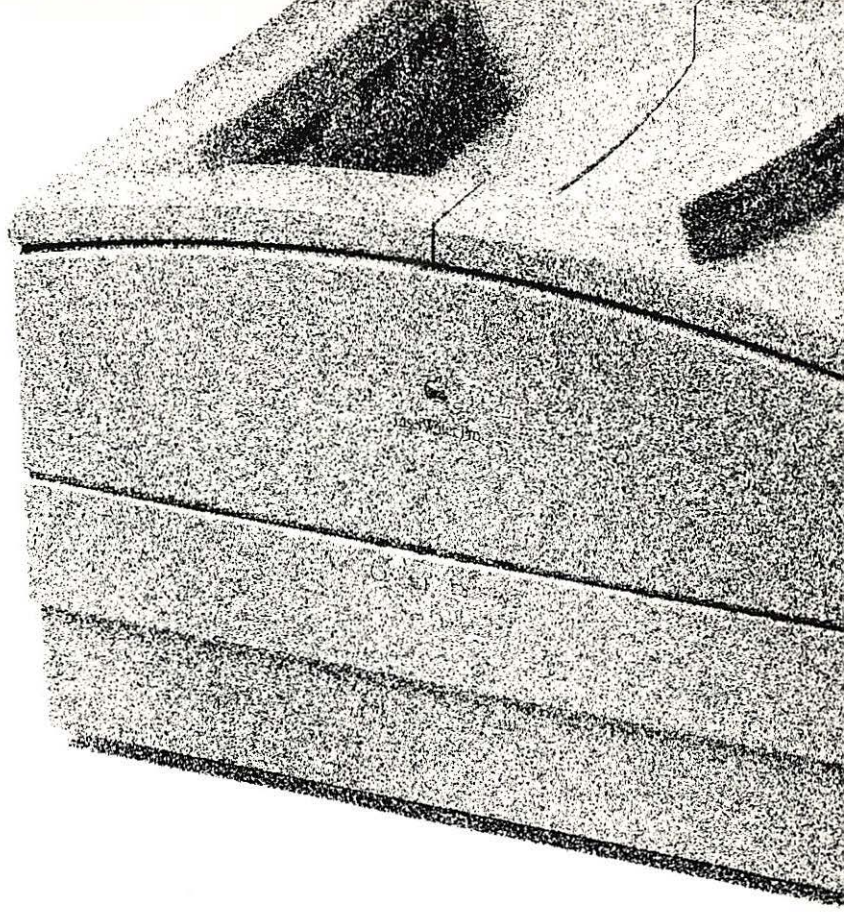
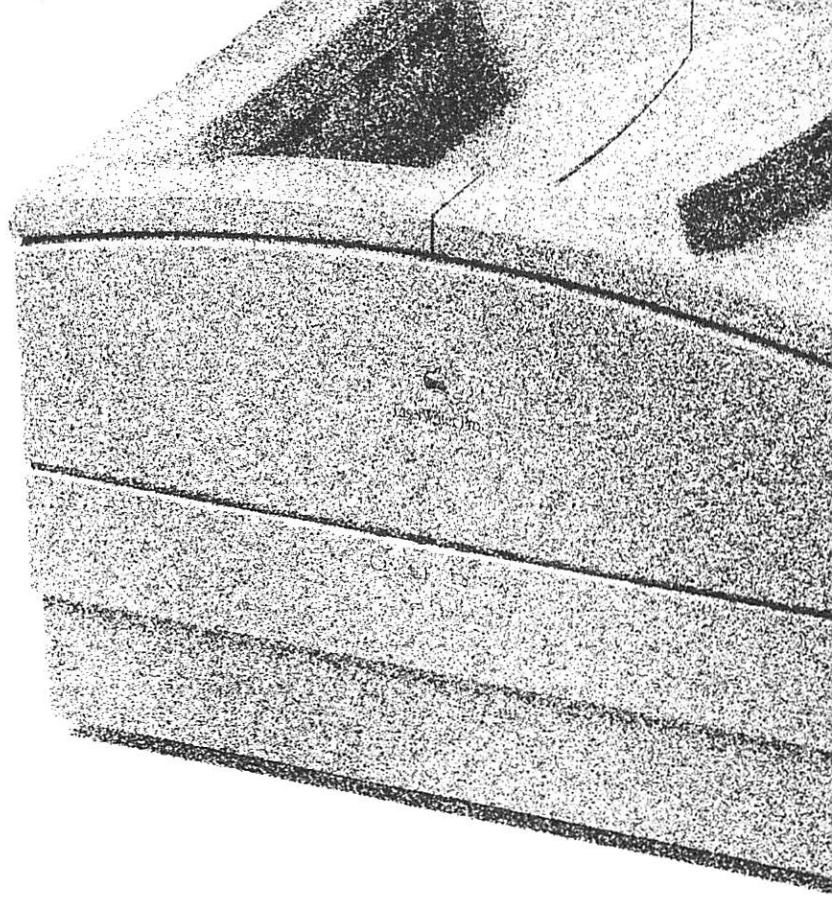


LaserWriter Pro

User's Guide

630



LaserWriter Pro

User's Guide

Apple Computer, Inc.

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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. Proof pages were created on Apple LaserWriter printers and on QMS and Tektronix color printers. Final pages were output directly to separated film on a PostScript™-driven imagesetter. Line art was created with Adobe Illustrator. Cover art was produced with Adobe Photoshop. Screen shots were created and modified with system software, Exposure Pro, MacPaint, and Photoshop.

Text type is Apple's corporate font, a condensed version of Garamond. Ornaments are ITC Zapf Dingbats® and custom symbols designed for Apple Computer.

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

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Important

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 for assistance. See the service and support information that came with your Apple product. Or, contact an experienced radio/television technician for additional suggestions. You may find helpful the following booklet, prepared by the Federal Communications Commission: Interference Handbook (stock number 004-000-00493-1). This booklet 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 shielded cables and connectors between system components. It is important that you use shielded cables and connectors to reduce the possibility of causing interference to radios, television sets, and other electronic devices. For Apple peripheral devices, you can obtain the proper shielded cables through an Apple-authorized dealer. For non-Apple peripheral devices, contact the manufacturer or dealer for assistance. △

DOC Class B Compliance This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

Observation des normes—Classe B Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe B prescrites dans les règlements sur le brouillage radioélectrique édictés par le Ministère des Communications du Canada.

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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。

▲ **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

Preface

The LaserWriter Pro 600 and LaserWriter Pro 630

This manual is your reference guide to the Apple LaserWriter Pro 600 and 630 printers. All instructions for setup, operation, and maintenance apply to both printers, except where noted otherwise.

The LaserWriter Pro 600 and 630 work with any Macintosh computer, as well as with MS-DOS, Windows, OS/2, and other computer systems.

Be sure to set up your computer and familiarize yourself with its basic operations before setting up the LaserWriter Pro.

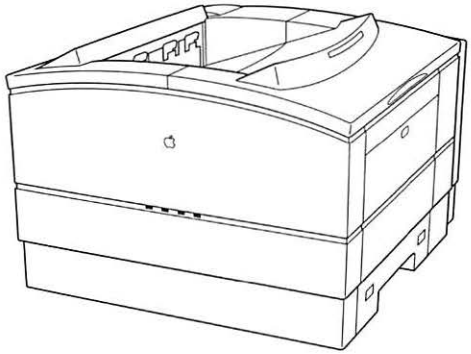
About the LaserWriter Pro 600 and 630

The LaserWriter Pro is a full-featured laser printer that is ideally suited for demanding service in business environments that use multiple computer systems and networks. The printer offers the following features:

- A 25-megahertz 68030 processor provides high performance and excellent printing quality.
- Standard Centronics (parallel), LocalTalk, Ethernet (630 only), and serial ports allow the printer to be connected to different computers and networks and to work with them all simultaneously.
- Excellent paper-handling capabilities provide automatic or manual paper feeding from either a 250-sheet paper cassette or a 100-sheet multipurpose tray. A 500-sheet paper feeder that provides access to a third tray and a high-capacity envelope feeder for automatic envelope printing are available optionally.
- A collection of 64 fonts provides a large selection of typefaces for business, desktop publishing, and graphics needs.
- HP LaserJet II emulation allows the printer to work with applications that don't use the PostScript® language.

- With its compact design, the printer is easy to maintain and requires little workspace.

The LaserWriter Pro printer comes in two versions: the LaserWriter Pro 630, designed for the demanding needs of business, graphics, and publishing environments, and the LaserWriter Pro 600, designed for the printing needs of mainstream businesses and workgroups.



About the LaserWriter Pro 630

Using state-of-the-art print technology, the LaserWriter Pro 630 delivers exceptional print quality. With the ability to print at 600 dots per inch (dpi), the LaserWriter Pro 630 prints at twice the resolution of most laser printers, providing sharper, better-defined text and images. The LaserWriter Pro 630 has 8 megabytes (MB) of random-access memory (RAM), allowing it to handle the largest documents, and prints at up to eight pages per minute.

The LaserWriter Pro 630 can also print at 300 dpi, the resolution used by most standard laser printers. When printing at 300 dpi, the LaserWriter Pro 630 can enhance graphics printing by allowing you to use the PhotoGrade system. This system lets the printer use finer shading and more levels of gray to reproduce graphics and digitized images, such as photographs scanned into a computer. The PhotoGrade system increases the number of gray levels used for reproducing images, resulting in clearer, more highly resolved printed images.

In addition to higher print quality, the LaserWriter Pro 630 provides Ethernet and SCSI ports to extend its connection options. The Ethernet port allows the LaserWriter Pro 630 to work with the high-speed Ethernet networks used in many business settings. The LaserWriter Pro 630 also provides internal and external SCSI ports. Using the external SCSI port, you can connect a hard disk or series of hard disks to the printer and use them for storing large libraries of fonts and for accelerating the printing process. You might also purchase an internal hard disk and have it mounted inside the printer using the internal SCSI port connection.

About the LaserWriter Pro 600

The LaserWriter Pro 600 is an excellent printing solution for business computer users and workgroups. The printer uses the same fast and powerful 25-megahertz 68030 processor as the LaserWriter Pro 630, and has 4 MB of RAM. The LaserWriter Pro 600 prints up to eight pages per minute at 300 dpi.

When printing at 300 dpi, both the LaserWriter Pro 600 and 630 allow you to use the FinePrint system, which greatly increases the effective resolution of a 300-dpi printer to produce sharper text by smoothing out lines and curves that would normally appear jagged. Many laser printers have a fixed resolution of 300 dpi. If you look closely at curves and diagonal lines printed on such a printer, you can see tiny jagged edges. For each line or curve, the LaserWriter Pro calculates the best possible edge to a very high degree of accuracy and then renders that edge using FinePrint technology for a noticeably smoother printed result.

When you are printing with the LaserWriter Pro 630 at 600 dpi, FinePrint offers no advantage and this feature is not available. For more information about using FinePrint, see Chapter 3, "Using Your Printer With a Macintosh Computer" or Chapter 4, "Using Your Printer With an IBM PC or IBM-PC-Compatible Computer."

△ **Important:** You can upgrade the memory of your LaserWriter Pro 600 to print at 600 dpi or to use the PhotoGrade system by purchasing the LaserWriter Pro PhotoGrade Upgrade Kit. For more information about upgrading the LaserWriter Pro 600, see Appendix A, "LaserWriter Pro Upgrades." △

How the printer works

The LaserWriter Pro uses an internal computer, laser light, electric charges, and plastic toner powder to produce a page of text and graphics.

Your computer communicates with the LaserWriter Pro by using a language called PostScript to tell the printer what to print and how to print it.

When you give your computer a command to print, the computer transmits a PostScript description of the page to the printer. The internal computer in the printer translates this page description into an arrangement of dots that represents the letters and images on the page. The printer then activates the laser, and the pulses of the laser beam match this "map" dot for dot.

A series of mirrors reflects the laser light onto a rotating photosensitive drum. As the pulses of laser light scan across the drum, each pulse that represents a printed dot produces an electric charge to which the black toner particles adhere. The toner is then transferred onto the paper as it passes under the rotating drum, and finally the image is fused onto the paper by fixing rollers at a temperature of about 400° F. Once the printer has a page description in its memory, it can produce printed pages at a rate of up to eight per minute.

LaserWriter Pro fonts

The disks provided with your LaserWriter Pro contain 64 widely used font families, including ITC Avant Garde®, ITC Bookman®, Courier, Delphian, Garmond Narrow, Helvetica®, Helvetica Black, Helvetica Compressed, Helvetica Narrow, Lubalin Graph, Lucida Bright, Nadianne, New Century Schoolbook, Old English Text, Onyx, Oxford, Palatino®, Times®, Swing, and Zeal, as well as four Apple fonts—Chicago, Geneva, Monaco, and New York—and four special-purpose fonts: Symbol, ITC Zapf Chancery®, ITC Zapf Dingbats®, and Zeal.

You can also obtain a wide array of additional fonts from both commercial and public-domain sources.

About TrueType

The fonts supplied with the LaserWriter Pro include several TrueType fonts. TrueType is the font technology from Apple Computer designed to optimize character shapes on both the screen and the printed page. Each TrueType font contains a set of coordinates that describe all the characteristics of the letterforms in the particular font. The computer's system software uses these coordinates to calculate and display characters in any size you specify. (On a Macintosh, you can distinguish TrueType fonts from fixed-size fonts installed in your system by their names: each fixed size font name contains a number, for example Geneva 24, while a TrueType font name does not.)

In addition to TrueType fonts, the LaserWriter Pro works with all other fonts produced for LaserWriter printers.

Chapter 1

Setting Up the LaserWriter Pro

When you unpack the LaserWriter Pro, you should find

- a LaserWriter Pro printer and paper cassette
- a toner cartridge
- a LaserWriter Pro accessory kit, containing this *LaserWriter Pro User's Guide*, a power cord, and seven floppy disks with the LaserWriter Pro software and fonts

In your accessory kit you'll also find licensing, warranty, and product registration information for your LaserWriter Pro printer. Be sure to read the agreements and complete and return the warranty and registration cards to ensure that you receive the technical support to which you are entitled from Apple Computer, Inc. and authorized Apple dealers.

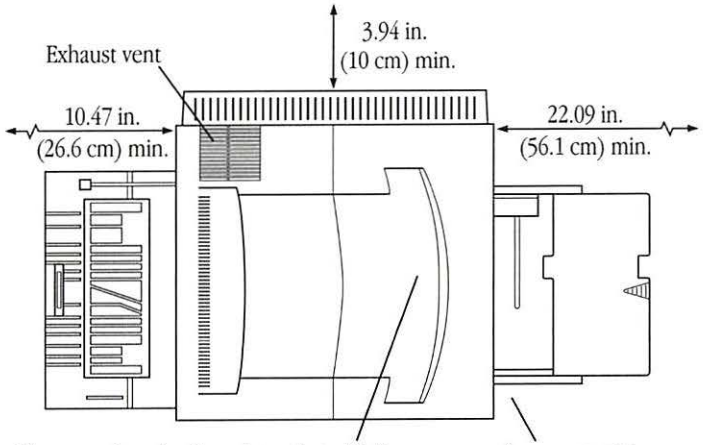
Moving the printer

When moving the printer, be sure to follow these guidelines.

- Always have two people lift or move the printer.
- Remove the toner cartridge and the paper cassette before transporting the printer. If possible, wrap the toner cartridge in its original foil wrapper. Be careful not to expose the cartridge to bright light or high temperatures.
- Push the paper guide extensions on the multipurpose tray and the paper-exit area back into the printer and close the multipurpose tray before moving.
- Both people should grasp the bottom of the printer where the paper cassette tray is normally located. Don't lift the printer by grasping the top cover or paper exit cover.

Choosing a place for the printer

Before you set up, choose a work area that meets the physical requirements of the printer. Make sure the surface on which you place the printer is flat and stable.



Choose a place for the printer that will allow you to open the toner cartridge access door. The place you choose should have at least 23.5 inches (59.7 cm) of vertical space available.

Leave room to insert and remove the paper cassette.

The LaserWriter Pro runs on ordinary household or office current. Choose a well-ventilated area away from direct sunlight and sources of heat, cold, and humidity.

The printer works best at temperatures between 64° and 77° F (18° and 25° C) and at a relative humidity of between 30 and 70 percent.

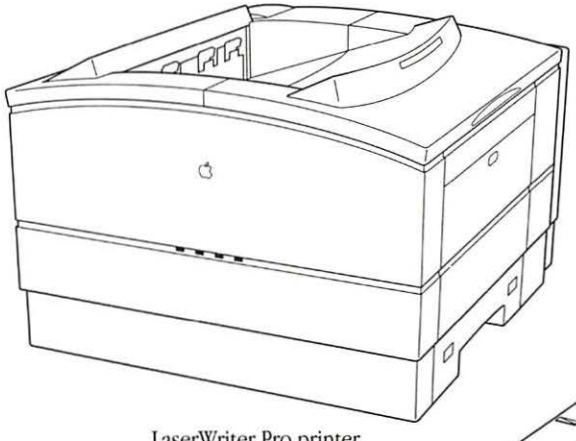
See Appendix C, "LaserWriter Pro Specifications and Parts List," for more information about the physical requirements of the printer.

Choose a safe place

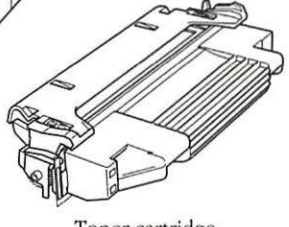
Don't use devices that produce open flames, such as Bunsen burners or welding torches, near the LaserWriter Pro. Don't use ammonia-based cleaners, which can react chemically with the toner and plastic case, on or around the LaserWriter Pro.

Do you have what you need?

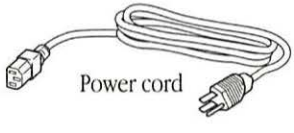
If you haven't already done so, unpack your LaserWriter Pro printer, accessory kit, and toner cartridge. Be sure you have these items:



LaserWriter Pro printer and paper cassette

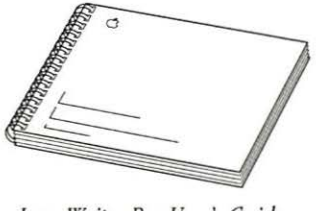


Toner cartridge



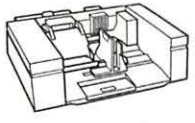
Power cord

LaserWriter Pro disks

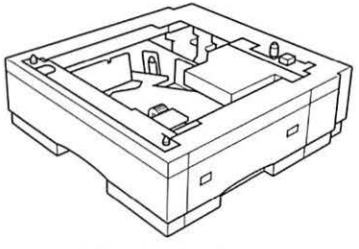


LaserWriter Pro User's Guide

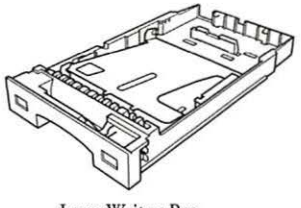
If you purchased an optional paper feeder, envelope feeder, or paper cassette, unpack those as well. See Appendix B for installation and paper loading instructions.



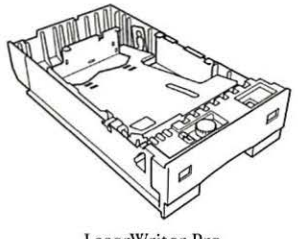
LaserWriter Pro Envelope Feeder



LaserWriter Pro 500-Sheet Feeder (with 500-Sheet Universal Cassette)



LaserWriter Pro 250-Sheet Universal Cassette



LaserWriter Pro 500-Sheet Universal Cassette

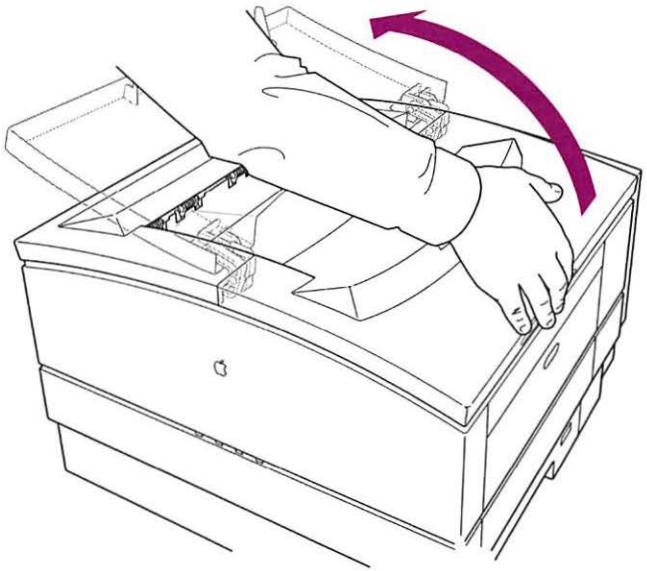
Setting up the printer

Once you have the printer out of the box and the plastic bag, pull the packing tape from the printer's cassette trays, top cover, and doors. You must also remove the packing materials that were placed inside the printer and its paper cassette to protect them during shipping.

Save the packing materials. They provide the best protection for the printer if you ever need to move it.

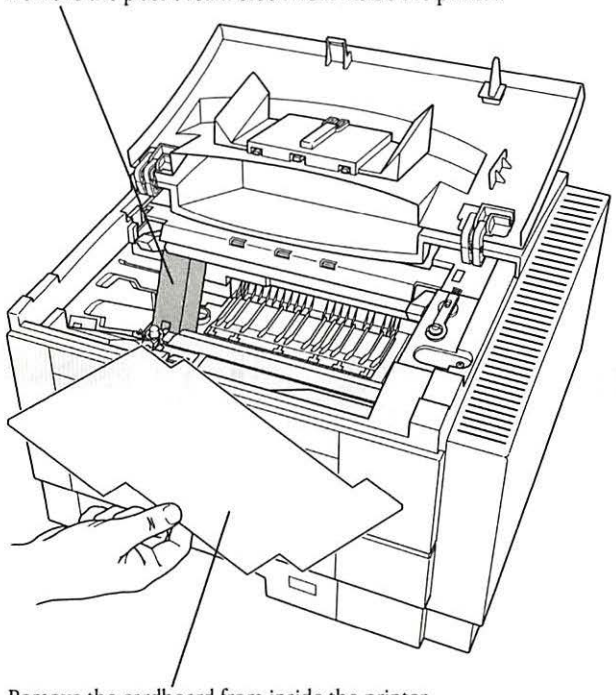
Preparing the printer

1. Open the printer's top cover.



2. **Remove the cardboard panel and styrofoam block from inside the printer.**

Remove the plastic foam block from inside the printer.

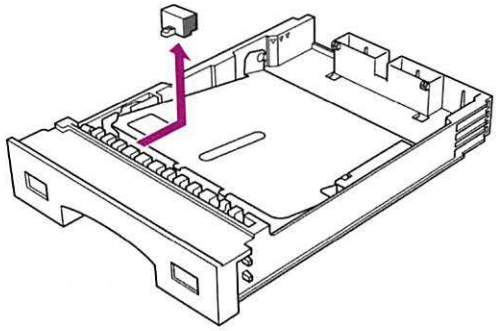


Remove the cardboard from inside the printer.

3. **Close the printer's top cover.**

4. **Open the paper cassette tray and remove and discard any tape and the small orange block holding down the paper lift plate.**

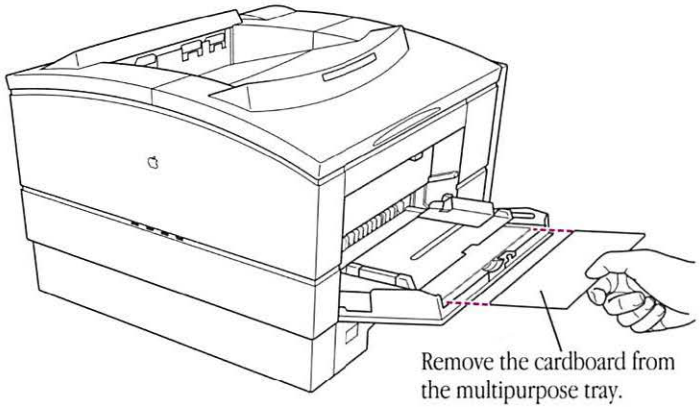
Remove the retainer from the cassette.



continues ▶

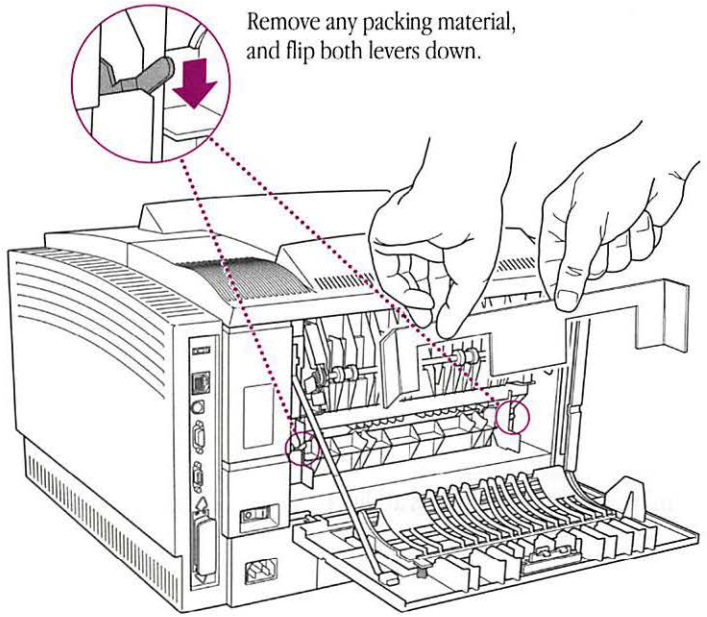
5. **Slide the paper cassette back into the printer.**

6. **Open the multipurpose tray and remove the cardboard packing material.**



7. **Open the fuser assembly door on the left side of the printer, remove the packing materials, and lower the fuser assembly levers.**

   A cardboard panel of instructions is located within the fuser assembly area. Remove the instruction panel and follow the instructions for lowering the fuser levers.



