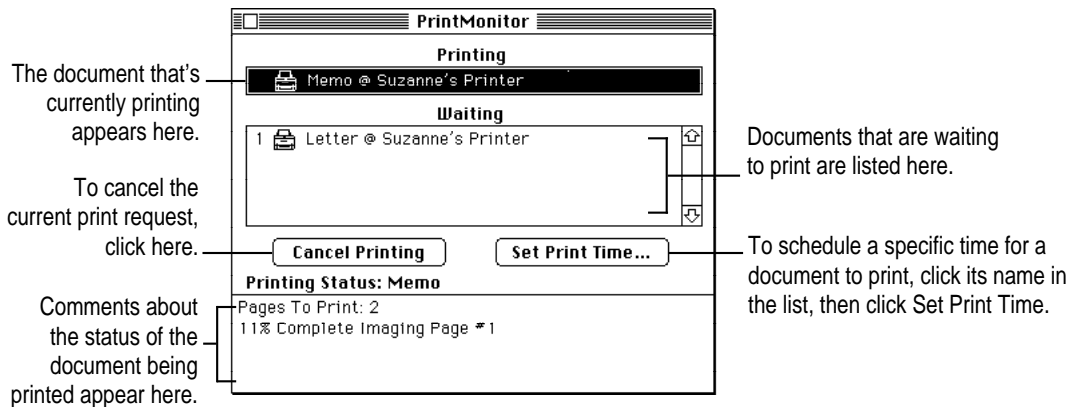
- 1 While your document is printing, choose **PrintMonitor** from the Application menu at the far right of the menu bar.



PrintMonitor is available only when background printing is on.

If you turn off background printing, messages on your screen keep you informed of printing status.

- 2 In the PrintMonitor dialog box, review the status of documents that are printing (and make any changes you want).



- 3 When you finish, click the close box.





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## Z

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## **The Apple Publishing System**

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

Text type is Times®, display type is Helvetica® Narrow, and cover type is Apple Garamond, Apple's corporate font. Ornaments are custom symbols designed for Apple Computer.

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