8. **Close the fuser assembly door.**

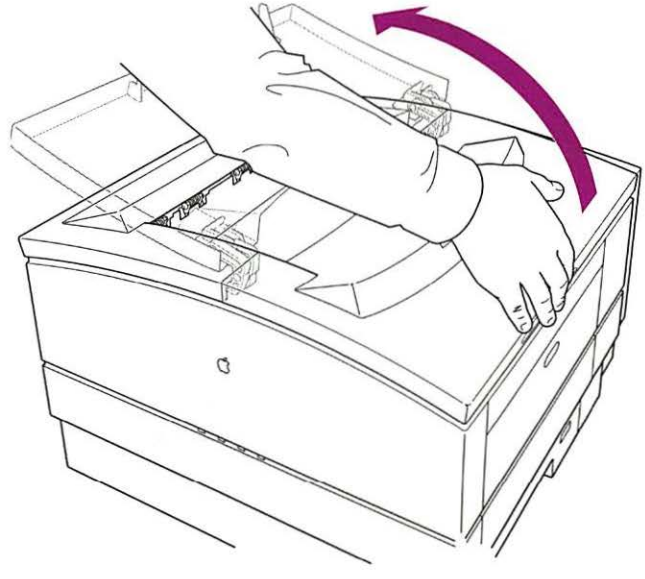
Installing the first toner cartridge

The toner cartridge contains the printer's powdered ink. The first time you install a toner cartridge, follow the steps given here. After that, each time you install a cartridge, follow the instructions in Chapter 7, "Maintenance."

Each cartridge lasts for approximately 6,000 pages, depending on the kind of printing you do. If you use the LaserWriter Pro to produce more graphic images than text, you may need to change cartridges more often.

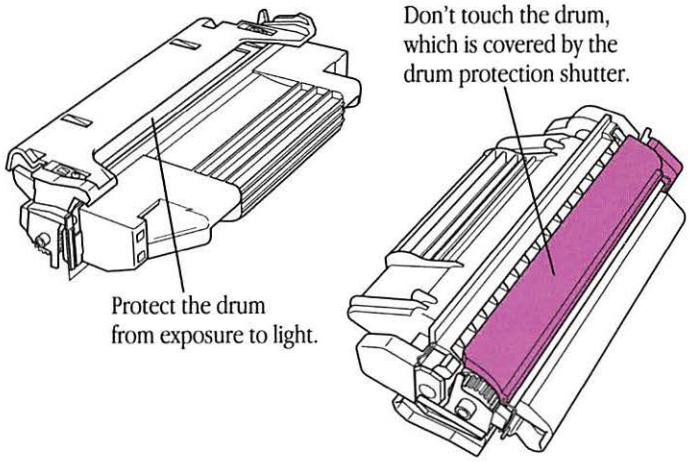
▲ **Warning:** Use only an Apple LaserWriter Pro Toner Cartridge with the LaserWriter Pro. Other cartridges may not fit, and may impair the printer's ability to produce high-quality images. ▲

1. Open the top cover of the printer.



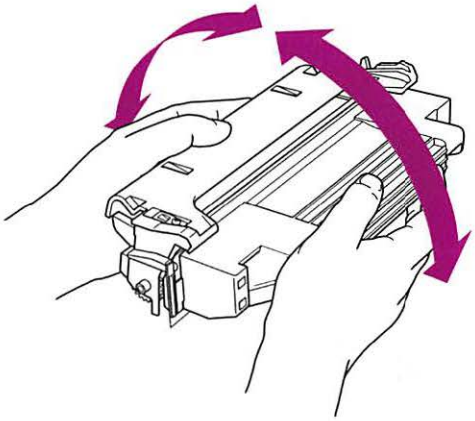
continues ▶

2. Take the cartridge out of its packaging.

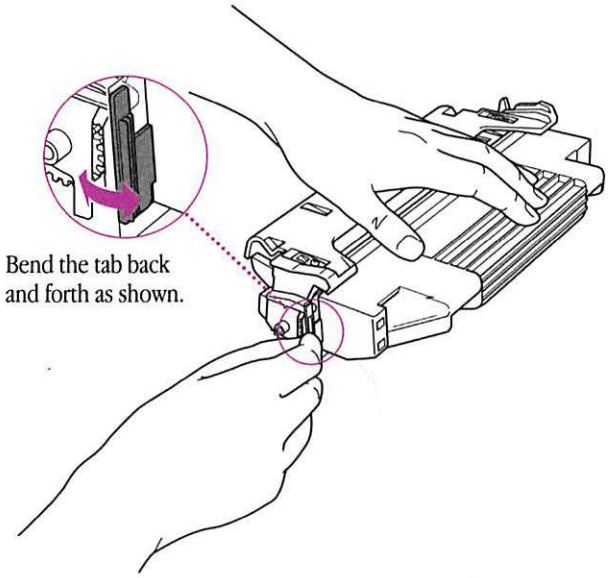


3. Distribute the toner powder.

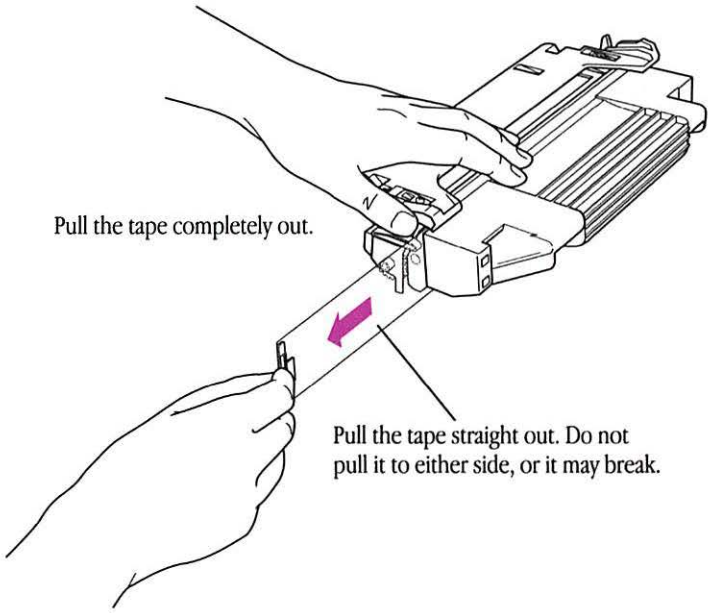
Gently rock the toner cartridge as shown.



4. **Bend the flat tab on the side of the cartridge back and forth until it separates from the cartridge.**



5. **Gently pull the tab directly away from the cartridge to remove the sealing tape.**

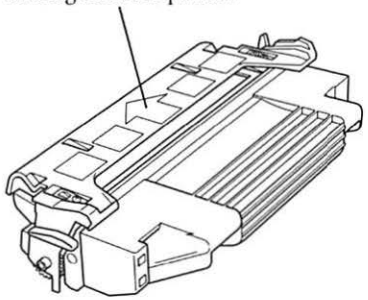


▲ **Warning:** Be sure to pull the tab straight out of the cartridge. Don't pull too quickly or at an angle that might break the tape. ▲

continues ▶

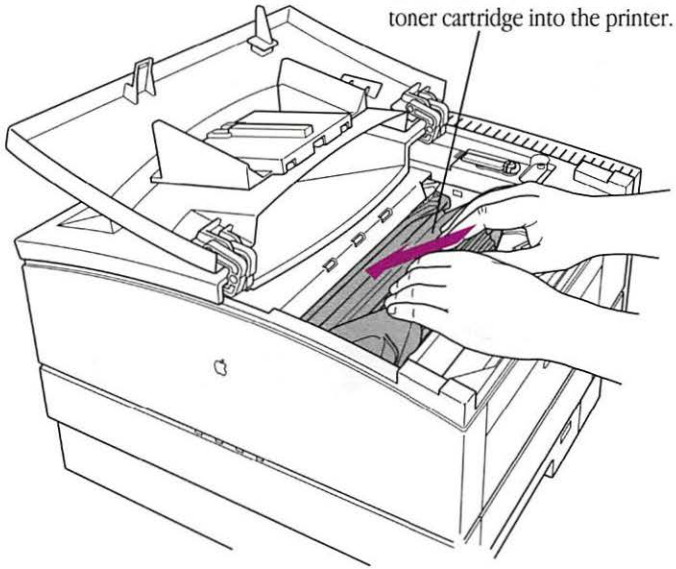
6. **Holding the cartridge with both hands, align the arrow on the cartridge top with the mark on the printer cover.**

The arrow on top of the toner cartridge shows the proper direction to insert the cartridge into the printer.

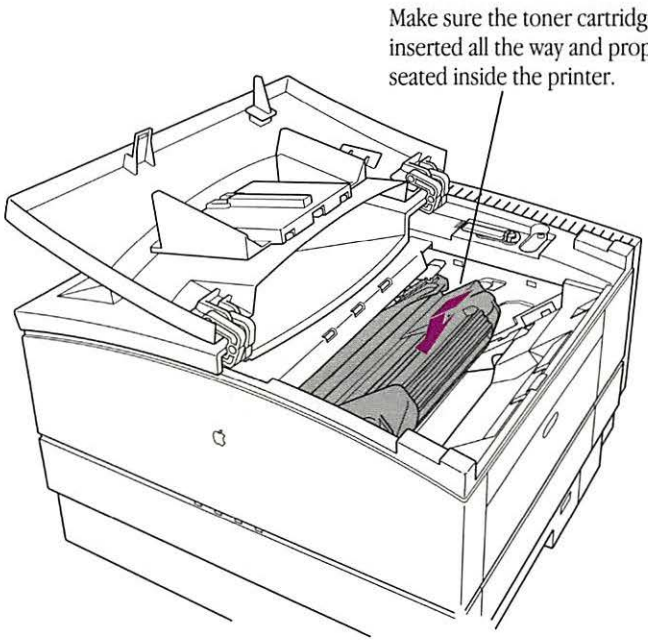


7. **Gently insert the cartridge into the printer as far as it will go.**

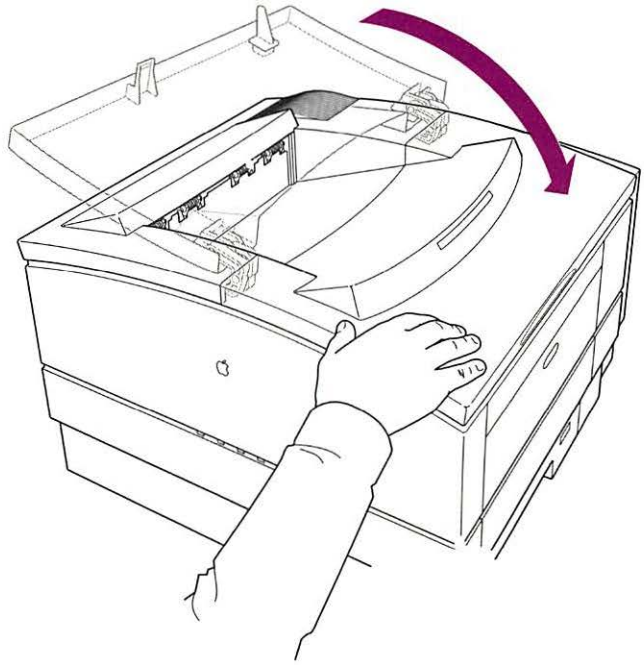
Use two hands to insert the toner cartridge into the printer.



8. **Push downward gently to snap the cartridge into its locked position.**



9. **Close the printer.**



Loading paper into the cassette and multipurpose tray

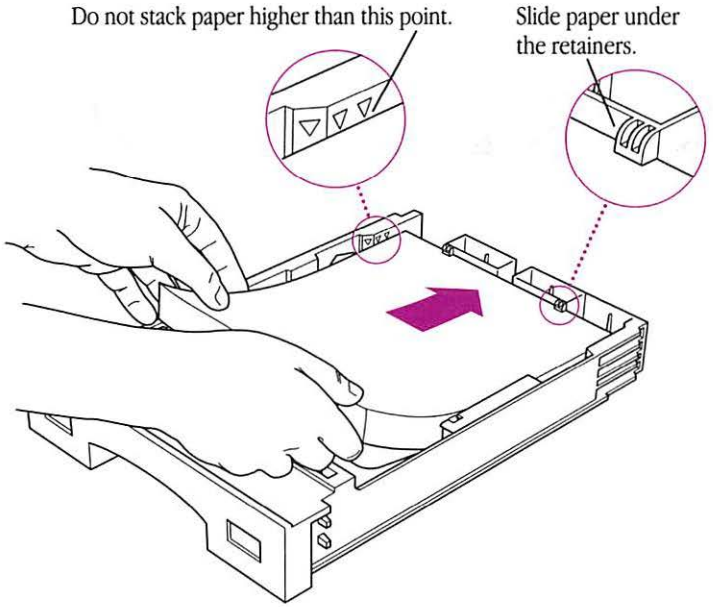
The LaserWriter Pro comes with a U.S. letter-size or an A4 paper cassette capable of holding up to 250 sheets of paper. The multipurpose tray can hold up to 100 sheets of standard size paper, as well as envelopes, transparency film, label sheets, and paper up to U.S. legal size. The LaserWriter Pro can automatically feed paper from both trays.

You can expect excellent printing results from photocopier paper and most standard typewriter stocks. Best results are obtained from paper that is labeled "laser-quality."

Loading the paper cassette

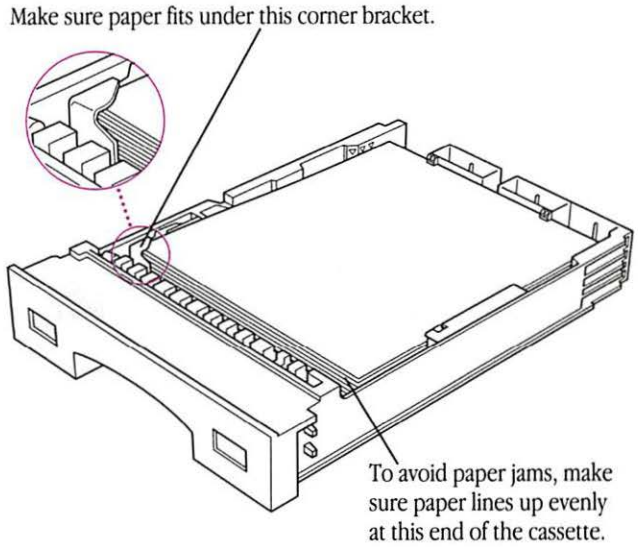
1. **Slide the paper cassette out of the printer.**
2. **Prepare a stack of paper for insertion.**

   You can load up to 250 sheets of most papers, including 20-pound photocopier and typewriter 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 beneath the bracket at the front of the cassette.**

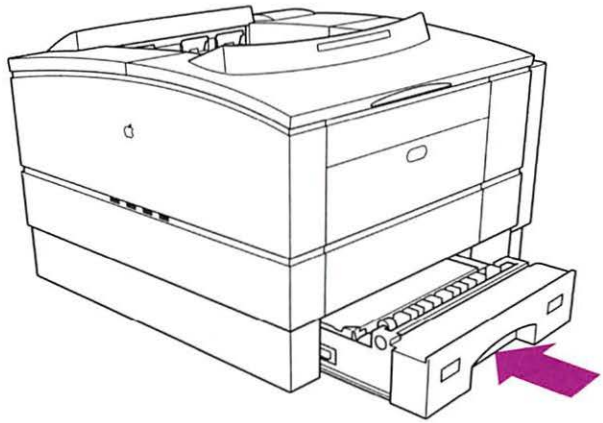
   Push the paper down if necessary, but don't overload the cassette, or the paper may jam when you print.



   Load three-hole punched paper face down, with the holes toward the left side of the cassette. Load letterhead paper face down, with the tops of the pages at the front of the cassette (the handle end).

▲ **Warning:** Never try to load a cassette with paper of the wrong size. Doing so could cause a paper jam, damage the printer drum, or cause toner to spill into the printer. ▲

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

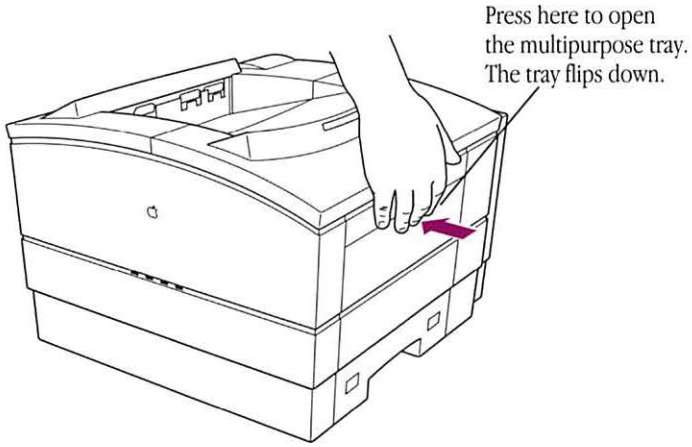


   Push the cassette in until it seats in place.

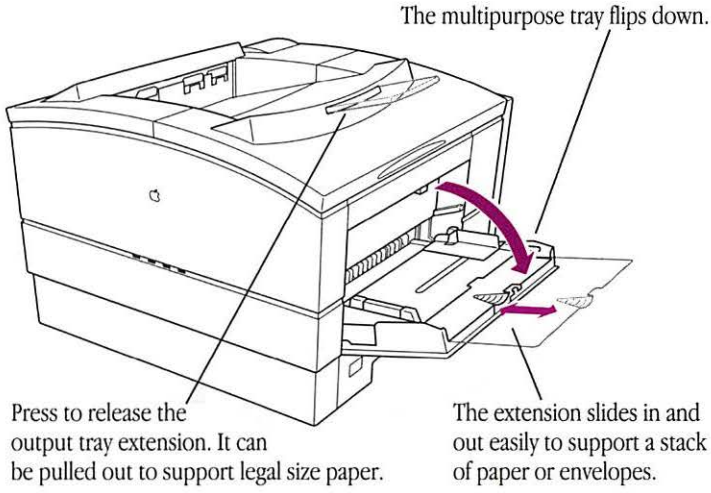
Loading the multipurpose tray

You can use the multipurpose tray for all your printing jobs. You can keep a small stack of paper in the multipurpose tray and let the LaserWriter Pro feed the paper automatically, or you can use the multipurpose tray for manual-feed printing.

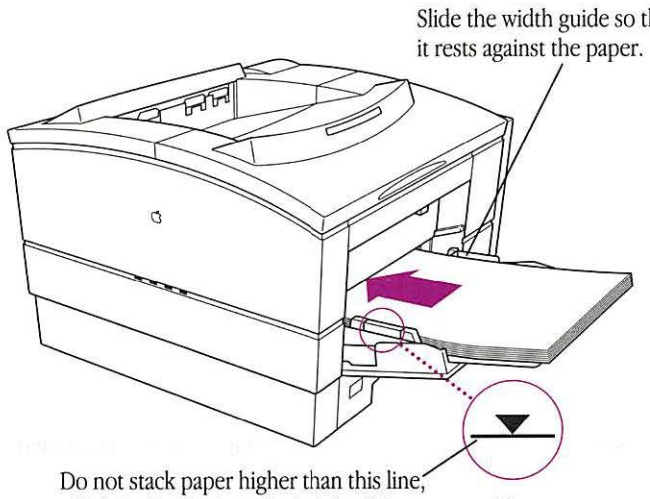
1. **Push gently on the small indentation at the top of the tray and then lower the tray slowly.**



2. **Use the extension to adjust the tray so that your paper does not extend over the edge.**



3. **Place the stack of paper in the tray.**



Place the paper in the tray so that the left side of the stack is aligned with the tray's left side, then adjust the width guide so that it just touches the right edge of the stack. Don't adjust the guide so tightly against the stack that it causes binding or rumpling of the paper.

For manual-feed printing, place a single sheet of paper, labels, or transparency film, or a single envelope on the multipurpose tray when you are ready to print.

Important safety instructions

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

▲ **Warning:** *This equipment is intended to be electrically grounded. Do not defeat the purpose of the grounding plug.* The LaserWriter Pro is equipped with a three-wire grounding plug—a plug that has a third (grounding) pin. This plug fits only a grounded AC outlet. If this plug does not fit any available outlet, contact a licensed electrician to install a properly grounded outlet. ▲

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

Disconnect the power plug immediately if

- the power cord or plug is frayed or otherwise damaged
- you spill anything into the case
- the printer is exposed to rain or any other excess moisture
- the printer has been dropped or the case has been otherwise damaged
- you suspect that the printer needs servicing or repair

Be sure that you always

- read all the installation instructions carefully before you plug the printer into a wall socket
- follow all instructions and warnings dealing with your system
- keep the printer away from sources of liquids, such as sinks and other water faucets
- protect the printer from dampness and wet weather

▲ **Warning:** Electrical equipment may be hazardous if misused. Operation of the LaserWriter Pro 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. ▲

Chapter 2

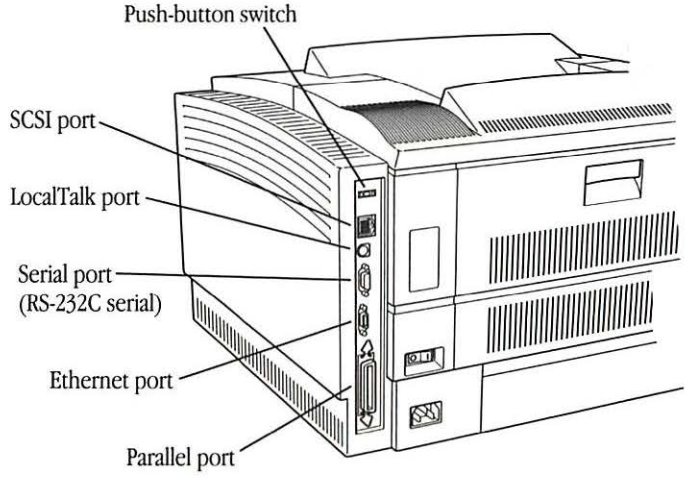
Connecting the LaserWriter Pro

The LaserWriter Pro 600 and 630 offer several connection options, which can be used individually or in combination.

- You can connect the printer to a network or directly to a computer with LocalTalk cables and connectors.
- You can connect the printer to a network or directly to a computer with Ethernet cables and connectors (LaserWriter Pro 630 only).
- You can connect the printer directly to a computer by using a serial connection to the printer's 8-pin or 9-pin port.
- You can connect the printer directly to an IBM PC or IBM-PC-compatible computer with parallel cables and connectors.
- You can connect a hard disk or series of hard disks directly to the printer with SCSI cables and connectors (LaserWriter Pro 630 only). See "Adding Hard Disks" in Appendix A.

Connection ports

You can connect the LaserWriter Pro printer to multiple computers and networks via its LocalTalk, serial, parallel, and Ethernet ports (LaserWriter Pro 630 only) so that it is accessible to all users through these ports at the same time. 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.



For each port, you can select the communication settings that are appropriate for your computer or network. The LaserWriter Pro printer provides fixed sets of commonly used communication settings that allow you to configure all of its ports at once; or you can define specific settings for the ports.

The push-button switch on the back panel of the printer has a numeric display with which you can select commonly used port settings or define port settings of your own. The switch can be set from zero to nine. Each switch setting specifies a set of communication parameters for all ports. The switch settings from 0 to 5 are fixed sets of port settings. You can change the communication settings defined by switch settings from 6 to 9 yourself. The switch is set to zero at the factory.

△ **Important:** If you plan to connect the printer with a standard LocalTalk or Ethernet connection, verify that the switch is set to zero and connect the printer as described in this chapter.

If the switch is not set to zero, or if you plan to use a serial connection or to modify the standard settings, refer to "Port Settings" later in this chapter. △

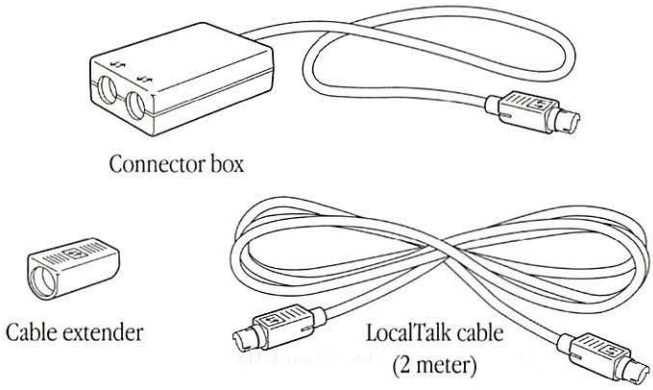
Connecting the printer with LocalTalk cables

You can connect the LaserWriter Pro to one or more computers with LocalTalk network cables and LocalTalk connector boxes, available from your Apple dealer. LocalTalk hardware and software are built into every Macintosh computer, and can also be added, by installing expansion cards, to most MS-DOS computers and other types of computers.

There are three ways to connect the printer with LocalTalk cables.

- Connect the printer directly to your computer.
- Connect the printer to the end of an existing network.
- Connect the printer anywhere along the length of a network.

You can obtain a LocalTalk locking connector kit with cables in a variety of lengths, from 2 meters to 100 meters.



- *LocalTalk on your computer:* If you are using a computer that doesn't have a built-in LocalTalk port, such as an MS-DOS computer, you will need to obtain the appropriate expansion card, software, and connection instructions, in addition to the LocalTalk cable and connectors. ❖

Connecting the printer directly to your Macintosh

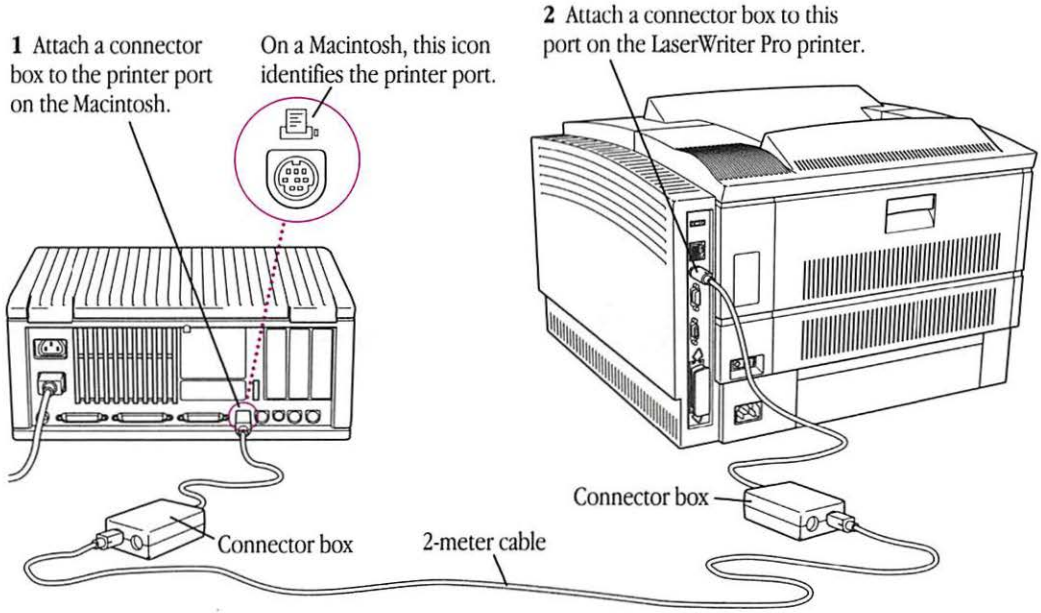
If you are connecting the LaserWriter Pro directly to your computer rather than sharing it with other users on a network, you can use two connector boxes and LocalTalk network cables to make the connection between the printer and your computer.

- *Cabling directly to your computer:* You can also connect your Macintosh directly to the printer using an Apple System/Peripheral-8 cable (part number M0197) connected to the LocalTalk port. This type of connection does not require LocalTalk connector boxes. However, if you use such a connection, you cannot connect additional Macintoshes to the printer using the LocalTalk network. ❖

1. **Plug the short cable extending from a LocalTalk connector box into the LocalTalk port on the LaserWriter Pro.**
2. **Plug the short cable extending from another LocalTalk connector box into the LocalTalk port on your computer.**

continues ►

3. Connect the two LocalTalk connector boxes together with a LocalTalk cable as shown.

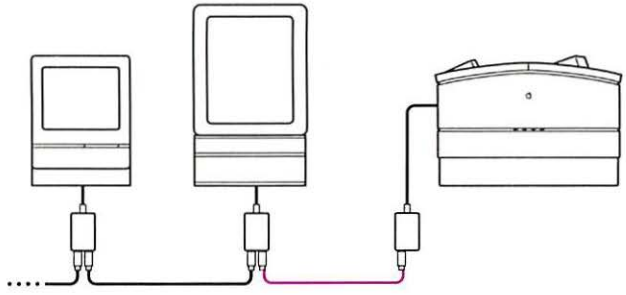


3 Attach the 2-meter cable between the connector boxes.
(Each connector box has two identical ports; you can use either one.)

Connecting the printer to the end of a LocalTalk network

Connecting the LaserWriter Pro to the end of a network will not interrupt communication among network users. You do not need to shut down any computers or notify users before adding the printer to the network.

1. **Plug the short cable extending from a LocalTalk connector box into the LocalTalk port on the LaserWriter Pro.**
2. **Use a LocalTalk cable to connect the LocalTalk connector box to the network as shown.**



▲ **Warning:** There should be only one cable plugged into the printer's LocalTalk connector box, since the printer is connected at the end of the network. Do not leave a dangling cable plugged into the connector box's second opening, as this will cause transmission problems for all network users. ▲

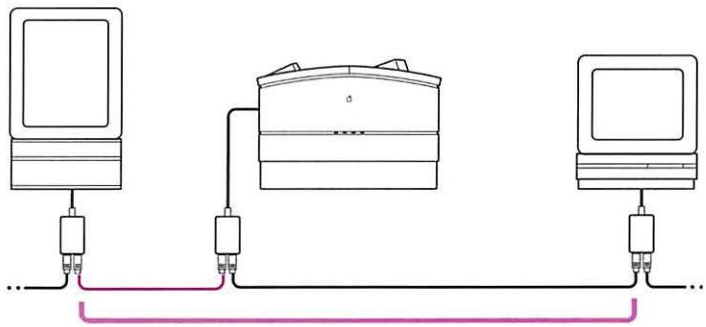
Connecting the printer between two devices on a LocalTalk network

When you connect the LaserWriter Pro between two devices on a network, you'll need to briefly interrupt communication between network users on both sides of the connection, unless they are linked through some other network route. Be sure to notify users before adding the printer to the network.

1. **Plug the short cable extending from a LocalTalk connector box into the LocalTalk port on the LaserWriter Pro.**
2. **Disconnect *one* LocalTalk cable from the connector box of the network device immediately to the left or right of the LaserWriter Pro.**
3. **Plug one end of a LocalTalk cable into the socket you have just freed and the other end into one of the sockets of the printer's LocalTalk connector box.**

continues ▶

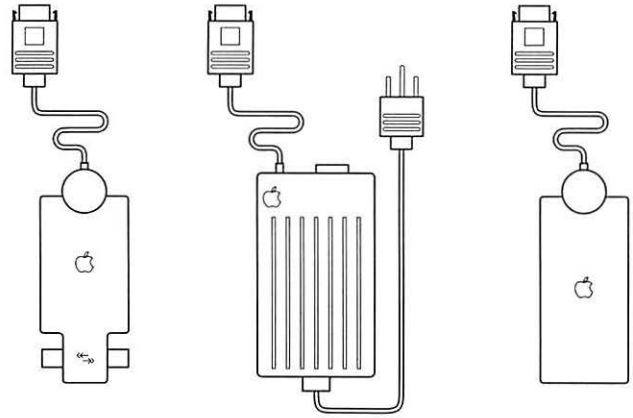
4. **Plug the LocalTalk cable you disconnected in step 2 into the remaining socket of the printer's LocalTalk connector box.**



Connecting the LaserWriter Pro 630 with Ethernet cables

You can connect the LaserWriter Pro 630 to one or more computers with an Apple Ethernet connector and any of a variety of standard Ethernet cable types. Ethernet is a widely used communication standard that supports very high transmission speeds (several times the maximum transmission speed of LocalTalk cables). Ethernet hardware and software are available for Macintosh computers and many other types of computers.

Apple Ethernet media adapters allow you to connect to any standard Ethernet cabling system through the Apple universal Ethernet port on the LaserWriter Pro 630. Supported media types include thick, thin, and twisted-pair Ethernet cables. Use an Apple Ethernet AUI adapter for connecting to thick-wire networks.



Apple Ethernet thin coax transceiver

Apple Ethernet AUI adapter

Apple Ethernet twisted-pair transceiver

△ **Important:** The LaserWriter Pro connection software supports AppleTalk Phase 2, which is the current standard for AppleTalk network software. If you are using an Ethernet connection, your network software must support AppleTalk Phase 2. On a Macintosh computer, you need the EtherTalk driver version 2.0 or later; on other computers, check with your network support provider. (If you connect the printer using a LocalTalk or serial connection, you don't need to be concerned about the version of network software on your computer or network; it can be AppleTalk Phase 1 without conflict.) △

There are three ways to connect the printer with Ethernet cables and connections.

- Connect the printer directly to your computer.
- Connect the printer to the end of an existing network.
- Connect the printer anywhere along the length of a network.

❖ *Note:* The Ethernet illustrations in this chapter show the thin coaxial connector type. The connector you use may be different. ❖

Connecting the printer directly to your computer

Although the Ethernet port is used most often to connect the printer to a network, if you are using a stand-alone computer that has an Ethernet port, you can use this port to create a direct, high-speed connection. (This creates a small Ethernet network consisting of the workstation and the printer.)

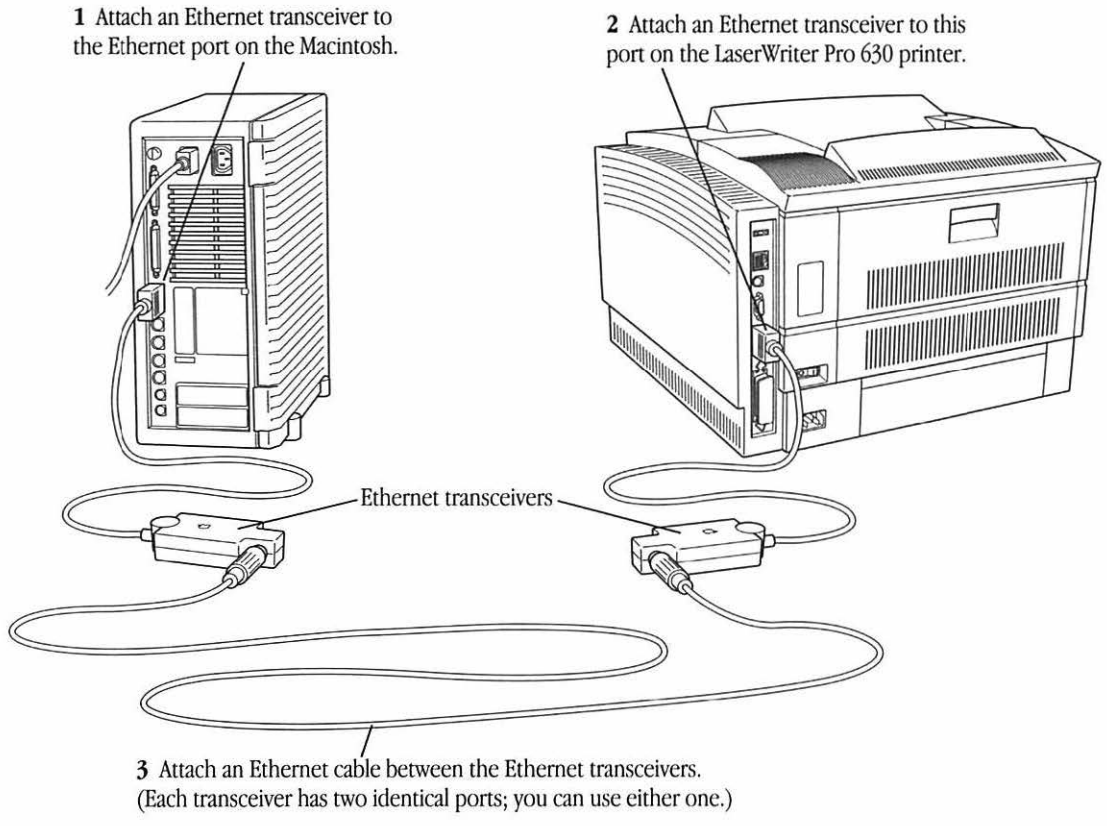
1. **Plug the short cable extending from an Apple Ethernet connector into the Ethernet port on the LaserWriter Pro 630.**

   The Ethernet port is just below the center of the connector panel on the back of the LaserWriter Pro.

2. **Plug an Ethernet connector into the Ethernet port on your computer.**

continues ▶

3. Connect the two Ethernet connectors with an Ethernet cable, as shown.



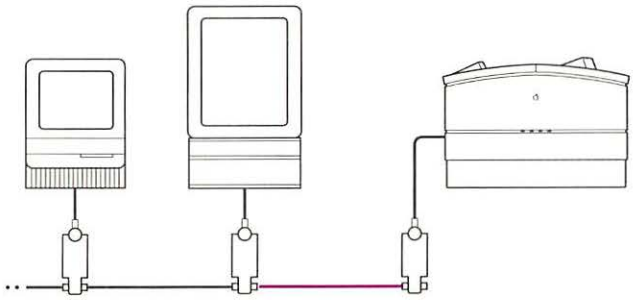
Connecting the printer to the end of an Ethernet network

Connecting the LaserWriter Pro 630 to the end of a network will not interrupt communication among network users. You do not need to shut down any computers or notify users before adding the printer to the network.

1. **Plug the short cable extending from an Apple Ethernet connector box into the Ethernet port on the LaserWriter Pro 630.**

   The Ethernet port is just below the center of the connector panel on the back of the LaserWriter Pro 630.

2. **Use an Ethernet cable to connect the connector box to the network as shown.**



▲ **Warning:** There should be only one cable plugged into the printer's Ethernet connector box, since the printer is connected at the end of the network. Do not leave a dangling cable plugged into or add a terminator to the connector box's second opening, as this will cause transmission problems for all network users. ▲

Connecting the printer between two devices on an Ethernet network

When you connect the LaserWriter Pro 630 between two devices on a network, you'll need to briefly interrupt communication between network users on both sides of the connection, unless they are linked through some other network route. Be sure to notify users before adding the printer to the network.

1. **Plug the short cable extending from an Apple Ethernet connector box into the Ethernet port on the LaserWriter Pro 630.**

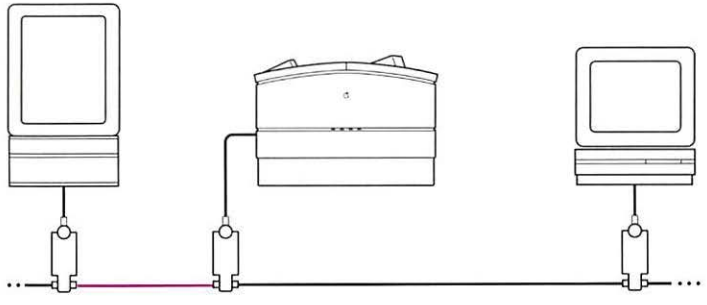
   The Ethernet port is just below the center of the connector panel on the back of the LaserWriter Pro 630.

2. **Disconnect *one* Ethernet cable from the connector box of the network device immediately to the left or right of the LaserWriter Pro 630.**

continues ▶

3. **Plug one end of an Ethernet cable into the socket you have just freed and the other end into one of the sockets of the printer's Ethernet connector box.**

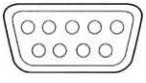
4. **Plug the Ethernet cable you disconnected in step 2 into the remaining socket of the printer's Ethernet connector box.**



Connecting the printer with serial cables

As mentioned earlier, you can connect the LaserWriter Pro directly to your computer by using a serial connection to the printer's 9-pin RS-232 port or to the 8-pin RS-422 port that is normally used for LocalTalk.

8-pin RS-422 port



9-pin RS-232 port

Different serial cables are wired differently. Get help from your dealer or service representative when purchasing a cable.

If your computer has a standard serial port, like that of the IBM PC, you should be able to use standard cables. If not, you may have to purchase a special cable or have a cable built for you. The following table describes the pin assignments on the RS-232 port of the LaserWriter Pro. The person who builds your cable will need this information.

To obtain the serial port pin assignments for the end of the cable connected to your computer, refer to the manual that came with your computer.

Pin	Circuit	Description
1	DCD	Data carrier detect
2*	RxD	Receive data
3*	TxD	Transmit data
4	DTR	Data terminal ready
5*	SGnd	Signal ground
6	DSR	Data set ready
7	RTS	Request to send
8	CTS	Clear to send
9	Ring	Ring indicator

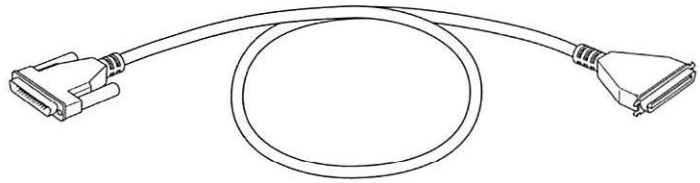
* The LaserWriter Pro needs only pins 2, 3, and 5, but a connected device may require the others. For example, to exchange information with an MS-DOS computer using the DSR/DTR handshake, pins 6 (DSR) and 4 (DTR) on the RS-232 port of the LaserWriter Pro must be connected to their counterparts on the MS-DOS computer.

Connecting the printer with parallel cables

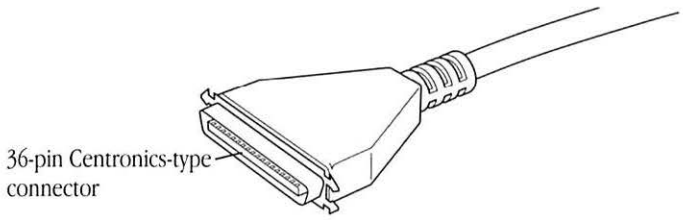
To connect the LaserWriter Pro to your IBM PC or IBM-PC-compatible computer, you need a parallel interface cable, available from most computer dealers.

For information about installing the printer software, refer to Chapter 4, "Using Your Printer with an IBM PC or IBM-PC-Compatible Computer."

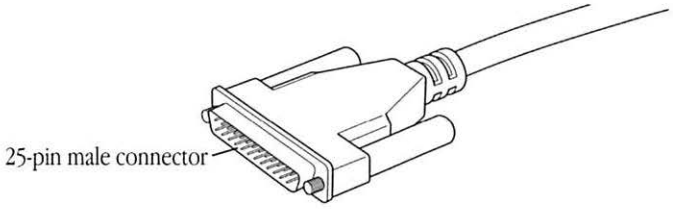
Parallel interface cable



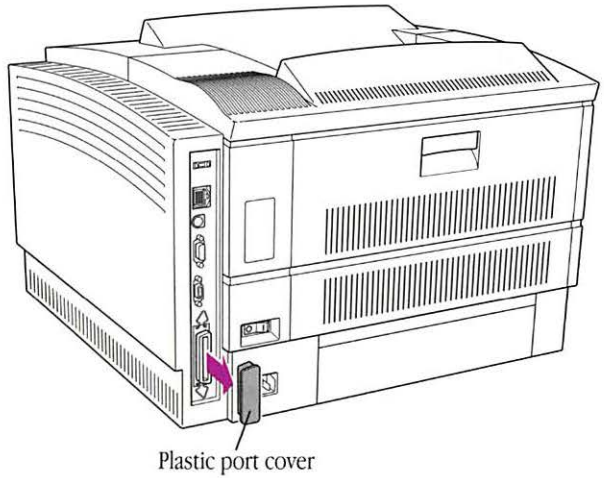
One end of the parallel cable must have a 36-pin Centronics-type connector to match the parallel port on the printer.



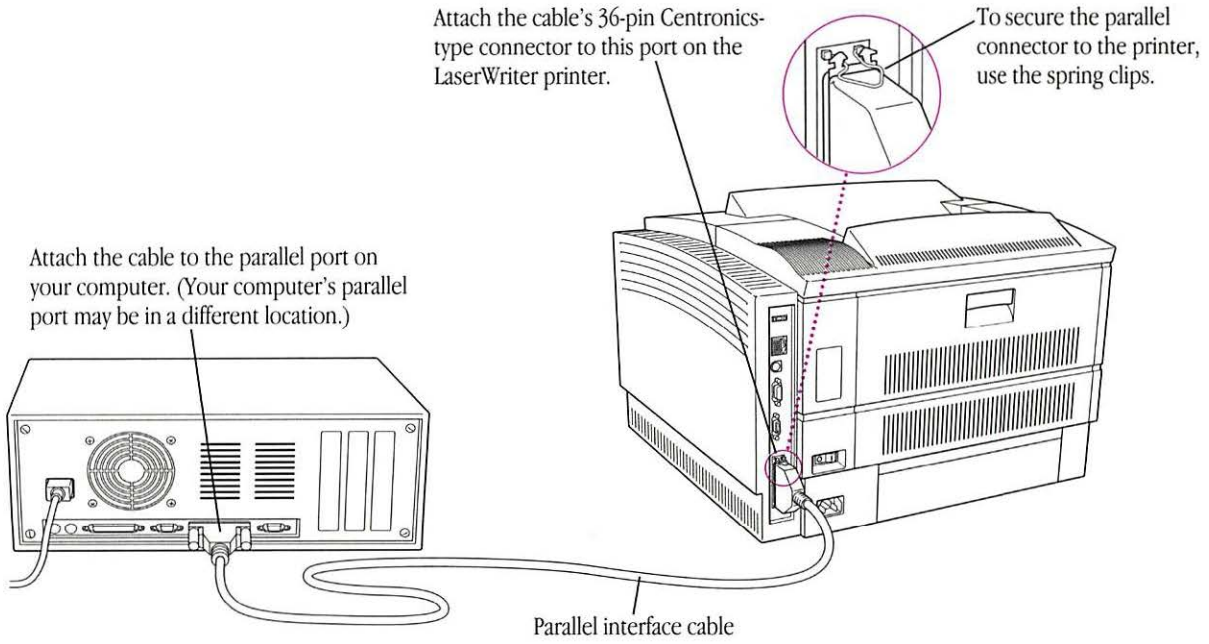
The other end of the cable should have a connector that fits the parallel port on your computer. On most IBM PC and IBM-PC-compatible computers, a 25-pin male connector will fit the parallel port. Check your computer, or the documentation that came with it, to make sure you get the correct cable.



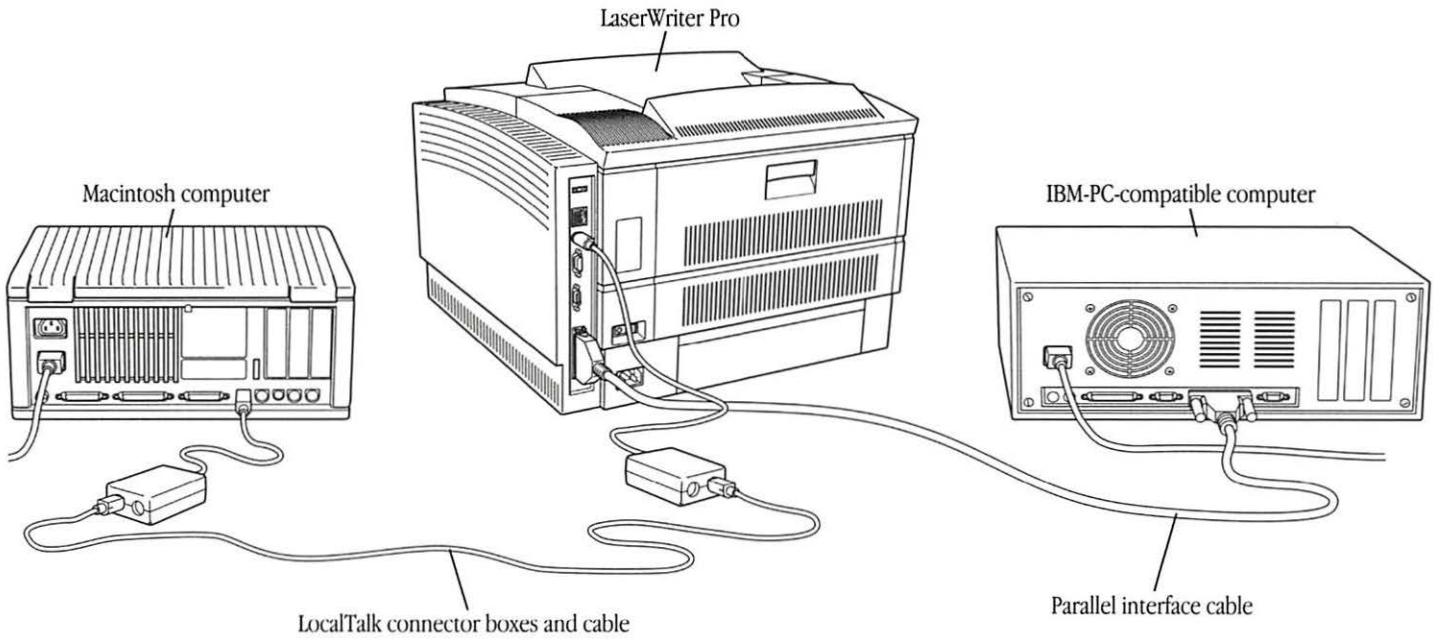
Before you can attach the parallel cable to the LaserWriter Pro, you must remove the plastic static-protection cover from the parallel port on the printer. Save the plastic cover in case you need to protect the port in the future.



△ **Important:** Do not remove the plastic cover from the parallel port unless you need to attach a parallel cable to the port. The cover protects the printer from possible damage by static electricity. △


Attach the cable's 36-pin Centronics-type connector to this port on the LaserWriter printer.
To secure the parallel connector to the printer, use the spring clips.
Attach the cable to the parallel port on your computer. (Your computer's parallel port may be in a different location.)
Parallel interface cable

❖ *By the way:* You can use two or even three ports on your LaserWriter Pro at the same time. For example, as shown in the following figure, you can use the parallel port to connect the printer directly to an IBM-PC-compatible computer, and at the same time use the LocalTalk port to connect the printer to a Macintosh. ❖



Port settings

If you plan to use a serial or parallel connection or to modify the standard LocalTalk or Ethernet connection, you may need to reset the push-button switch first. Selecting a switch setting sets the communication settings for the four ports: LocalTalk (RS-422), Serial (RS-232), Parallel (Centronics), and Ethernet (for the model 630 only). Switch settings 0 through 5 are fixed and cannot be changed. You can change switch settings 6 through 9 to settings you require, if necessary. A complete list of available settings is provided in Appendix C, "LaserWriter Pro Specifications and Parts List."

The LaserWriter Pro is preset to switch setting zero (0). To select a different setting, use the push-button switch located on the connection panel. For information about selecting a different setting, see "Setting the Push-Button Switch" next.

To change the communication settings for switch settings 6 through 9, use the LaserWriter Utility program. For further instructions about changing communication settings, see "Viewing or Changing Communication Settings" in Chapter 3.

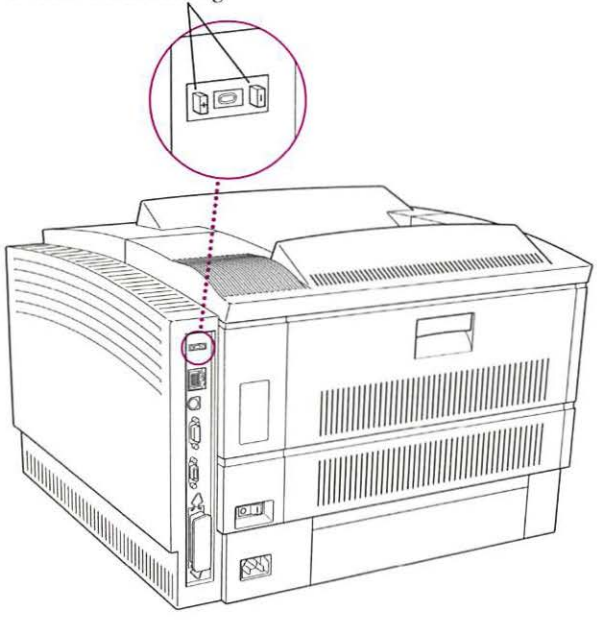
△ **Important:** You can determine the exact configuration of the printer even if the switch is set to a user-configurable setting. To do so, print a configuration page by using the Macintosh LaserWriter Utility program, as described in "Using the LaserWriter Utility" in Chapter 3. △

Setting the push-button switch

The buttons are located at the top of the connection panel. Press the buttons to move the setting forward or backward through the switch settings.

To change the setting, press a button. Each time you press, the switch rotates forward or backward one setting.

Note: This is not a SCSI switch, and the number displayed is not a SCSI ID.



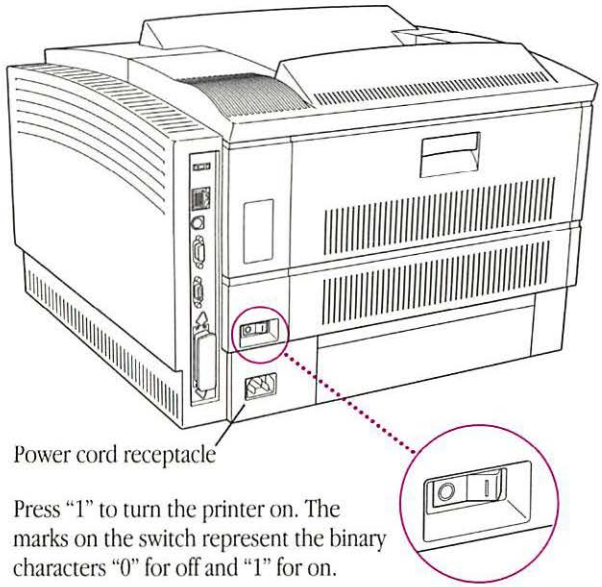
▲ **Warning:** Choosing a serial setting for the 8-pin port while it is connected to a LocalTalk network will cause the network to malfunction. If you change the push-button setting while the printer is in use, documents that the printer is working on will not be printed and will have to be sent to the printer again. ▲

When you use the push-button switch to select a new setting, the printer waits 2 seconds before putting the setting into effect. The 2-second delay allows you to cycle through several settings to reach your desired setting without activating each intermediate selection.

Connecting the power and turning on the printer

Once the communication port is connected, 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.**



Press "1" to turn the printer on. The marks on the switch represent the binary characters "0" for off and "1" for on.

2. **Plug in the printer and turn it on.**

   Insert the socket end of the power cord into the recessed receptacle on the back of the printer. Plug the other end into a grounded (three-hole) AC outlet, then press the on/off switch to turn the printer on.

3. **Check the startup page.**

   The printer takes a minute or two to warm up, and then it automatically prints a startup page. It prints the startup page every time you restart unless you turn the startup page off (or are using switch setting #4, which sets the printer to print a configuration page.) See "Turning the Startup Page On or Off" in Chapter 3.

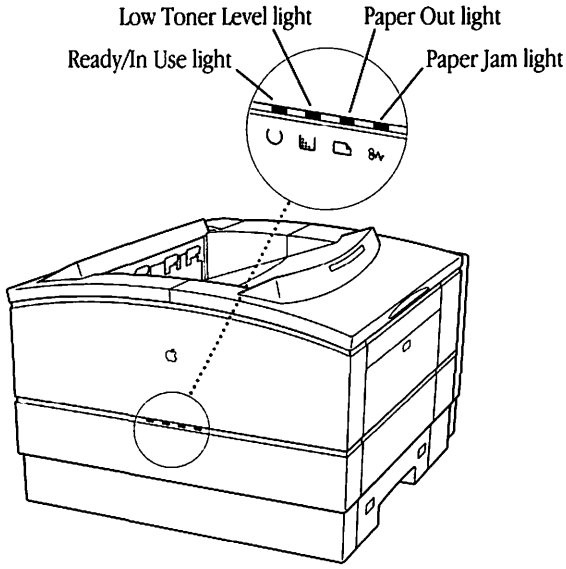
   The startup page contains large icons that indicate how the printer is set up, including the network connection type and whether a hard disk is attached to the printer.

   The startup page should look clean and sharp. If it is spotty, too light or too dark, or otherwise unclear, switch the printer off and on to print a second page. Try this two or three times if necessary. If the output doesn't improve, or if the printer won't print the startup page, refer to Chapter 6, "Troubleshooting."

continues ▶

4. Check the status lights.

After the startup page is printed, the Ready/In-Use light glows steadily. All other lights should be off. If any other lights are on, see Chapter 6, "Troubleshooting."



Chapter 3

Using Your Printer With a Macintosh Computer

The LaserWriter Pro comes with software and fonts for use with a Macintosh computer. This chapter describes how to install and use this software.

For information about using the LaserWriter Pro with an IBM PC or IBM-PC-compatible computer, see Chapter 4.

From a computer other than a Macintosh, IBM PC, or IBM-PC-compatible, you may be able to print to the LaserWriter Pro by using one of the many application programs that support PostScript printing, but you should also contact your computer vendor to determine whether any special software is needed. Although many printing functions are controlled by the application software on your computer, there may be a LaserWriter Pro driver, or control program, available for your computer.

Before you install the printer software

Before you install the printer software and fonts, you need to protect your original disks (by locking them and making copies of them) and make sure you have the correct version of system software.

Protecting your disks

You can protect the floppy disks that came with your LaserWriter Pro by locking them (so you don't accidentally change anything on them) and by making backup copies of them (so if one set is damaged, you still have a copy).

1. **Make sure the disks are locked.**

   You lock a disk by sliding up its write-protection tab. The disk is locked when you can see through the hole. For more details, see the documentation that came with your Macintosh.

2. **Make a backup copy of each disk.**

   You can find instructions for copying disks in the documentation that came with your Macintosh. You'll need a blank 800K floppy disk for each disk you want to back up–seven in all.

Checking the version of your system software

Before you install the printer software and fonts that came with your LaserWriter Pro, you need to know which version of Macintosh system software you have in your System Folder.

△ **Important:** The LaserWriter Pro is designed to work with system software version 6.0.5 or later. If your system software is an earlier version, you should obtain a system software upgrade from your authorized Apple dealer. △

To identify the version of system software you have, follow these steps.

1. **Go to the Finder desktop.**

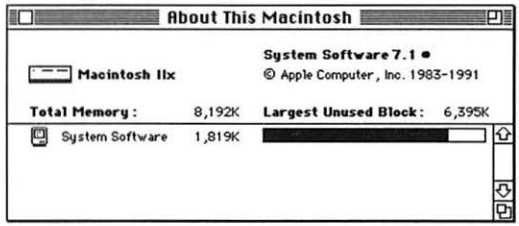
   If your computer is off, turn it on. If it is on, quit any programs that are running.

2. **Choose the first command from the Apple menu.**

   Depending on your system software, this command is either "About the Finder" or "About This Macintosh."

3. **Read the information in the About box.**

   The About box that appears is determined by the version of system software you have. Here is an example of an About box:



4. **Close the About box.**

Installing the printer software on your Macintosh

Follow the steps in this section to install the software your Macintosh needs in order to work with your LaserWriter Pro.

△ **Important:** Before you install the printer software, turn off any automatic virus detection programs you have on your Macintosh computer. If you don't, problems may occur. After installation is complete, you can turn the virus detection programs back on. △

△ **Important:** If the TrueType init (which allows you to use TrueType fonts) is in your System Folder, the installation process updates your system with the latest version of the TrueType init and copies TrueType fonts into your System Folder. If you don't have the TrueType init in your System Folder, bitmapped versions of the fonts are installed. If you don't have the TrueType init in your System Folder and you want to use TrueType fonts, open the the Printing Tools folder on *Font Disk 1* and copy the TrueType init into your System Folder before completing the installation procedure. △

Installation requirements

Installing all the printer software and fonts requires approximately 5 megabytes of free space on your hard disk.

Installing the printer software

1. **Go to the Finder desktop.**

   If your machine is off, turn it on. If it's already on, quit any programs that are running.

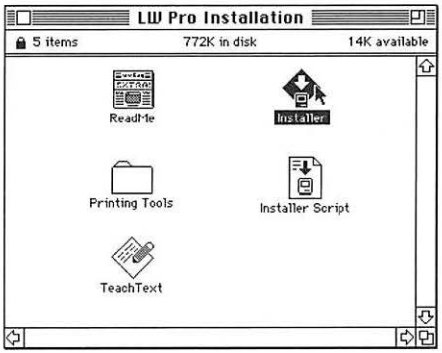
2. **Insert the *LaserWriter Pro Installation Disk*.**

   The disk's icon appears on the desktop, as shown in the next step.

3. **Open the disk by double-clicking its icon.**

continues ▶

4. **Open the Installer by double-clicking its icon.**



When you open the Installer, a Welcome screen displays some information about the files that will be installed.

5. **Click OK to continue.**

The Easy Install dialog box appears.

6. **Click the Install button.**

The Installer takes a few moments to calculate what needs to be done and then begins to copy files. The whole process may take several minutes.

7. **When the *LaserWriter Pro Installation Disk* is ejected, follow the instructions you see on the screen.**

You'll have to swap disks a few times. Each time, the Installer ejects one disk and asks you to insert another. Keep following the instructions on the screen.

8. **When you see a message reporting that the installation has been successfully completed, follow the instructions on the screen.**

If you turned off any automatic virus detection programs on your Macintosh, turn them back on now.

Go to the next section, "Additional Preparations" to continue setting up the LaserWriter Pro software.

Additional preparations

Congratulations! You've installed all the software necessary to print, and if you want to start printing right away, you can skip ahead to "Selecting the Printer" later in this chapter. However, there are several other preparations you may wish to make first.

- Deleting old versions of the Font/DA Mover, if any are on your hard disk, by dragging them to the Trash. (The Font/DA Mover is a program that allows you to install and delete fonts in System 6. You must use version 4.0 or later of the Font/DA Mover.)

- Learning about the fonts you installed when you followed the steps in "Installing the Printer Software on Your Macintosh."
- Learning about how to use the LaserWriter Utility, one of the programs you installed when you followed the steps in "Installing the Printer Software on your Macintosh."

Continue reading to learn more about each of these preparations.

The Font/DA Mover

If you are using System 6, you need the Font/DA Mover in order to install and delete fonts. The LaserWriter Pro Installer automatically copies the latest version of the Font/DA Mover into the System Folder on your startup disk.

Font/DA Mover

You may have older versions of the Font/DA Mover on your startup disk. Versions of the Font/DA Mover older than version 4.0 cannot properly install or delete all of the fonts on the LaserWriter Pro disks. You should drag all versions of the Font/DA Mover earlier than 4.0 to the Trash. (You can determine the version number of the Font/DA Mover by selecting its icon and choosing Get Info from the File menu.)

△ **Important:** If you're using System 7, you don't need the Font/DA Mover, and the Installer will not install it onto your hard disk. To install fonts, you simply drag them to the icon of your System Folder (not to its window). For more details, see the manuals that came with your Macintosh (or with your latest system software update). △

Fonts

There are two kinds of fonts: fixed-size and variable-size. Your LaserWriter Pro works with both kinds. Fixed-size fonts (also called *bitmapped* fonts) can be installed in your System file in specific sizes. They look good on your computer screen if you use the installed sizes, but they do not look as good on paper.

Variable-size fonts (also called *outline* or *scalable* fonts) do not come in any specific size—your printer can create any size you need. Your LaserWriter Pro can use two types of variable-size fonts: PostScript and TrueType.

PostScript fonts

Your LaserWriter Pro has a number of built-in PostScript fonts. You see PostScript fonts when you print, but you may not see them on your computer screen. Instead, you may see a bitmapped representation of them.

You can also use PostScript fonts that are not built into your LaserWriter Pro. To do so, you must first obtain the font from a computer dealer or other source. You will usually receive both bitmapped and PostScript versions of the font, each in its own file. To use the font, install the bitmapped font in your System file and drag the PostScript font to your System Folder. (If you use System 7, put the PostScript font in the Extensions folder inside your System Folder.) For more details, see the documentation that came with your Macintosh (or with your latest system software update).

TrueType fonts

TrueType fonts are used in printing just like PostScript fonts. But you can also see TrueType fonts on your computer screen in any size you choose.

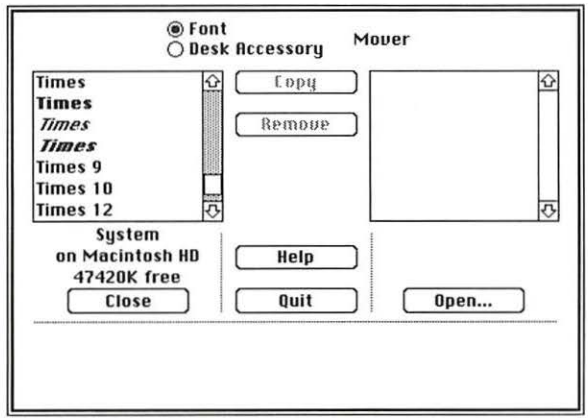
You can keep both fixed-size and TrueType versions of a font in your System file. Keeping both versions of a font takes up more disk space, but it has two advantages. First, it allows the Macintosh to display and print the font correctly, even when memory is low. Second, old documents that were created with a fixed-size font may look and paginate differently when you only use TrueType fonts.

Determining which fonts are which

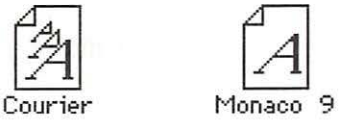
You can distinguish TrueType and fixed-size fonts by their names. Each fixed-size font name contains a number (for example, Geneva 24), while a TrueType font name does not (for example, Geneva). You can find font names in menus in application programs.

In System 6, you can also find font names by opening the Font/DA Mover. The following figure shows an example of TrueType and fixed-size font names listed in the Font/DA Mover.

△ **Important:** You must have version 4.0 or later of the Font/DA Mover to see TrueType fonts listed. To install the latest version of Font/DA Mover, follow the instructions in "Installing the Printer Software on Your Macintosh" earlier in this chapter. △



In System 7, you can distinguish TrueType and fixed-size fonts by their icons in the Finder, as shown in the following figure.



TrueType icon Fixed-size icon

To install the fonts that came with your LaserWriter Pro, see "Installing the Printer Software on Your Macintosh" earlier in this chapter.

Selecting the printer

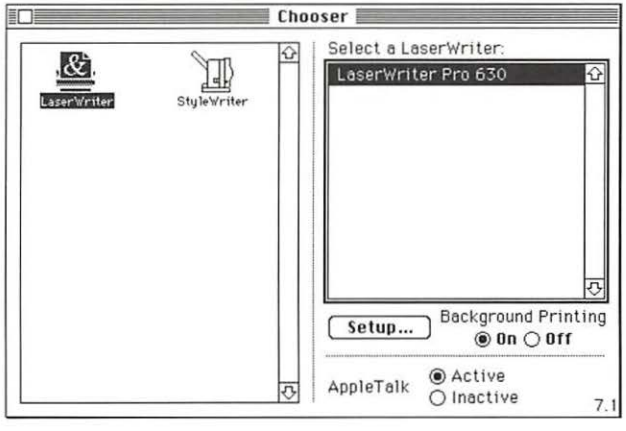
If the LaserWriter Pro is connected to a network, you need to select the printer from your computer when you want to print for the first time or after using another printer.

On a Macintosh computer, you select a printer on an AppleTalk network by using a program called the Chooser. MS-DOS systems using AppleShare PC also use versions of the Chooser. Other types of computers may have their own specific software for choosing printers.

You also use the Chooser to automatically set up the printer driver to work with your LaserWriter Pro 600 or 630 the first time you select the printer. After setting up the printer driver, you don't need to set it up again unless you change or install additional LaserWriter Pro options.

1. **Choose the Chooser from the Apple menu.**

   The Chooser dialog box appears.



2. **Click the LaserWriter icon (in the left half of the dialog box).**

   If you don't see the LaserWriter icon, scroll the window.

   The name of your LaserWriter Pro printer appears in the right half of the dialog box (along with the names of any other available LaserWriter printers).

3. **Click the LaserWriter Pro printer name.**

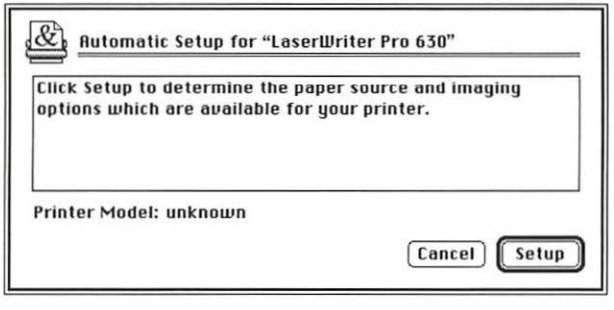
   You've now selected the LaserWriter Pro printer for printing.

   If this is the first time you've selected the printer, or if you have just installed new options, you need to set up the driver. Continue with step 4.

   If you are only selecting the printer for printing and don't need to set up the driver, skip to step 7.

4. **Click Setup.**

   The Automatic Printer Setup dialog box appears.



❖ *By the way:* To do a custom setup, you can manually set up the driver for your specific LaserWriter Pro options by holding down the Option key and clicking Setup in the Chooser dialog box. ❖

5. **In the Automatic Printer Setup dialog box, click Setup.**

   The Chooser automatically checks your LaserWriter Pro options and sets up the driver.

   A message appears saying that setup is completed.

6. **Click Done.**

7. **Close the Chooser by clicking the window's close box (in the top left corner.)**

Using the LaserWriter Utility

The LaserWriter Utility program supplied with the printer allows you to control various aspects of how the LaserWriter Pro works. Use the LaserWriter Utility to

- name the printer
- turn the printer's startup page on and off
- see the total number of pages the LaserWriter Pro has printed
- set the printer's default printing resolution (LaserWriter Pro 630 or upgraded LaserWriter Pro 600 only)
- turn the printer's FinePrint feature on and off
- turn the printer's PhotoGrade feature on and off (LaserWriter Pro 630 or upgraded LaserWriter Pro 600 only)
- adjust levels of gray scale
- view or change the printer's communication settings
- set the print density to lighten or darken printing
- set paper-handling options
- send PostScript files and programs to the printer
- restart the printer
- initialize any hard disks connected to the printer
- download fonts to the printer or to any attached hard disks
- see or print a list of printer fonts

Opening and quitting the LaserWriter Utility

The utility will operate on the printer that is currently selected in the Macintosh Chooser. To set up or change the functions of your LaserWriter Pro, first make sure the printer is selected in the Chooser. (See "Selecting the Printer" earlier in this chapter.)

1. **Insert your backup copy of the *LaserWriter Pro Installation Disk*.**

   You can use the LaserWriter Utility directly from the floppy disk or copy the program to your hard disk.

2. **Double-click the LaserWriter Utility icon.**

   The program takes a few seconds to check the settings of the selected printer before starting up and then presents the menu options listed in the following sections.

❖ *Reverting to factory settings:* In most of the LaserWriter Utility's dialog boxes, you can click a button labeled Use Default to restore the options to their original factory settings. ❖

When you are finished using the LaserWriter Utility, quit the application.

■ **Choose Quit from the File menu.**

Naming the printer

Each LaserWriter Pro can be given an individual name. If the printer is connected to a network, this name allows users to identify the printer and select it from their computers. You can use the following procedure to rename any LaserWriter Pro on the network. Be sure to tell everyone who uses the network what the new names are, so they can find the printers they want to use.

1. **Choose Name Printer from the Utilities menu.**

   The Rename dialog box appears with the selected printer's current name.

2. **Type the new name for the printer.**

3. **Click Rename.**

   A message alerts you to select the printer's new name in the Chooser. You will not be able to print or to use other LaserWriter Utility functions until you do so.

4. **Click OK.**

Turning the startup page on or off

The LaserWriter Pro normally prints a sample page when you turn the printer on. This page shows the printer's name; the total number of pages printed; and the amount of memory, number of internal fonts, and communication settings. You can turn this feature off if you wish.

1. **Choose Set Startup Page from the Utilities menu.**

   A dialog box appears that allows you to turn the startup page on or off.

2. **Click On or Off.**

3. **Click OK.**

Viewing the page count

The LaserWriter Pro stores a running total of the number of pages it has printed. This total is printed on the startup page when you start the printer (if the startup page is turned on). You can also display the current page count from the LaserWriter Utility.

1. **Choose Get Page Count from the Utilities menu.**

   A dialog box appears with the current page count of the selected printer.

2. **Click OK when you are finished viewing.**

Setting the printer resolution to 300 or 600 dots per inch

If you have a LaserWriter Pro 630 (or an upgraded LaserWriter Pro 600), you can set the default printer resolution to either 300 or 600 dots per inch. The LaserWriter Pro 630 is normally set to print at 600 dpi, but you may wish to print at the standard 300-dpi look for a special purpose.

1. **Choose Imaging Options from the Utilities menu.**

   The Imaging Options dialog box appears.

2. **Click the 300 or 600 dots per inch button in the Printer Resolution options.**

3. **Click OK.**

Turning FinePrint on or off

You can turn the LaserWriter Pro's FinePrint feature on and off. FinePrint is normally turned on when printing at 300 dpi, but you may wish to turn it off to maintain the standard 300-dpi look for a special purpose. You cannot use FinePrint when the printer is set to print at 600 dpi. See the preface of this guide for more information about FinePrint.

1. **Choose Imaging Options from the Utilities menu.**

   The Imaging Options dialog box appears.

continues ▶

2. **Click the 300 dots per inch button in the Printer Resolution options, if necessary.**
3. **Click On or Off in the FinePrint option.**
4. **Click OK.**

Turning PhotoGrade on or off

If you have a LaserWriter Pro 630 (or an upgraded LaserWriter Pro 600), you can set the printer to print at 300 dots per inch and still print high-quality graphics using PhotoGrade.

You can turn PhotoGrade on and off. It is normally turned on when printing at 300 dpi, but you may wish to turn it off to increase printing speed or to print graphics with a special look. See the preface of this guide for more information about PhotoGrade.

1. **Choose Imaging Options from the Utilities menu.**

   The Imaging Options dialog box appears.
2. **Click the 300 dots per inch button in the Printer Resolution options, if necessary.**
3. **Click On or Off in the PhotoGrade option.**
4. **Click OK.**

Controlling gray scale

You can change the way PhotoGrade prints images by increasing or decreasing the number of gray levels. More levels of gray produce a more natural-looking photographic quality. However, increasing the number of grays also decreases the resolution of the image. For each level of gray, a unique pattern of laser pulses is required to produce a printed dot. More gray levels require more variations in such patterns, which in turn requires the printer to use larger, more noticeable dots. You can experiment with various settings to find the balance that suits your needs.

See the preface of this guide for more information about PhotoGrade.

1. **Choose Imaging Options from the Utilities menu.**

   The Imaging Options dialog box appears.
2. **Click the 300 dots per inch button in the Printer Resolution options, if necessary.**
3. **Turn on the PhotoGrade option, if necessary.**
4. **In the Frequency/Angle options, drag the slider in the direction you want, or click Use Default to automatically reposition the slider as it was when the printer was originally shipped.**
5. **Click OK.**

△ **Important:** When printing from a Macintosh, PhotoGrade works only when the Color/Grayscale option is selected in the Print dialog box and when printing at 300 dpi. (See "Printing" later in this chapter). △

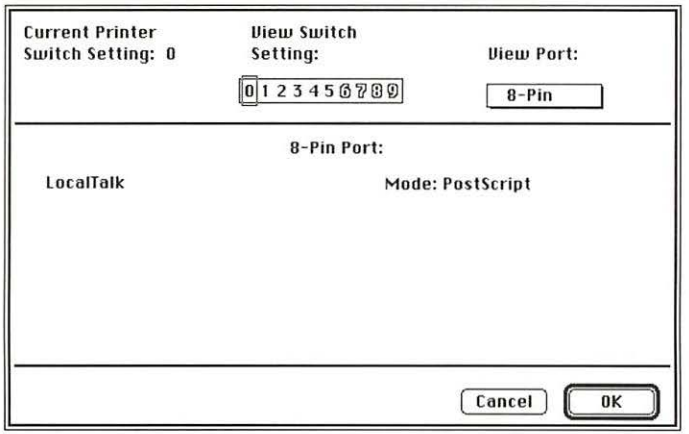
Viewing or changing communication settings

If you use the LaserWriter Pro with a computer other than a Macintosh, you may need to change the printer's communication settings to allow the computer and printer to communicate properly. Refer to "Port Settings" in Chapter 2 for additional information about communication settings, and to Appendix C for a complete list of the available settings.

You don't need to change any of the printer's settings unless the documentation for your computer specifies communication settings that are different from the ones already set. You can refer to Appendix C for brief explanations of these settings if you wish, but you do not need to know what each one means. You need only to make sure that the settings you choose match the ones specified for your computer.

1. **Choose Configure Communications from the Utilities menu.**

   The dialog box lists the settings for each of the ten positions (0 through 9) of the push-button switch on the back panel of the printer. The highlighted number shows the actual position of the push-button switch, which can only be changed manually.



2. **Click a switch position to display its settings.**

   Switch positions 0 through 5 are fixed; you can choose them, but you cannot change their settings. You can change the settings of switch positions 6 through 9.

3. **Choose the port connection you want to configure from the View Port pop-up menu.**

continues ▶

4. **Select the communication parameters you want to use.**

   Change the settings for each port as necessary to match the parameters of the computer or network you are using.

5. **Click OK.**

Printing the communication settings

You can print a listing of the current communication settings for each of the printer's ports. This page serves as a reference whenever you connect a computer to the printer. This is particularly useful if you set the printer's communication switch to a user-configurable setting (switch positions 6 through 9) and change the parameters to settings other than the default factory settings.

1. **Choose Print Configuration Page from the Utilities menu.**

   A dialog box appears asking you to confirm the command.

2. **Click Print.**

Setting the print density

If your documents are printing too light or too dark, you can adjust the print density of the printer to print lighter or darker text and images.

1. **Choose Print Density from the Utilities menu.**

   The Print Density dialog box appears.

2. **Drag the slider in the appropriate direction to increase or decrease the print density.**

3. **Click OK.**

Setting paper handling options

When the LaserWriter Pro runs out of paper in one tray, it can automatically switch and use paper in the paper cassette or multipurpose tray. 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 set the printer to use a specific size paper in the multipurpose tray.

1. **Choose Paper Handling from the Utilities menu.**

   The Paper Handling dialog box appears.

2. **Click On or Off in the Automatic Tray Switching option.**

3. **Choose a paper size from the Paper Type pop-up menu.**

4. **Click OK.**

Downloading PostScript files

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 LaserWriter Pro. The PostScript file can be created in a variety of text-editing programs.

1. **Choose Download PostScript File from the Utilities menu.**

   A dialog box appears in which you can select the file.

2. **Select the file you wish to download.**

3. **Click Open.**

   A second dialog box appears, in which you indicate where on your disk to save any PostScript response from the printer.

4. **Select a folder in which to save the PostScript log file.**

   You can enter a new name for the file if you wish.

5. **Click OK.**

   The file is downloaded to the LaserWriter Pro, and any PostScript response from the printer is saved on your disk.

Restarting the printer

You may need to restart the printer to clear its memory if you have any problems printing. Chapter 6, "Troubleshooting," describes when this may be necessary.

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

   A dialog box appears asking you to confirm that you want to restart the selected printer.

2. **Click Restart.**

   It will take a few minutes for the printer to restart and be ready to print.

The same effect can be achieved by physically turning the printer off and then on again.

△ **Important:** If the LaserWriter Pro is on a network shared by other users, make sure that no one is attempting to use the printer before you restart it. △

Initializing a hard disk attached to the printer

If you connect an external hard disk to the printer, you may need to prepare (initialize) the disk. See Appendix A, "LaserWriter Pro Upgrades," for information about adding an external disk.

▲ **Warning:** The LaserWriter Pro 630 will not recognize disks formatted for use with a different model LaserWriter other than the LaserWriter IIf or IIg. If you attach such a disk to the LaserWriter Pro, you will need to reinitialize the disk before you can use it and then reload any fonts from your computer, from their original floppy disk, or from another source. Reinitializing will erase all fonts previously stored on the disk. ▲

To initialize a hard disk, follow these steps.

1. **Choose Initialize Printer's Disk from the File menu.**

   A dialog box appears in which you can select the hard disk or disks to initialize.

2. **Click All Disks to intialize all connected disks or click the checkboxes next to the SCSI ID numbers of the disks you wish to initialize.**

3. **Click Initialize.**

   It will take some time for the initialization process to be completed. The printer will not be available for printing until the hard disk is initialized.

Downloading fonts to the printer

You can download additional fonts to the printer or to the printer's hard disk to speed up printing. You do not have to download fonts to use them in printed documents, but doing so can make printing faster than storing fonts only on your computer. There will be room for more downloaded fonts in the printer if you install additional memory or connect an external disk drive to the printer.

1. **Choose Download Fonts from the File menu.**

   A dialog box appears listing any fonts already downloaded to the printer. (This list does not include the standard set of Apple fonts installed in the printer; you can view a list of those fonts as described in "Displaying a List of Printer Fonts" next.)

2. **Click the radio button labeled Printer's Disk if you wish to download the fonts to a disk attached to your printer.**

3. **Click Add.**

   A file selection dialog box appears. You can choose any fonts that are installed on a disk connected to your computer.

4. **Select the fonts you want to download.**

   Double-click the font name in the list or select the name and click Add.

5. **Click Done when you have finished selecting fonts.**

   If you change your mind about any font you've added to the list, select the font and click Remove.

6. **Click Download.**

   A dialog box informs you of the status of the procedure until downloading is completed.

7. **Click OK.**

Displaying a list of printer fonts

You can view a list of the fonts currently stored in the printer's memory, or on any hard disks attached to the printer, to see whether the fonts you need are available.

1. **Choose Display Available Fonts from the File menu.**
2. **Click Printer's Disk(s) if you want to list fonts on any disks attached to the printer.**
3. **Click the close box when you are finished viewing.**

Removing a font from the printer's disk

You can delete one or more fonts that have been downloaded to a hard disk attached to the printer.

1. **Choose Display Available Fonts from the File menu.**
2. **Click Printer's Disk(s).**
3. **Select the font or fonts that you wish to delete.**
4. **Click Delete.**

   A dialog box asks you to confirm your selection.

5. **Click OK.**
6. **Click the close box when you are finished.**

Printing a list of printer fonts

You can print a list of the fonts currently stored in the printer's memory and on any hard disks attached to the printer.

1. **Choose Print Font Catalog from the File menu.**

   The Print dialog box is displayed.

2. **Click Print.**

Printing samples of printer fonts

You can print samples of the fonts currently stored in the printer's memory and on any hard disks attached to the printer.

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

   The Print dialog box is displayed.

2. **Click Print.**

Printing

On a Macintosh, printing functions are controlled through the Page Setup and Print dialog boxes, which are accessed through the File menu.

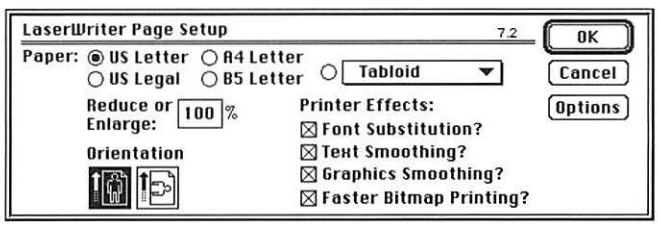
Most Macintosh application programs use a version of the standard Page Setup and Print dialog boxes, although the exact options presented vary among programs. (See the manuals that came with your program for details about specific options.)

Selecting Page Setup options

The Macintosh Page Setup dialog box allows you to specify certain aspects of your document, such as its size, format, and orientation, as well as the settings for several print effects.

1. **Choose Page Setup from the File menu.**

   The Page Setup dialog box appears.



2. **Select the Page Setup options you want.**

   - In the Paper option, select a paper size, if necessary.
   - In the Reduce or Enlarge option, enter the percentage of enlargement or reduction that you want the printed document to have. (Enter a number greater than 100 to enlarge, less than 100 to reduce.)
   - In the Orientation option, select portrait or landscape page orientation.
   - Select Font Substitution to allow the printer to use a different font when the font used in a document is not available on the printer.
   - Select Text Smoothing to smooth edges of letters when your printer does not contain the font used in the document.
   - Select Graphics Smoothing to smooth ragged edges of lines in graphics.
   - Select Faster Bitmap Printing to print pages faster using screen bitmaps.
   - To print using special options such as flipping or inverting the page image, click Options and select the options you want.

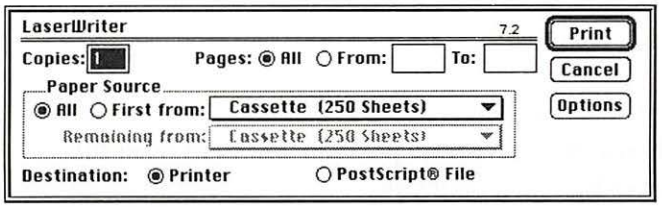
3. **Click OK.**

Printing documents

When printing from a Macintosh computer, most application programs display the Print dialog box, which allows you to specify print options such as the number of copies you want printed, whether to print all or part of a document, and which paper tray or cassette will be the paper source.

1. **Choose Print from the File menu.**

   The Print dialog box appears.



2. **Select the options you want.**

   - In the Copies option, enter the number of copies you want.
   - In the Pages options, select All to print the entire document, or select the From and To options and specify a range of pages.
   - In the Paper Source options, select All and select the paper cassette, multipurpose tray, or other paper source from the pop up menu.

   To manually print a single sheet of paper, transparency film, or labels or an envelope, select Manual Feed as the paper source. For paper loading instructions, see Chapter 5, "Loading the LaserWriter Pro With Paper."

   To print the first page of a document from one paper source and the remainder of the document from a different source, click the First From radio button and then choose the paper sources from the pop-up menus.

   - In the Destination option, select Printer to print the document, or select PostScript File to save the document as a file of PostScript code.

3. **Click Print.**

Printing color or gray-scale documents

When you print a document containing colors or shades of gray, you can choose to maximize either print quality or speed. On both the LaserWriter Pro 600 and 630, setting the printer to print Color/Grayscale produces higher quality but slower printing.

- If you set the printer to Black & White, all colored areas in the original document are printed in either black or white, depending on the darkness of the original. Gray areas in the original that are produced by black dot patterns rather than by the color gray are printed in similar dot patterns.
- If you set the printer to Color/Grayscale, the printer prints black dots to approximate the darkness of the colored or gray areas in the original document. The PhotoGrade feature increases the available number of gray levels.

1. **Choose Print from the File menu.**

   The Print dialog box appears.

2. **Select the options you want.**
3. **Click Options.**

   The Print Options dialog box appears.

4. **Click Black & White or Color/Grayscale.**
5. **Click OK.**
6. **Click Print.**

Printing a document with an automatic cover page

The LaserWriter Pro can automatically print a cover page providing information about the printed document, such as the document name and the date and time of printing. You can set the printer to print the cover page at the beginning or the end of the document.

1. **Choose Print from the File menu.**

   The Print dialog box appears.

2. **Select the options you want.**
3. **Click Options.**

   The Print Options dialog box appears.

4. **Choose the cover page position you want from the Cover Page pop-up menu.**
5. **Click OK.**
6. **Click Print.**

Printing a document at 300 or 600 dpi

The LaserWriter Pro 630 can print at 300 or 600 dpi. (The LaserWriter Pro 600 can print at 300 dpi only if it has been upgraded. See Appendix A, "LaserWriter Pro Upgrades.")

You can use the LaserWriter Utility to preset the printer to automatically print at 300 or 600 dpi. You can also select the printing resolution you want when printing a particular document.

1. **Choose Print from the File menu.**

   The Print dialog box appears.

2. **Select the options you want.**

3. **Click Options.**

   The Print Options dialog box appears.

4. **Click Custom in the Quality Options.**

5. **Click High (600 dpi) or Standard (300 dpi).**

6. **Click OK.**

7. **Click Print.**

Printing a document with FinePrint and PhotoGrade

When printing at 300 dpi, the LaserWriter Pro 630 (or an upgraded LaserWriter Pro 600) can print using both FinePrint and PhotoGrade. The LaserWriter Pro 600 can print using FinePrint only. You can turn the FinePrint and PhotoGrade features on or off when printing a particular document.

For more information about FinePrint and PhotoGrade, see the preface to this guide.

1. **Choose Print from the File menu.**

   The Print dialog box appers.

2. **Select the options you want.**

3. **Click Options.**

   The Print Options dialog box appears.

   If your LaserWriter Pro 630 is set to print at 600 dpi, click Custom in the Quality Options and then click Standard (300 dpi).

4. **Choose On or Off from the FinePrint pop-up menu.**

   If your LaserWriter Pro provides the PhotoGrade feature, choose On or Off from the PhotoGrade pop-up menu.

5. **Click OK.**

6. **Click Print.**

Chapter 4

Using Your Printer With an IBM PC or IBM-PC-Compatible Computer

This chapter shows you how to use the LaserWriter Pro with an IBM PC or IBM-PC-compatible computer running Microsoft Windows 3.1 or 3.0. You'll find instructions for

- installing and configuring the correct Windows printer driver
- printing documents

You've now connected your LaserWriter Pro to your computer, plugged it in, and turned it on. The next step is to install on your computer the printer software you need.

Installing the IBM PC software

Before you print with your LaserWriter Pro from Windows 3.1 or 3.0, you must make sure that the printer software you need is installed. Use the Control Panel to install the correct printer driver file.

If you have Windows 3.1, follow the steps in the next section to install the 3.1 printer driver.

If you have Windows 3.0, skip to "Installing the Windows 3.0 Printer Driver" later in this chapter.

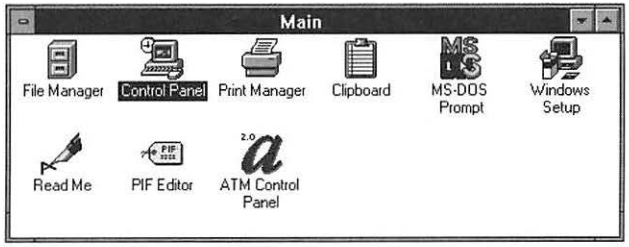
If you are using MS-DOS and MS-DOS applications, refer to the manual that came with your application and follow the instructions for using a PostScript printer. If your applications are not PostScript-compatible, refer to Appendix E for information about using the LaserWriter Pro in HP LaserJet emulation.

△ **Important:** Be sure to read the README.TXT file on your *LaserWriter Pro Software for Microsoft Windows* disk for the latest information about installation and printer driver updates. △

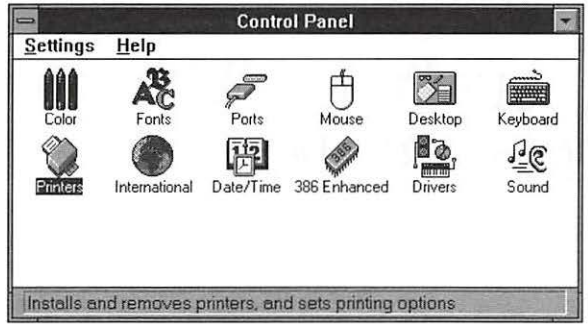
Installing the Windows 3.1 printer driver

To install the correct printer-driver file for Windows 3.1, follow these steps. (These instructions assume that you have a mouse or similar pointing device. If you do not, see the documentation that came with Windows to find out how to perform these steps from the keyboard.)

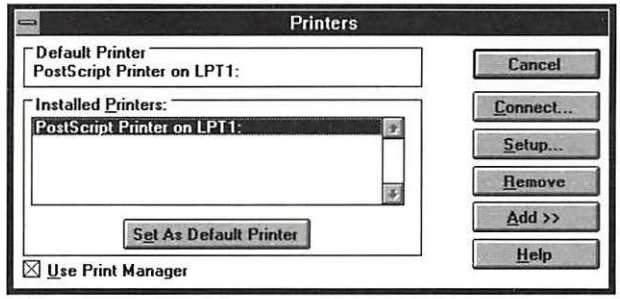
1. **Open the Main icon from the Program Manager window.**
2. **Open the Control Panel icon from the Main window.**



3. **In the Control Panel window, open the Printers icon.**

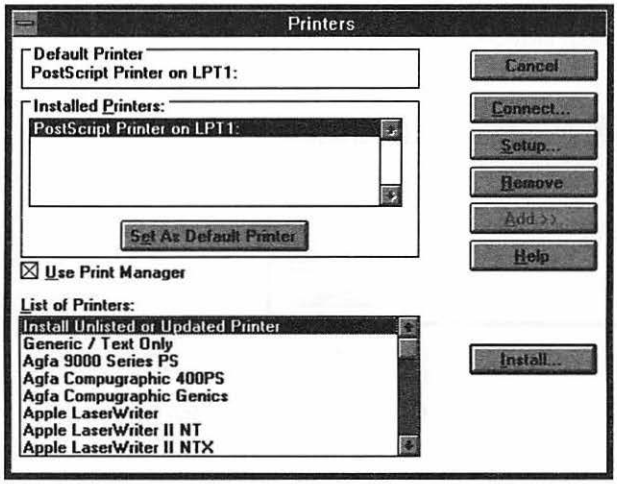


The Printers dialog box appears.



4. **Click Add.**

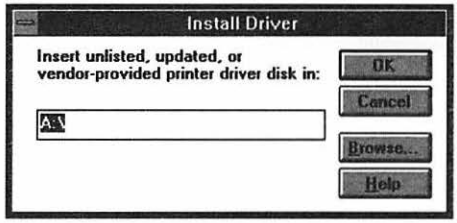
   A list of the printer drivers available on the disks you received with your Windows software appears at the bottom of the dialog box.



   Your LaserWriter Pro driver file is not yet listed. You'll install the driver by selecting Install Unlisted or Updated Printer in the list.

5. **Select Install Unlisted or Updated Printer and click the Install button.**

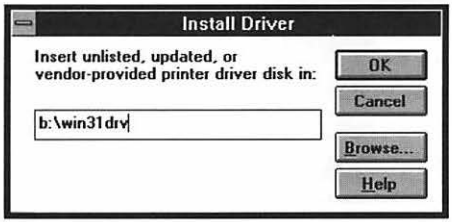
   The Install Driver dialog box appears, instructing you to insert the disk that has the printer driver file on it.



6. **Insert the *LaserWriter Pro Software for Microsoft Windows* disk in the disk drive.**

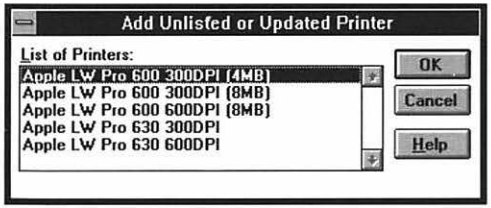
continues ▶

7. **Enter the drive path for the disk drive holding the *LaserWriter Pro Software for Microsoft Windows* disk by typing `B:\win31drv`. (Substitute the appropriate drive designation "A:" or "B:" to specify the drive holding the disk.)**



8. **Click the OK button.**

   The Add Unlisted or Updated Printer dialog box appears.

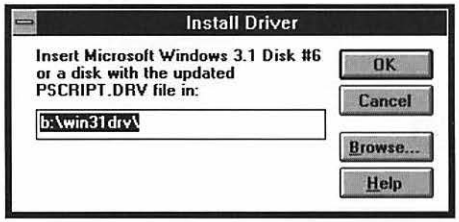


9. **Select the LaserWriter Pro Printer Driver appropriate for your LaserWriter Pro printer.**

   Select the printer driver that matches the model and features of your LaserWriter Pro.

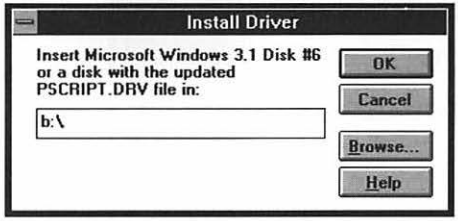
10. **Click the OK button.**

    The Install Driver dialog box appears.



11. **Insert the *Microsoft Windows 3.1 disk #6* in a disk drive.**

12. Enter `A:\` or `B:\` as appropriate to specify the drive path for the disk drive holding the *Microsoft Windows 3.1 disk #6*.



13. Click OK.

The Printers dialog box appears, now listing the newly installed printer driver in the Installed Printers box.

You may now click the Connect button to change the selected port connection, if you wish. See the documentation that came with Windows for information about changing ports.

The LaserWriter Pro printer driver is preset to automatically use the most commonly selected print settings, and no further setup is generally required. You can change the default setup options for the LaserWriter Pro printer by choosing Setup, if necessary. For further information about choosing setup options, see "Setting LaserWriter Pro Printing Options" next.

continues ▶

14. **Click the Set As Default Printer button to set your LaserWriter Pro as the default printer.**

15. **Click the Close button.**

Setting LaserWriter Pro printing options

After installing the LaserWriter Pro printer driver for Windows 3.1, you can change the printer's default options. For example, you can change which tray the printer automatically draws paper from, specify a default paper size, or change the preset paper orientation to Portrait or Landscape.

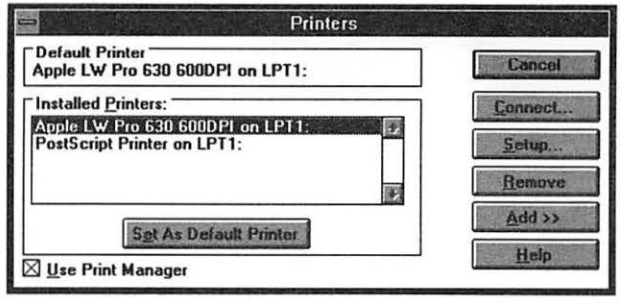
You can also change the options that specify how documents are sent to the printer.

1. **Open the Main icon from the Program Manager window.**

2. **Open the Control Panel icon from the Main window.**

3. **In the Control Panel window, open the Printers icon.**

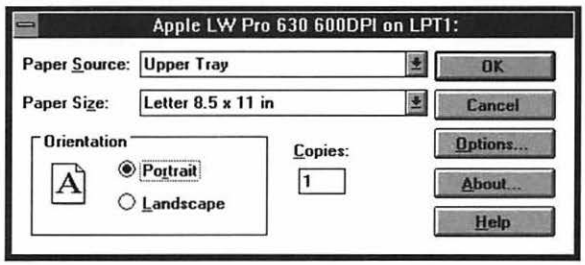
   The Printers dialog box appears.



4. **From the Installed Printers list, select the LaserWriter Pro printer driver.**

5. **Click the Setup button.**

A dialog box appears in which you can select options to control the way the printer works.

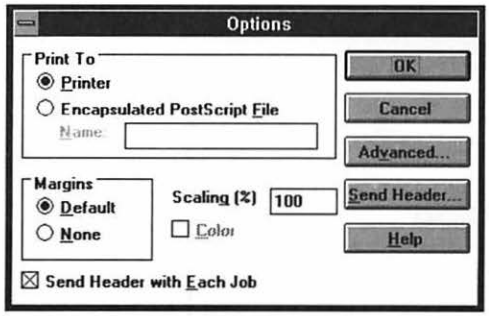


Select the default paper source, page size, page orientation, and number of copies that you want.

You can also change additional options by clicking the Options button.

6. **Click the Options button, if you wish. If you don't click Options, skip to step 10.**

The Options dialog box appears. In this dialog box you can select options to control the way the computer sends information to the printer.



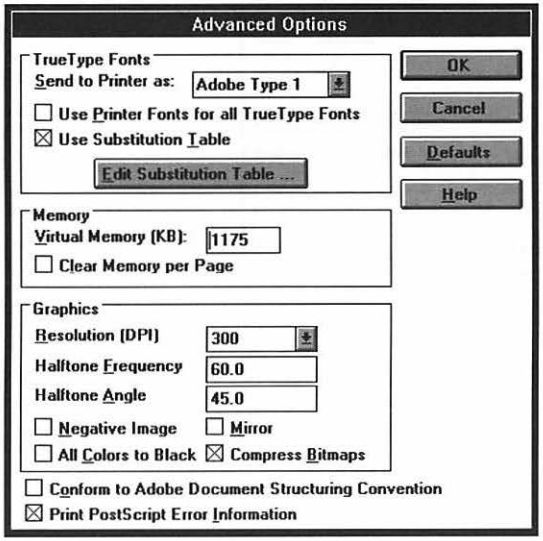
Select the default settings you want. Click the Help button for explanations of each option.

You can change additional advanced options by clicking the Advanced button.

continues ▶

7. **Click the Advanced button, if you wish. If you don't click Advanced, skip to step 9.**

   The Advanced Options dialog box appears. In this dialog box you can select options to control the way the computer sends fonts and graphics to the printer and the way the printer manages memory.



   Select the default settings you want. Click the Help button for explanations of each option.

   For highest output quality, verify that your settings for resolution, halftone angle, and halftone frequency match those in the following table.

Resolution	Frequency	Angle
600 dpi	85	45°
300 dpi (with PhotoGrade)	106	45°
300 dpi (without PhotoGrade)	60	45°

8. **Click OK.**

   The Advanced Options dialog box closes.

9. **Click OK.**

   The Options dialog box closes.

10. **Click OK.**

    The Setup dialog box closes.

11. **Click Close.**

    The Printers dialog box closes.

12. **Close the Control Panel window.**

Installing the Windows 3.0 printer driver

Before you print with your LaserWriter Pro from Windows 3.0, you must make sure that the printer software you need is installed. Use the Control Panel to install the correct printer-driver file.

To install the correct printer-driver file for Windows 3.0, follow these steps. (These instructions assume that you have a mouse or similar pointing device. If you do not, see the documentation that came with Windows to find out how to perform these steps from the keyboard.)

1. **Open the Control Panel icon from the Program Manager window.**

   You may need to open the Main window to find the Control Panel icon.

2. **In the Control Panel window, open the Printers icon.**

   The Printers dialog box appears.

3. **Click Add Printer.**

   A list of the printer drivers appears.

4. **Select Apple LaserWriter and click the Install button.**

   The Control Panel-Printers dialog box appears, instructing you to insert *Microsoft Windows 3.0 disk #5.*

5. **Insert the *Microsoft Windows 3.0 disk #5* in a disk drive.**

6. **Enter the drive path for the disk drive holding the *Microsoft Windows 3.0 disk #5*. (Substitute the appropriate drive designation "A:" or "B:" to specify the drive holding the disk.)**

7. **Click the OK button.**

   The Printers dialog box appears with PostScript Printer on LPT1: listed in the Installed Printers list box. The Apple LaserWriter printer driver and the PostScript printer driver that were shipped with Microsoft Windows 3.0 have been loaded.

8. **Click the Configure button.**

   The Printers-Configure dialog box appears. Select the printer port and timeout settings you want.

9. **Click the Setup button.**

   The PostScript Printer on LPT1: dialog box appears.

10. **Click the Add Printer button.**

    The Add Printer dialog box appears.

continues ▶

11. **Enter the drive path for the disk drive holding the LaserWriter Pro Software for Microsoft Windows by typing `b:\win30drv`. (Substitute the appropriate drive designation "A:" or "B:" to specify the drive holding the disk.)**

12. **Click the OK button.**

    A different Add Printer dialog box appears.

13. **Select the printer from the Printers list box that matches the model and features of your LaserWriter Pro.**

Name	Memory	Resolution	PhotoGrade
Apple LW Pro 600 300DPI	4MB	300 DPI	No
Apple LW Pro 600 300DPI 8M	8MB	300 DPI	No
Apple LW Pro 600 300DPI PG 8M	8MB	300 DPI	Yes
Apple LW Pro 600 600DPI 8M	8MB	600 DPI	No
Apple LW Pro 630 300DPI	8MB	300 DPI	No
Apple LW Pro 630 300DPI	8MB	300 DPI	Yes
Apple LW Pro 630 600DPI	8MB	600 DPI	No

△ **Important:** You can select only one printer at a time. To install several different drivers, repeat steps 10 through 13. Windows 3.0 allows a maximum of four additional LaserWriter Pro printer drivers to be installed. △

14. **Click the Done button.**

    The Add Printer dialog box closes.

15. **Select the appropriate LaserWriter Pro driver from the Printer list box.**

16. **Click the OK button.**

    The PostScript Printer on LPT1: dialog box closes.

17. **Click the OK button.**

    The Printers-Configure dialog box closes.

18. **Double-click the PostScript printer driver that you want in the Installed Printer list box to set the LaserWriter Pro as the default printer.**

    The PostScript Printer printer is now listed in the default Printer box. Documents printed from Windows applications will be sent automatically to the LaserWriter Pro.

19. Click the OK button.

The Printer dialog box closes.

20. Close the Control Panel window.

△ **Important:** If you change the port on your computer to which the LaserWriter Pro is connected, you must set up the printer driver again. See the documentation that came with your computer and software for more information. △

Additional printer settings

There are additional printer settings in Windows. These settings specify the active printer, the default printer, and timeout options. To find out whether you need to change these settings, and how to do so, see the documentation that came with your computer and software.

Printing from Windows applications

When you have connected your LaserWriter Pro to your computer and installed the correct printer driver, you're ready to start printing.

The basic steps required for printing are explained in this section. The details of choosing printing options and of printing can differ from one Windows application program to another. To find out more about printing from your application programs, read the documentation that came with your application programs.

To print a document from a Windows application program, the program must be open and the document window must be active. When your program is open and your document window is active, follow these steps to print.

1. Choose Print from the File menu.

In most cases a Print dialog box appears. You use the Print dialog box to select options for printing your document, including the number of copies and the pages to print. Depending on your application program, the Print dialog box may offer other options in addition to the standard ones.

2. Select the options you want and click Print.

A message appears while the document is being sent to the Print Manager. After the message disappears, you can go on with your work while your document is being printed.

Chapter 5

Loading the LaserWriter Pro With Paper

This chapter describes how to load the LaserWriter Pro paper cassette and multipurpose tray with paper. It describes how to load standard paper, letterhead, three-hole punched paper, envelopes, labels, and transparencies for printing.

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 3,"Using Your Printer With a Macintosh Computer." For information about printing with an IBM PC or IBM-PC-compatible computer using Microsoft Windows, see Chapter 4, "Using Your Printer With an IBM PC or IBM-PC-Compatible Computer." For specific information about printing with a particular program, refer to the documentation that came with the program.

❖ *Note:* You can purchase additional printing options for use with your LaserWriter Pro, including the LaserWriter Pro 500-Sheet Feeder, LaserWriter Pro 500-Sheet Universal Cassette, LaserWriter Pro 250-Sheet Universal Cassette, and LaserWriter Pro Envelope Feeder. If you have purchased any of these options and need instructions for attaching them or for loading paper or envelopes into them, see Appendix B, "Attaching and Using Paper Handling Options." ❖

Automatic or manual printing with the LaserWriter Pro

You can automatically print using paper from the paper cassette or using paper stacked in the multipurpose tray. You can also manually feed paper, envelopes, three-hole punched paper, labels, and transparencies into the printer using the multipurpose tray.

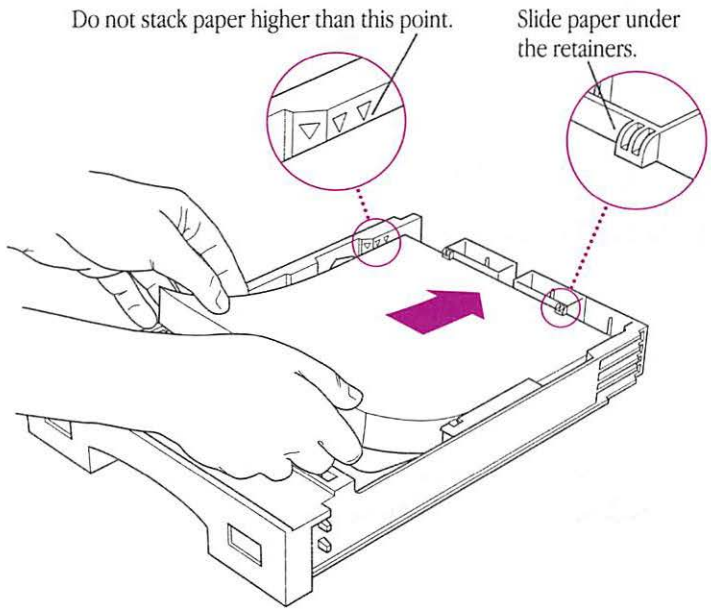
For information about selecting automatic or manual paper feeding, or selecting the cassette or multipurpose tray to print from, see "Printing" in Chapter 3 if you have a Macintosh computer, or see "Printing from Windows Applications" in Chapter 4 if you have an IBM PC or IBM-PC-compatible computer using Microsoft Windows.

Using the paper cassette

The 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), letterhead paper, or three-hole punched paper. To refill the paper cassette, insert paper as shown in the following illustrations.

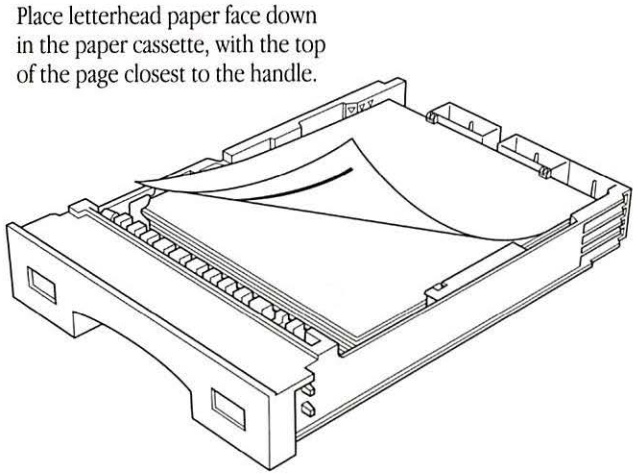
Standard paper

Slide the paper beneath the bracket at the front left of the cassette. Push the paper down if necessary, but don't overload the cassette, or the paper may jam when you print.



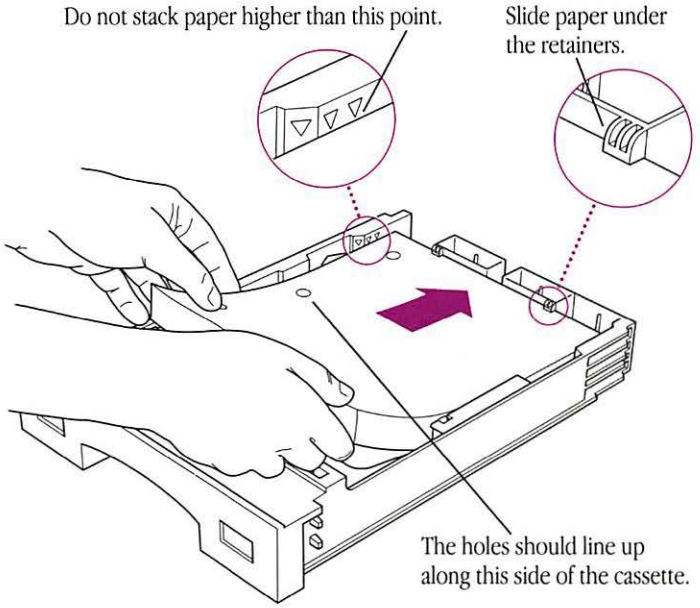
Letterhead paper

Insert letterhead paper into the paper cassette face down, with the top of the letterhead at the front of the tray (the handle end).



Three-hole punched paper

Insert three-hole punched paper into the paper cassette so the holes are toward the left side of the cassette.



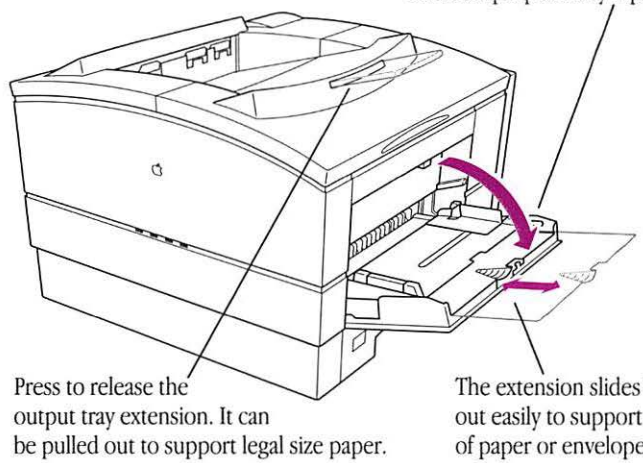
Using the multipurpose tray

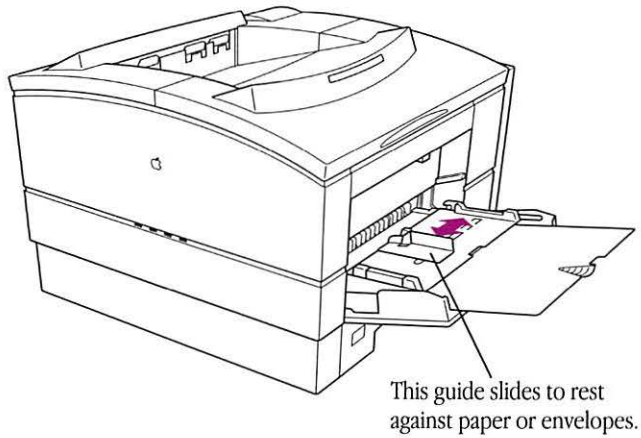
The multipurpose tray is built into the printer. As its name suggests, you can use the multipurpose tray in several ways:

- automatic printing
- manual feed printing
- two-sided printing

Opening the multipurpose tray

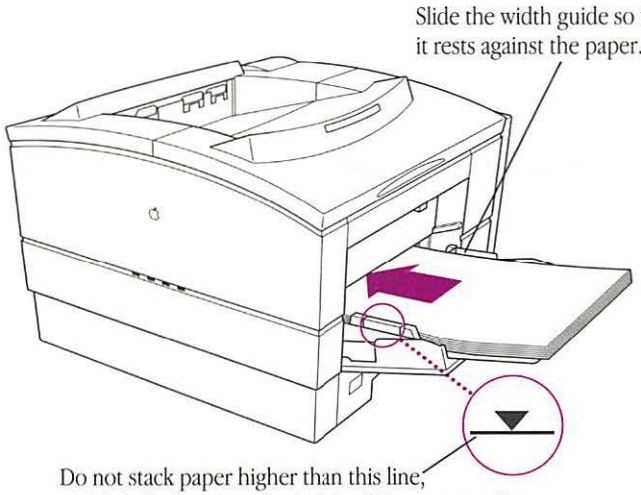
To use the multipurpose tray you must first open it. Push gently on the small indentation at the top of the tray and then lower the tray slowly. Use the extension to adjust the tray so that your paper does not extend over the edge.





Placing paper and envelopes 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 LaserWriter Pro feed the paper automatically, or you can use the multipurpose tray for manual feed printing.



Place the paper in the tray so that the left side of the stack is aligned with the tray's left side, then adjust the width guide so that it just touches the right edge of the stack. Don't adjust the guide so tightly against the stack that it causes binding or rumpling of the paper.

For manual-feed printing, place a single sheet of paper, labels, or transparency film or a single envelope in the multipurpose tray when you are ready to print.

The multipurpose tray holds up to 100 sheets of paper. When there is no paper left in the tray, the Paper Out light comes on.

❖ *By the way:* You can have the LaserWriter Pro print using a first sheet from the multipurpose tray and have all following sheets print from the paper cassette (or vice versa.)

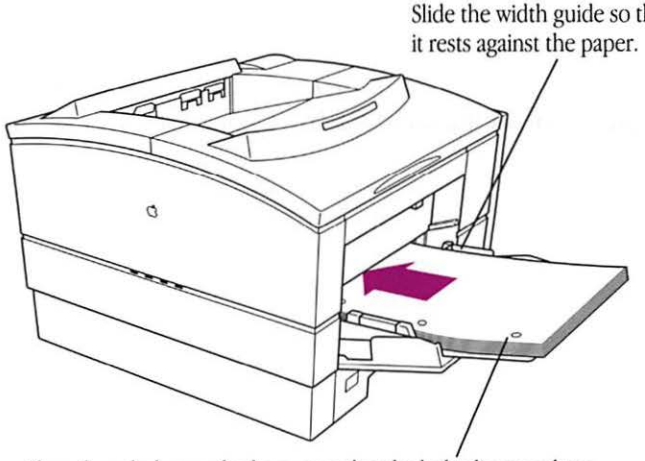
For example, you can place letterhead paper in the multipurpose tray and use it for printing the first page of a letter, and have all following pages printed on plain paper from the paper cassette.

For more information about selecting paper trays for printing, see "Printing" in Chapter 3 if you use a Macintosh, or see "Printing from Windows Applications" in Chapter 4 if you use an IBM PC or IBM-PC-compatible computer. ❖

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.

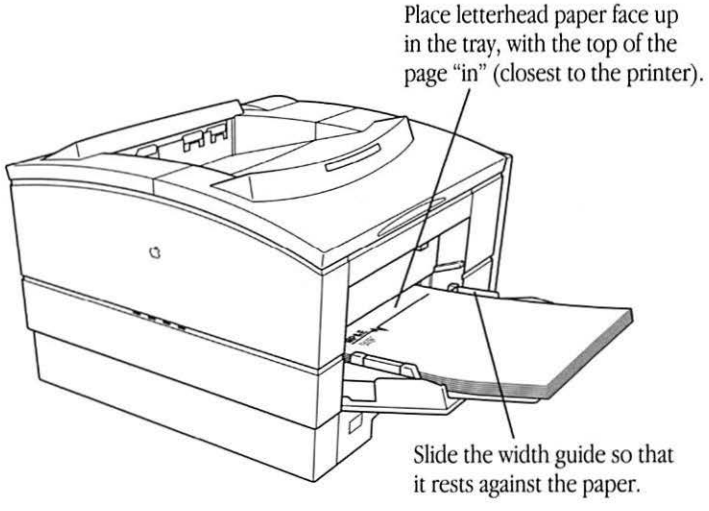
This illustration shows how to load a stack of three-hole punched paper in the multipurpose tray.



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.

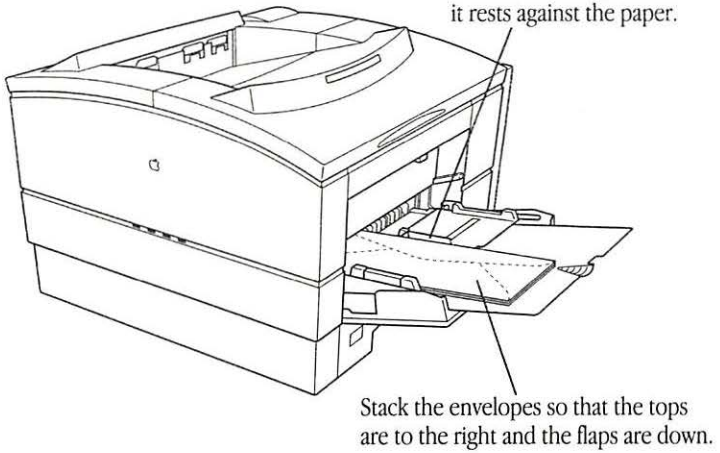
This illustration shows how to load a stack of letterhead in the multipurpose tray.



Loading envelopes in the multipurpose tray

You can load a stack of envelopes in the multipurpose tray for automatic printing. You can also print envelopes manually by feeding them one envelope at a time.

This illustration shows how to load a stack of envelopes in the multipurpose tray.



Adjust the width guide on the multipurpose tray to the size of the envelope.

- *If you print many envelopes:* You can obtain an envelope feeder from your authorized Apple dealer that allows you to feed up to 75 envelopes automatically.

▲ **Warning:** Don't use envelopes that have fasteners, snaps, or windows when printing with the LaserWriter Pro printer. Also don't use envelopes that seal with peel-off strips or pressure-sensitive adhesives, that are curled or wrinkled, or that are likely to discolor or melt at temperatures of 400° F (204° C). Printing on such materials can damage the printer. ▲

For best results when printing envelopes, be sure to position your address block properly in your word-processing document. You'll need to print in landscape (horizontal) orientation and to adjust the top and left margins in your word-processing program's page formatting controls.

Once you've set the top and left margins, type the return address, skip a few lines (the exact number depends on the font you're using and the way you like your envelopes to look, so you'll have to experiment), and type the address block.

Printing an envelope

1. **Set your program to print lengthwise on the envelope.**

   On a Macintosh, choose Page Setup from the File menu, select the lengthwise orientation icon, and click OK.

2. **Open the multipurpose tray.**

3. **Adjust the width guide to fit the envelope.**

4. **Tuck the envelope flap inside the envelope.**

   This helps prevent the flap from causing a paper jam. (Some envelopes come unglued when subjected to the heat inside the printer. High-quality envelopes are likely to hold up better during the printing process.)

5. **Set your program to print using the multipurpose tray.**

   On a Macintosh, choose Print from the File menu, select Manual Feed from the Paper Source pop up menu, and click Print.

6. **When the printer's Paper Out indicator light flashes, insert the first envelope and slide it forward until it stops.**

   Insert the envelope face up (flap down) with the top edge to the right as it enters the printer.

   On a Macintosh, if Background Printing is turned on in the Chooser, a PrintMonitor message prompts you to insert an envelope.

7. **If you are printing several envelopes, insert the next envelope when the Paper Out light flashes again.**

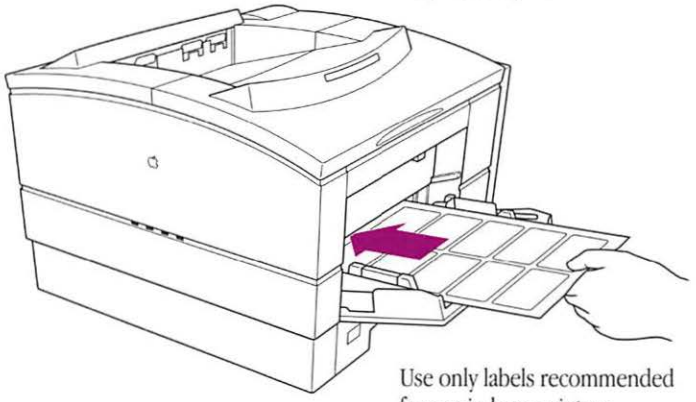
   Do not feed the next envelope before the light prompts you to, or the envelope may jam.

Loading labels in the multipurpose tray

You can load one sheet of labels at a time into the multipurpose tray for manual printing.

△ **Important:** When you print labels, use the multipurpose tray. (This helps avoid paper jams and curling.) △

Don't attempt to print sheets that have labels missing. This may cause a jam.

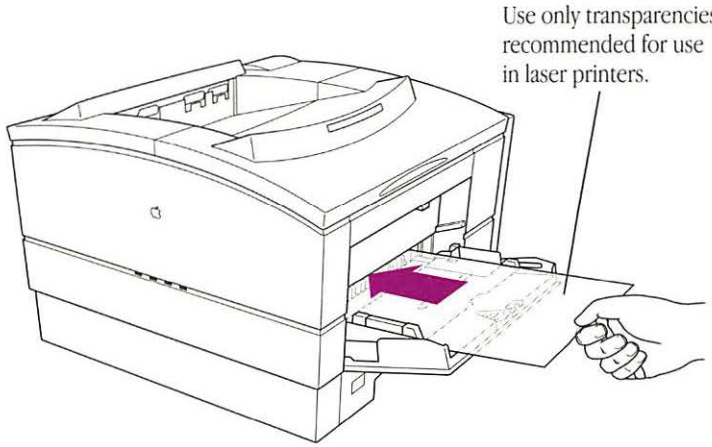


Use only labels recommended for use in laser printers.

Loading transparencies in the multipurpose tray

You can load one sheet of overhead transparency at a time into the multipurpose tray for manual printing.

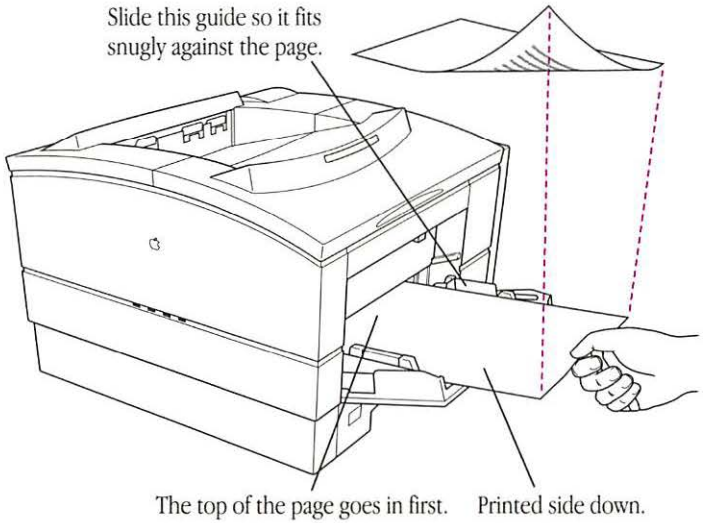
△ **Important:** When you print overhead transparencies, use the multipurpose tray. (This helps avoid paper jams and curling.) △



Two-sided (duplex) printing

Follow these steps when you want to print on both sides of the paper.

1. **Open the multipurpose tray to minimize paper curling.**
2. **Print a page from the multipurpose tray and take it out of the output tray.**
3. **Insert the paper again, printed side down, with the top of the printed side entering the printer first.**



4. **Repeat steps 2 and 3 until the entire document is printed.**

Choosing paper

The LaserWriter Pro produces the best results on standard laser-quality paper (20- to 24-pound stock). The printer can accept stock of up to 32 pounds from the multipurpose tray. You can also expect excellent results on most colored and textured papers.

The LaserWriter Pro produces high-quality transparencies for overhead projection. Medium-weight photocopier transparencies work best. If you experience difficulties when attempting to print transparencies with automatic feed, use manual feed instead.

▲ **Warning:** Do not use heat-transfer (thermal) transparencies in the LaserWriter Pro. They will not print properly and may separate in the printer. ▲

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. Similarly, some envelopes may seal or come unglued during printing. Using high-quality stationery and envelopes should ensure satisfactory results.
- **Paper texture.** The LaserWriter Pro may not print well on rough or highly textured paper. Try a few sheets to test the quality.
- **Paper finish.** The LaserWriter Pro 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.

Chapter 6

Troubleshooting

This chapter provides solutions to some common problems you may encounter while using your LaserWriter Pro. The first section discusses general troubleshooting techniques to help you identify and solve problems with the printer and printer connections. The rest of the chapter covers specific problems that can occur when starting up the printer or printing a document.

General troubleshooting

This section lists techniques to help you identify and solve common problems, including how to

- read the indicator lights
- check for and clear paper jams
- check for problems with the printer connections

Reading the indicator lights

The lights on the front panel of the LaserWriter Pro indicate the printer's operating status. Use the following table to determine the status of your printer.

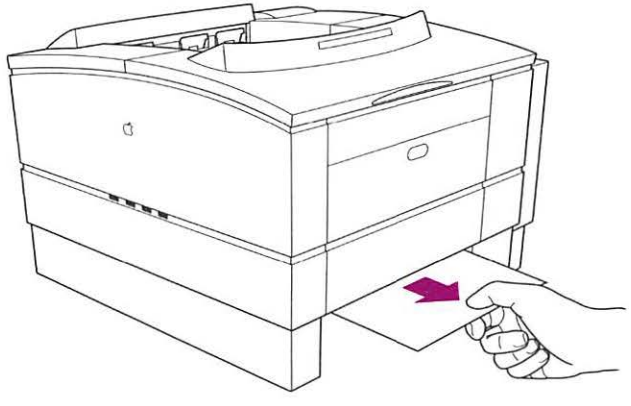
Light	On	Off	Flashing
Ready/In Use	Printer is ready to use.	Printer cannot print due to an error condition, or the cover is open.	Printer is warming up, printing a startup page, or processing data for the next print job.
Low Toner Level	Toner is low or needs to be redistributed.	Toner level is OK.	Toner cartridge is installed incorrectly.
Paper Out*	Paper cassette is empty.	Paper supply is OK.	Printer is ready for next sheet of manual-feed paper. Or printer may require service.
Paper Jam*	There is a paper jam.	Paper is OK.	Printer requires service.

*If the Paper Out and Paper Jam lights both flash, or if they both stay on, the printer requires service.

Checking for and clearing paper jams

Occasionally a piece of paper may get stuck inside the printer during the printing process. Follow these steps to find and clear a paper jam.

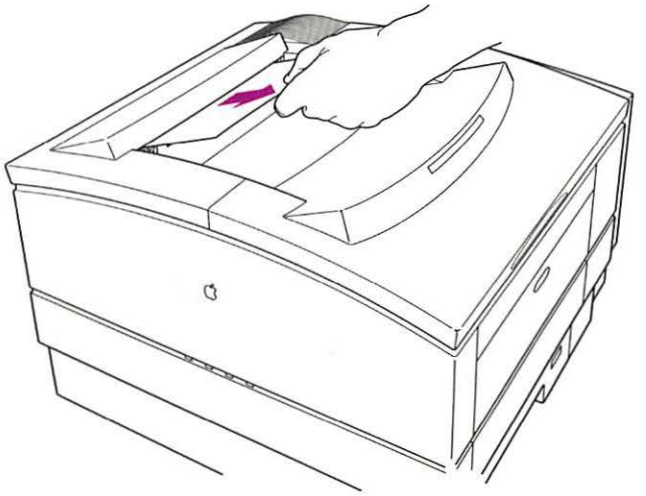
1. **Remove the paper cassette to see whether the jam is in the paper cassette area. If so, gently release or pull out the jammed paper.**



If you cannot easily remove the paper, skip to step 4.

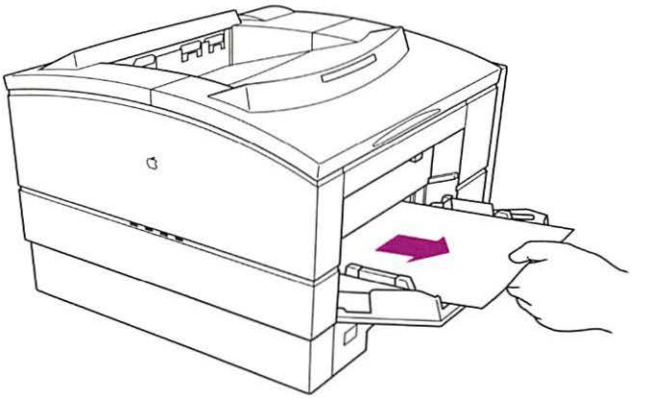
2. **Check the paper exit area on top of the printer to see whether the paper jammed coming out of the printer. Gently pull the paper out.**

   If you cannot easily remove the paper, skip to step 5.



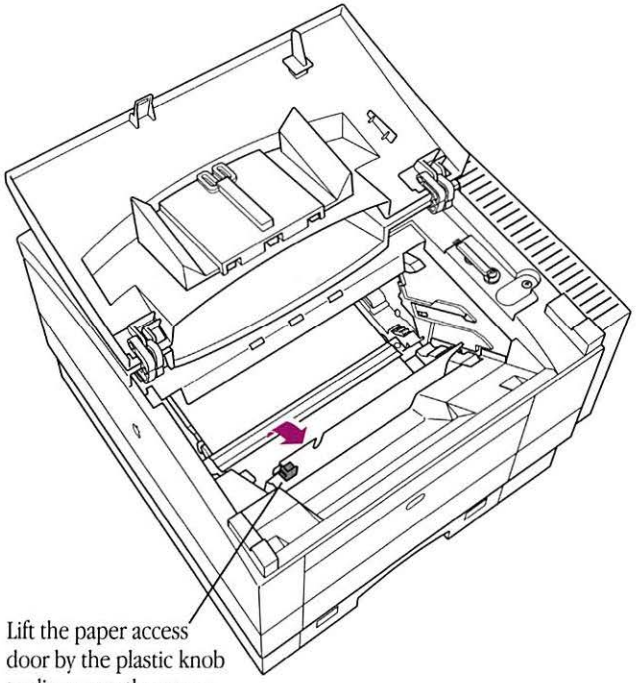
3. **Check the multipurpose tray (if you are using it) to see whether paper has misfed into the printer. Gently pull the paper out of the tray's print feed area.**

   If you cannot easily remove the paper, skip to step 4.



continues ▶

4. **Open the top cover of the printer and remove the toner cartridge. If the jam is around the print feed area, lift the green handle to open the paper access door and pull the paper out through the paper cassette opening (under the printer).**

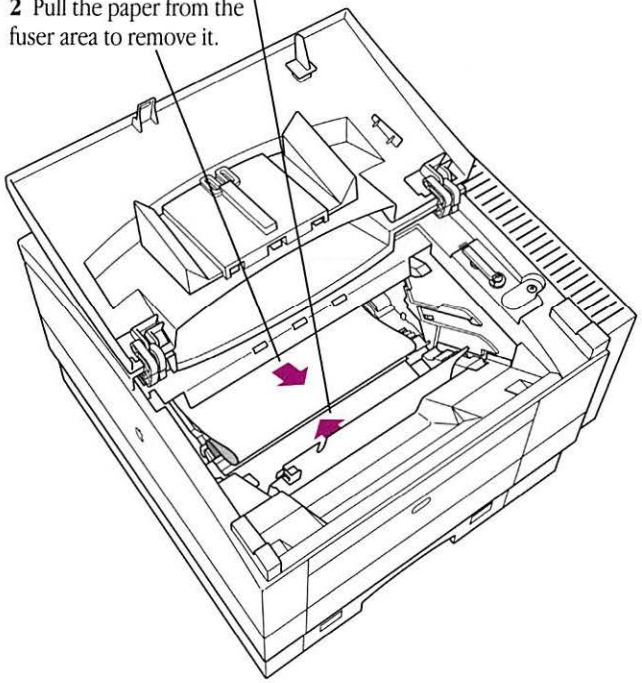


Lift the paper access door by the plastic knob to disengage the paper.

If you cannot easily remove the paper, pull the paper from within the printer, first pulling into the printer, then out toward you to free it.

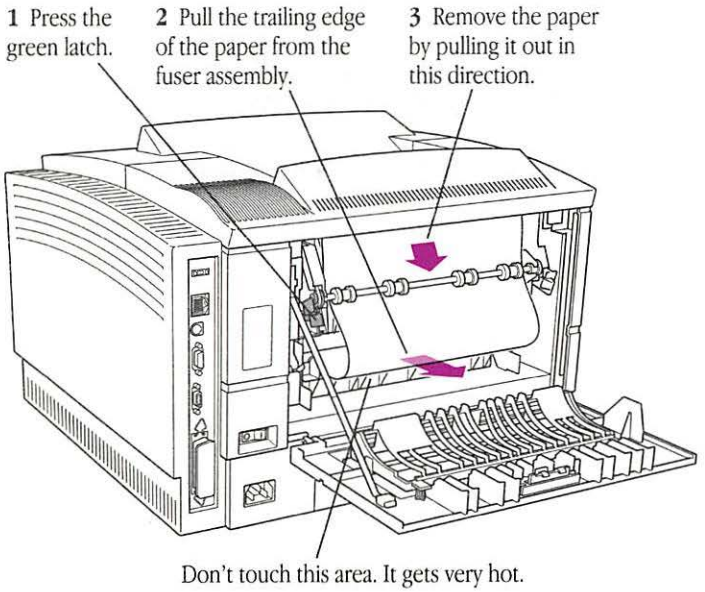
1 Pull the paper from under the paper access door.

2 Pull the paper from the fuser area to remove it.



Be sure the fuser assembly cover (on the left side of the printer) is closed when you remove paper from the printer access area. If the fuser assembly door is open, the paper may tear when being removed.

5. **If the jam is in the fixing rollers, open the fuser assembly cover (on the left side of the printer). If the paper is jammed in the fuser roller assembly, press the green latch to disengage the fuser rollers and then carefully pull the paper out.**



▲ **Warning:** If the printer has been in use, the roller cover may be hot, and the fixing rollers will be very hot. ▲

6. **Once you have removed the jammed paper, close the fuser assembly cover, reinsert the toner cartridge, close the top cover, and slide the paper cassette back into the printer.**

Checking the connections

If you are unable to get the printer to respond from your computer, the problem may be caused by a fault in the network or connection. Try the following remedies.

1. **Check to make sure that the connectors and cables are firmly attached to the printer.**
2. **Make sure the push-button switch on the connection panel is set correctly for the desired connection.**
3. **If the printer is on a network, check all connections in the affected section of the network.**

continues ▶

4. **Check the layout of the network.**
    - Check for cables not attached to a network connector box and reconnect as necessary.
    - Make sure that the network cable has two distinct ends and is not reconnected to itself in a loop.
    - Make sure that the first and last network connector boxes each have only one cable attached.
5. **Make sure that all computers are using the correct version of the LaserWriter Pro driver.**

Trouble starting up the LaserWriter Pro

Unless you've turned off the startup page with the LaserWriter Pro Utility program, the LaserWriter Pro will print a startup page every time you turn it on.

No startup page prints when you turn on the printer

If no startup page is printed, check the indicator lights (as described earlier in this chapter) and take the appropriate steps.

- If the Ready/In Use light is off, the printer is disconnected or switched off, the cover is open, or an error condition exists. Check the power cord, the cover, and the on/off switch.
- If the Paper Out light is on, the printer is out of paper, or the paper cassette is not securely in place. Refill and replace the paper cassette.
- If the Paper Jam light is on, see "Checking for and Clearing Paper Jams" earlier in this chapter.
- If the Paper Jam and Paper Out lights are flashing or glowing steadily, the printer requires service. Contact your authorized Apple dealer.

The startup page is blank

Check the toner cartridge. If the Low Toner Level light is on, the cartridge may be out of toner powder, or the powder may need redistribution. If you have just changed the cartridge, check to make sure that you have removed the sealing tape (see "Replacing the Toner Cartridge" in Chapter 7).

Problems with printed documents

This section provides remedies for problems in the appearance of a printed document.

Paper curls when you print on it

Use only 20- to 24-pound laser-quality or photocopy bond paper for automatic feed and 20- to 32-pound paper for manual-feed printing. If you are using the correct weight and the paper still curls, try using a different brand of paper.

Toner does not stay fixed on the paper

If the toner does not seem to stick well to the paper, check the fuser assembly area to see that the fuser levers are down. See "Setting Up the Printer" in Chapter 1 for instructions about lowering the fuser levers. If the toner still does not stick to the paper, try using different paper. Best results are obtained with laser-quality or photocopy bond paper.

The printer prints on only part of the paper

Make sure that you have selected the appropriate paper size and orientation in your printing software. (On the Macintosh, use the Page Setup dialog box; if you want to narrow the margins to print on more of the page, you can select Larger Print Area in the Options portion of the Page Setup dialog box.)

The printing is off-center, or images are out of place

One of three things could be causing this problem.

- The margins set in your document are incorrect.
- You are using a type of paper that is causing a feeding problem.
- The paper cassette is too full.

Nothing is printed on the paper

If you get a blank document, try the following steps.

- Make sure that the sealing tape has been removed from the toner cartridge (see "Replacing the Toner Cartridge" in Chapter 7).
- Check the Low Toner Level light. If it's on, the toner needs to be redistributed, or the cartridge needs replacing.

The image prints in black and white although the original document is in color or gray scale

If the printed image contains only black and white areas instead of grays, try the following steps.

- Check to make sure that gray-scale printing is turned on (from a Macintosh, select the Color/Grayscale option in the Print Options dialog box).
- Check to make sure that enough random-access memory (RAM) is installed in the printer to print the desired image in PhotoGrade (the page will print in black and white if memory is insufficient). Printing in PhotoGrade requires 8 megabytes of RAM.

The image is too light

If the printed images are too light, try the following steps.

- Check the Low Toner Level light. If it's on, you may need to replace the toner cartridge or redistribute the toner within the cartridge (see "Replacing the Toner Cartridge" in Chapter 7).
- If the Low Toner Level light is not on, change the print density to a darker level.

If you are using a Macintosh computer, you can change print density with the LaserWriter Utility. For more information, see "Setting the Print Density" in Chapter 3.

The image is too dark

If the image is too dark, try the following steps.

- Change the print density to a lighter level. (If you are using a Macintosh, see "Setting the Print Density" in Chapter 3 for details.)
- Replace the toner cartridge; it may be defective.

The page prints solid black

If your document prints black, your toner cartridge is defective and must be replaced (see "Replacing the Toner Cartridge" in Chapter 7).

Unwanted lines or stripes appear

If white or dark vertical or horizontal lines or stripes appear on the page, try the following remedies. (Each procedure is described in detail in "Replacing the Toner Cartridge" in Chapter 7.)

- Clean the antistatic teeth inside the printer as you would if you were installing a new toner cartridge.
- Redistribute the toner in the cartridge.
- Replace the toner cartridge.

The image is wavy or distorted

If a gray shaded area appears wavy or distorted, the toner cartridge may be low, or the toner may need to be redistributed (see "Replacing the Toner Cartridge" in Chapter 7).

Stains appear on output

If stains appear on the paper, try the following step.

- Clean the rollers and antistatic teeth exactly as you would if you were installing a new toner cartridge (see "Replacing the Toner Cartridge" in Chapter 7).

Faded areas or white voids appear on the page

If portions of your page that should be printed appear faded, or there are void areas in which nothing printed, try the following steps.

- Use the LaserWriter Utility to change the print density to a darker level. (If you use a Macintosh computer, see "Setting the Print Density" in Chapter 3.)
- Use different paper or transparency material.
- Use paper that has been in a sealed wrapper; the paper may have too much moisture in it.
- Redistribute the toner in the cartridge (see "Replacing the Toner Cartridge" in Chapter 7).
- Replace the toner cartridge (see "Replacing the Toner Cartridge" in Chapter 7).

Blotchy areas or ghost images appear on the page

If there are blotchy areas within a gray area, or if you see ghosting of images within printed areas (particularly on the top few inches of the page), try the following step.

- Print two or three more copies of your page; these problems often occur only on the first rotation of the photosensitive drum inside the printer.

Macintosh troubleshooting

If you are using the LaserWriter Pro from a Macintosh computer, use this section to troubleshoot printer problems you might encounter while trying to select a printer in the Chooser or while trying to print a document.

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 System file on your startup disk. You can obtain the current system software from your authorized Apple dealer.

Make sure that you have only one System Folder on the disk. If you have more than one, consolidate everything you need in the folder within the more current version of the System file and drag the other folder to the Trash. For more details, refer to the materials that came with your Macintosh.

No LaserWriter Pro icon appears in the Chooser

Make sure that the LaserWriter Pro driver is properly installed. The printer driver may be on your startup disk but may have been moved to the wrong location. If necessary, move the driver into the System Folder icon.

Also make sure that you have only one System Folder on your startup disk. Refer to the materials that came with your Mactinosh.

The printer is not listed in the Chooser

If you've selected the LaserWriter Pro icon but your LaserWriter Pro 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 switches are not set correctly. See "Port Settings" in Chapter 2 for the correct settings.
- If your computer is connected to a network, someone may have renamed the printer.
- If you are using an AppleTalk network that contains zones, you haven't 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. See "Checking the Connections" earlier in this chapter.

If you still can't resolve the problem, the printer's electronics or the LocalTalk connector boxes may not be functioning properly. Call your authorized Apple dealer.

Nothing is printed; no paper comes out of the printer

If you don't get any response from the printer when you try to print a document, try the following steps.

- Check PrintMonitor if you are using background printing.
- Check the Chooser to be sure the printer is selected. Be sure to select the printer's name, as well as the LaserWriter Pro 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 earlier in this chapter.
- Check the network cables as described earlier in this chapter.
- Check the position of the port configuration switch as described in "Setting the Push-button Switch" in Chapter 2.
- Turn the printer off and back on. Check the startup page.
- Reinstall the printer driver on the startup disk.

A message on the screen says the printer can't print

If you get such a message, try the following steps.

- Make sure that the printer is turned on.
- Check the network cables as described in "Checking the Connections" earlier in this chapter.
- Make sure your startup disk has the LaserWriter Pro driver in the System Folder.
- Make sure the printer is selected. Be sure to select the printer's name as well as the LaserWriter Pro icon and, if necessary, the AppleTalk network zone.
- Make sure any hard disk connected to the printer is turned on.
- Make sure any hard disk connected to the printer is properly terminated and the SCSI ID number is properly set.
- Make sure that the 250-sheet paper cassette has paper and is in the printer.

IBM PC and IBM-PC-compatible computer troubleshooting

If you are using the LaserWriter Pro from an IBM PC or IBM-PC-compatible computer with Microsoft Windows, use this section to troubleshoot printer problems you encounter in trying to print a document.

A message on the screen says the printer can't print

If you get such a message, try the following steps.

- Make sure that the printer is turned on.
- Check the printer cables as described in "Checking the Connections" earlier in this chapter.
- Make sure that your LaserWriter Pro printer driver has been installed and is selected. See Chapter 4 for details about installing and selecting the printer driver.

Nothing is printed; no paper comes out of the printer

If you don't get any response from the printer when you try to print a document, try the following steps.

- Check the List of Printers box to see that your printer is selected. See Chapter 4 for details about installing and selecting the printer driver.

- 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 earlier in this chapter.
- Check the printer cables as described earlier in this chapter.
- Check the position of the port configuration switch as described in "Setting the Push-Button Switch" in Chapter 2.
- Turn the printer off and back on. Check the startup page.
- Reinstall the printer driver. See Chapter 4 for details about installing and selecting the printer driver.

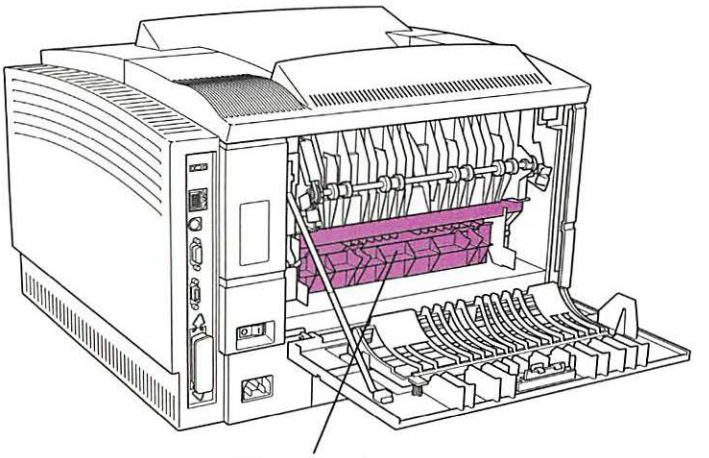
Chapter 7

Maintenance

The LaserWriter Pro is designed for trouble-free service. Maintenance involves little more than putting in a new toner cartridge every 6,000 pages or so and performing a few minor cleaning tasks. The recommended service interval is 200,000 pages. This service can be arranged through your authorized Apple dealer.

Safety first

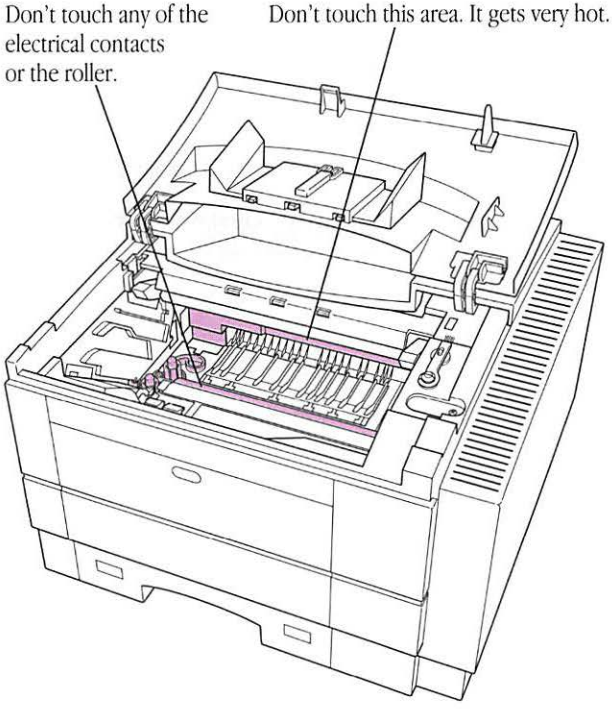
The fixing roller assembly in the LaserWriter Pro operates at very high temperatures—around 400° F (204° C) . Allow the rollers to cool before performing maintenance and troubleshooting.

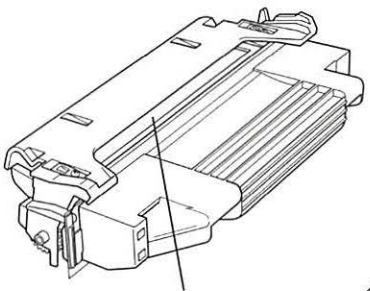


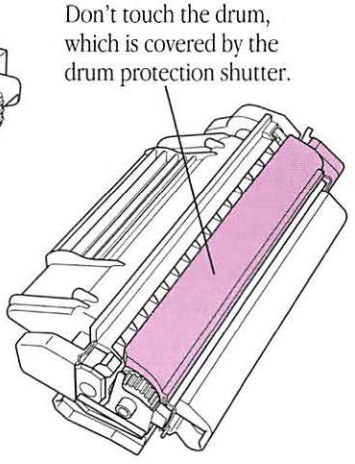
Precautions during maintenance

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

The toner cartridge holds the toner powder—the printer's "ink"—that forms the printed images. Each cartridge should yield about 6,000 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.

Low toner level

When the Low Toner Level light glows orange, 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 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.

When the light comes on, take the cartridge out, rock it gently back and forth a few times (as in the cartridge installation procedure) to redistribute the toner, and reinsert it. If the light goes out, you can continue to use the same cartridge.

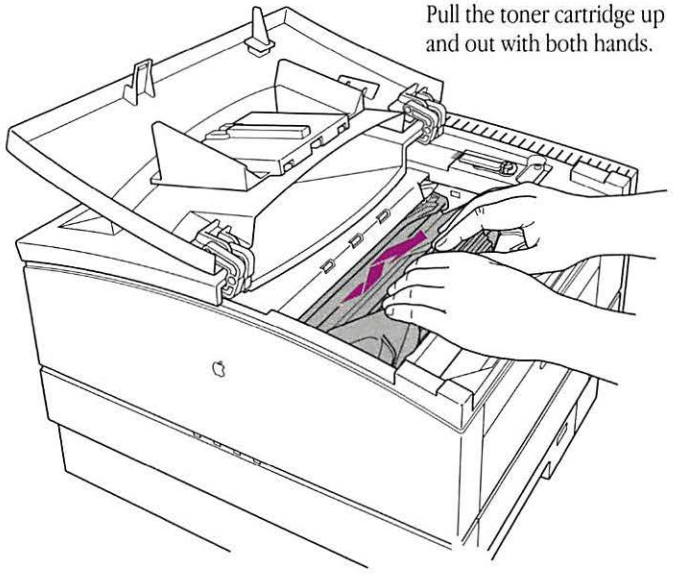
If the light stays on, change the cartridge and perform the maintenance procedures described in the following sections.

▲ **Warning:** Use only an Apple LaserWriter Pro Toner Cartridge with the LaserWriter Pro. Other cartridges may not fit and may produce lower-quality results. Using refilled toner cartridges may impair the printer's ability to produce high-quality images. ▲

Replacing the toner cartridge

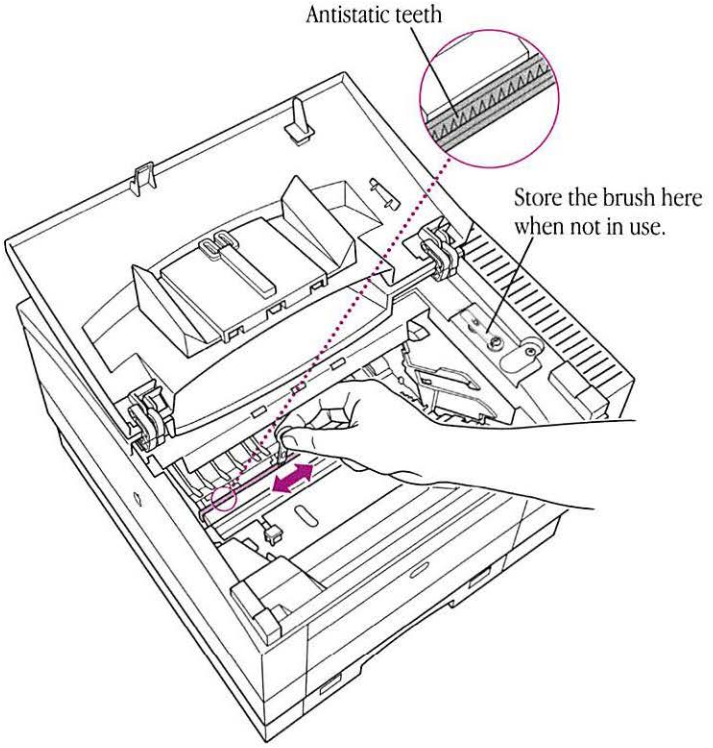
Whenever you install a new toner cartridge, you should also clean the interior of the printer. Follow these steps to replace the cartridge and clean the interior of the printer.

1. Open the printer cover and remove the used cartridge.



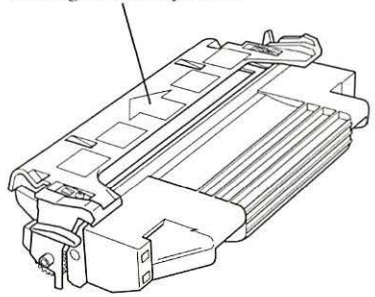
2. Clean the antistatic teeth with the cleaning brush.

The small, green-handled brush snaps into a holder inside the printer. Use the cleaning brush to remove dust from the antistatic teeth. Replace the brush in the printer when you're finished.



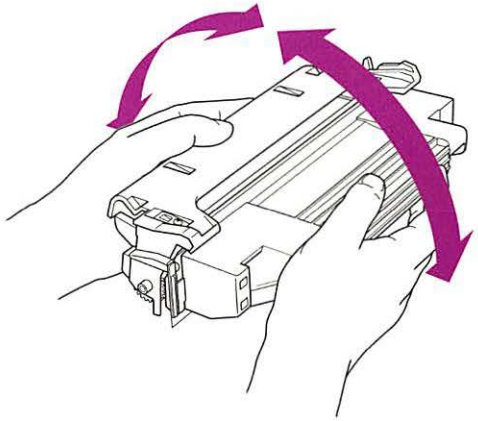
3. Take the new cartridge out of its packaging.

The arrow on top of the toner cartridge shows the proper direction to insert the cartridge into the printer.

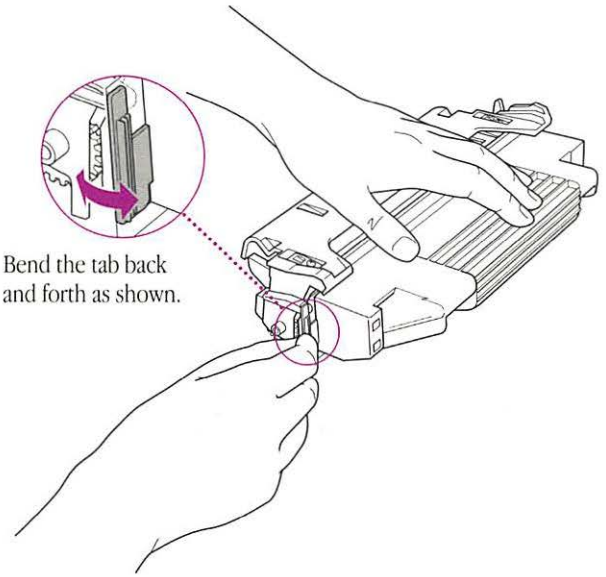


4. Distribute the toner powder.

Gently rock the toner cartridge as shown.



5. Bend the flat tab on the side of the cartridge back and forth until it separates from the cartridge.



Bend the tab back and forth as shown.

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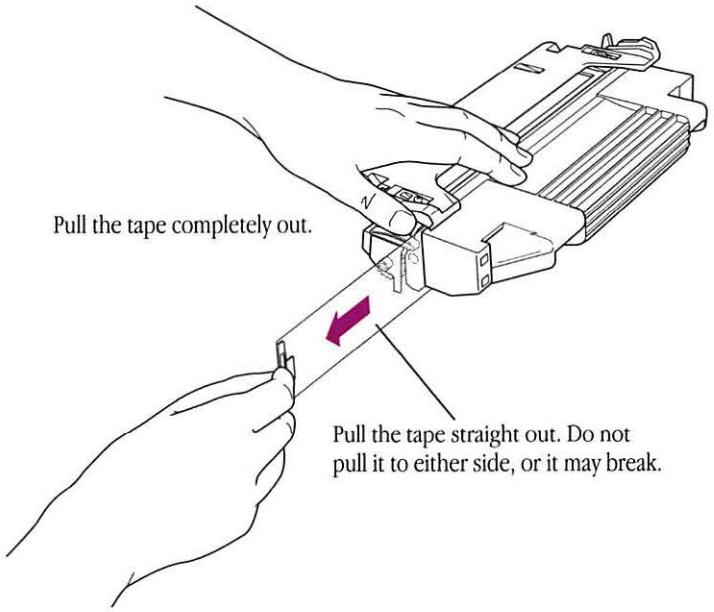
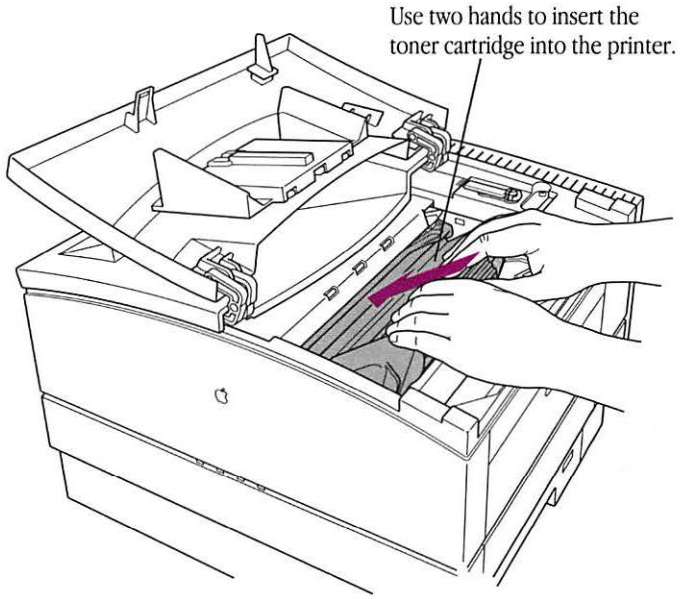
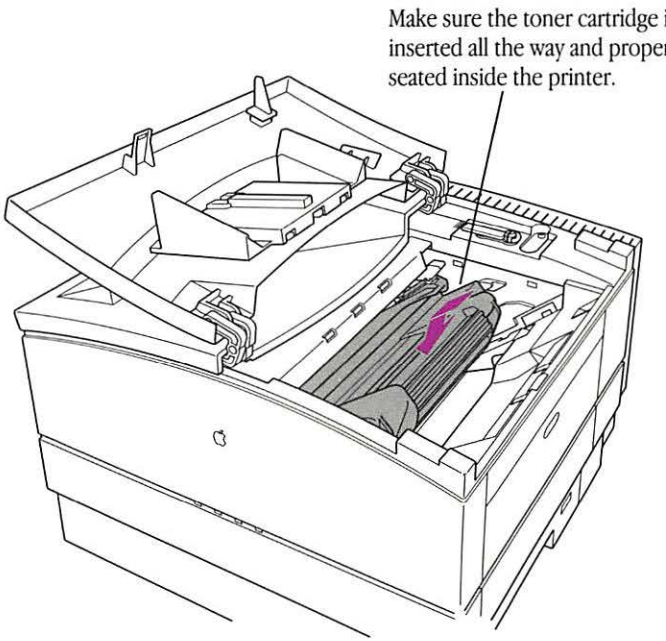
6. **Gently pull the tab directly away from the cartridge to remove the sealing tape.**



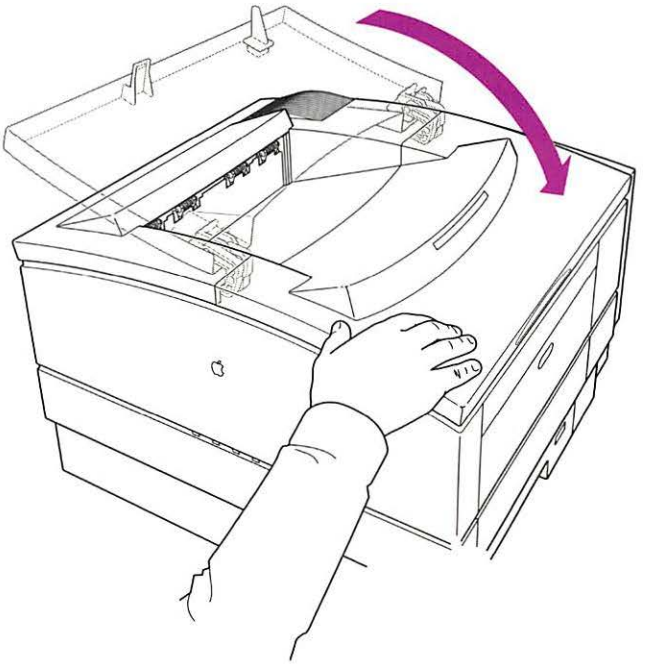
▲ **Warning:** Be sure to pull the tab straight out of the cartridge. Don't pull too quickly or at an angle that might break the tape. ▲

7. **Insert the cartridge.**





8. Close the printer and resume printing.



Cleaning the exterior

Unplug the power cord and then wipe the exterior of the printer with a clean, soft, damp cloth. 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.

▲ **Warning:** Never use ammonia-based cleaners on or around the LaserWriter Pro. They may react chemically with the toner and with the printer's plastic case. ▲

Appendix A

LaserWriter Pro Upgrades

To upgrade the LaserWriter Pro, you have the option of increasing the printer's memory and of adding one or more dedicated hard disks for font management. The benefits and procedures for doing so are described in this chapter.

Memory upgrades

You can install up to 32 megabytes (MB) of random-access memory (RAM) in the LaserWriter Pro. RAM upgrades provide the following benefits:

- faster performance on complex documents
- faster performance when using downloaded fonts
- faster performance when printing documents that have been scaled down from larger originals (complex organization charts, maps, and flow charts, for example)
- the ability to increase the imageable area of a document (you can use more of a sheet of legal paper, for example)
- on the LaserWriter Pro 600, the ability to print at 600 dpi or to use the PhotoGrade feature for increased gray levels

Adding RAM provides these benefits by allowing more fonts to be downloaded to the printer at one time; by providing more space to store the calculations needed for large or complex images; and by increasing the space available for font caching, or maintaining recently used fonts in memory for faster access the next time they are needed.

△ **Important:** The LaserWriter Pro 600 requires a memory upgrade to 8 MB to print at 600 dpi or to print PhotoGrade images. △

RAM expansion

You can purchase RAM for the LaserWriter Pro in units of 4, 8, and 16 MB, to upgrade memory. Upgrade kits should be installed by your authorized Apple dealer.

△ **Important:** The RAM used in the LaserWriter Pro is not the same type of RAM used in earlier LaserWriter II printers. The two are not interchangeable. △

The expansion kit is named as follows:

- LaserWriter Pro 600 PhotoGrade Upgrade (Part No. M5861G/A)

Adding hard disks

You can attach up to seven SCSI hard disks to the LaserWriter Pro 630. (You cannot connect a hard disk to the LaserWriter Pro 600.) The hard disk provides space for font storage and font caching.

There are several benefits to connecting one or more hard disks to your printer.

- You'll have a large, permanent storage space for downloadable fonts.
- Background art (watermark images and letterhead backgrounds that you use on many of your print jobs, for example) can be stored in the printer.
- By storing downloadable fonts on your printer's hard disk instead of on individual users' hard disks, you save disk space on their computers.
- Because hard disks work over a very fast SCSI connection, you'll get fast performance on documents that use downloadable fonts.
- You'll improve network performance because less information is transferred over network cables.

When you download a font, you can choose to download it either to a hard disk or to the LaserWriter's RAM. Downloading it to a disk stores it there permanently (or until you remove it). You initialize the disks and download fonts to them by using the LaserWriter Utility program on the *LaserWriter Pro Installation* disk (see "Downloading Fonts to the Printer" in Chapter 3).

Connecting a previously used hard disk

LaserWriter Pro 630 will not recognize any disks that have been formatted for use with an earlier model of a LaserWriter other than the LaserWriter IIf or IIg. If you attach such a disk to the LaserWriter Pro, you will need to reinitialize the disk before you can use it and then reload any fonts from your computer, from their original floppy disks, or from other sources. Reinitializing erases all fonts previously stored on the disk

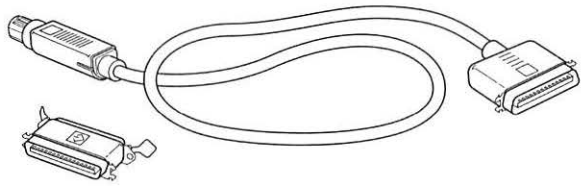
Connecting the disk

You must use an HDI-30 SCSI System cable to connect the first hard disk to the external SCSI port. For each additional hard disk you connect to the LaserWriter 630, you will need a SCSI peripheral cable, which links two SCSI devices. You'll also need a SCSI cable terminator for the hard disk farthest from the printer. Although a set of connected SCSI devices usually requires two cable terminators, each LaserWriter Pro 630 has its own internal SCSI terminator, so you'll only need to add one.

△ **Important:** The external hard disk you connect to the LaserWriter Pro printer must supply 5 volts DC to the SCSI line 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 LaserWriter Pro is black rather than pale grey or tan. Be sure to obtain the correct model from an authorized Apple dealer:

- Apple SCSI Cable Terminator II (Black) (Part number M5871G/A)



HDI-30 SCSI System cable and SCSI terminator

You can have an internal hard disk installed in your LaserWriter Pro 630 by connecting it to the internal SCSI port. You don't need a cable terminator to install an internal hard disk to this port.

△ **Important:** When you connect an external hard disk to the LaserWriter Pro, you may need to purchase a cable extender to allow the hard disk to stand flat upon the table surface. You can purchase an Apple SCSI Cable Extender (Part number M0208) from an authorized Apple Dealer. △

Before you connect your 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 #6; it is a reserved ID number.

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 is turned off.**
2. **Insert a straightened paper clip into the hole below the SCSI ID indicator (some SCSI devices have push-buttons instead of holes).**
3. **Push gently until the number you want appears in the indicator.**
4. **If you go past the number you want, keep pushing until it comes around again.**

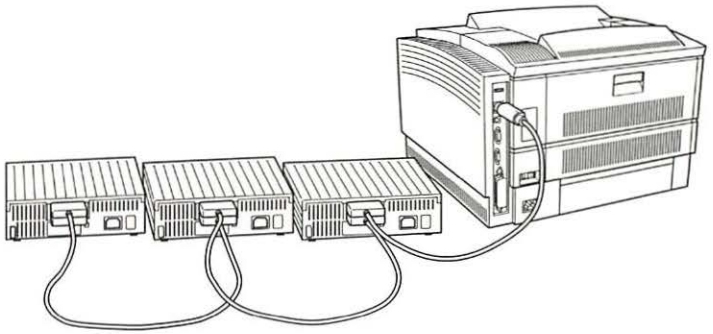
▲ **Warning:** The printer will not recognize any attached disk unless the disk is turned on before you start up the printer. Wait at least 10 seconds after turning on the hard disk before you turn on the printer. ▲

Connecting a single hard disk

1. **Attach the HDI-30 SCSI System cable to the SCSI port on the LaserWriter.**
2. **Attach the other end of the HDI-30 SCSI System cable to either SCSI port on the hard disk.**
3. **Attach a cable terminator to the other SCSI port on the hard disk.**

Connecting multiple hard disks

1. **Attach the HDI-30 SCSI System cable to the SCSI port on the LaserWriter.**
2. **Attach the other end of the cable to either SCSI port on the first hard disk.**
3. **Attach a peripheral cable to the other SCSI port on the first hard disk.**
4. **Attach the other end of the peripheral cable to either SCSI port on the next hard disk.**



5. **Repeat steps 3 and 4 for each additional hard disk.**
6. **Attach a cable terminator to the unused SCSI port on the last hard disk.**

Using hard disks from manufacturers other than Apple

If you are considering connecting non-Apple hard disks to your LaserWriter, keep these points in mind:

- The LaserWriter Pro 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 LaserWriter.
- Some non-Apple disks have internal SCSI terminators. Since the LaserWriter Pro has an internal terminator, put any disk with an internal terminator at the other end of the chain, and do not use any external terminator. There should be no more than two terminators in any SCSI chain.

Initializing hard disks

To prepare a hard disk connected to a LaserWriter, use the LaserWriter Utility provided on the *LaserWriter Pro Installation* disk. See "Initializing a Hard Disk Attached to the Printer" in Chapter 3.

Appendix B

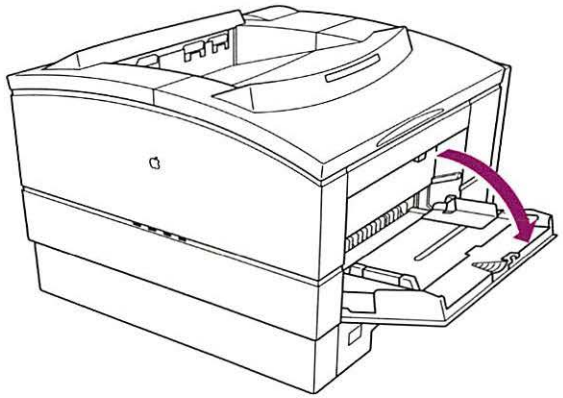
Attaching and Using Paper Handling Options

Using the LaserWriter Pro Envelope Feeder

Follow these instructions to install the LaserWriter Pro Envelope Feeder and fill it with envelopes.

Installing the envelope feeder

1. **Unpack the envelope feeder and remove any packing materials within it.**
2. **Open the printer's multipurpose tray.**



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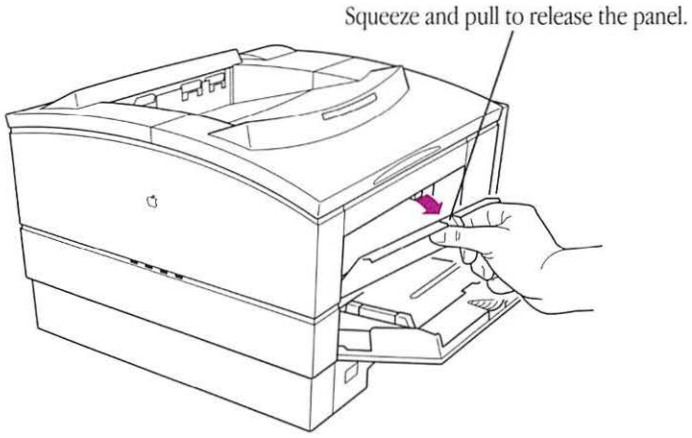
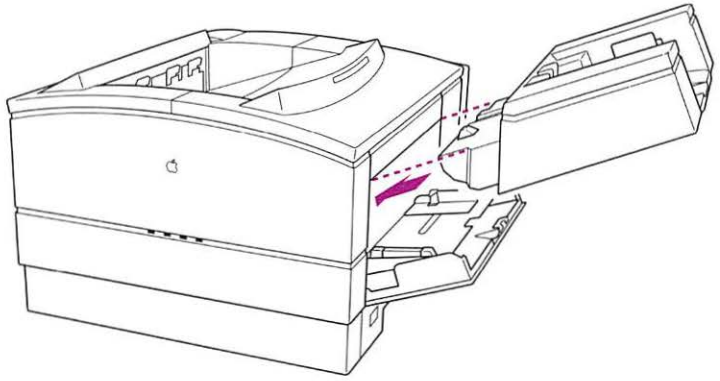
3. **Remove the vertical panel from within the printer.**



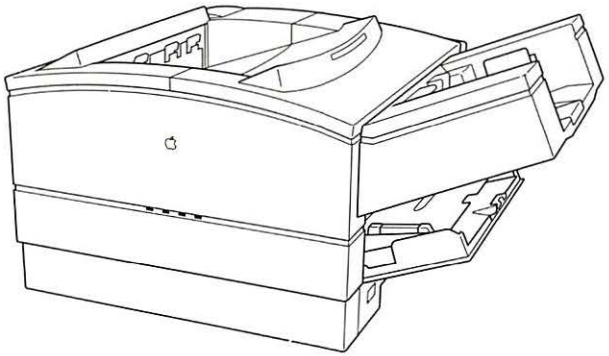
To release the panel, gently squeeze the handle at the top of the panel and pull down. Store the panel for later use.

4. **Holding the envelope feeder so that its angled face is parallel to the side of the printer, gently slide the envelope feeder into the opening above the multipurpose tray.**



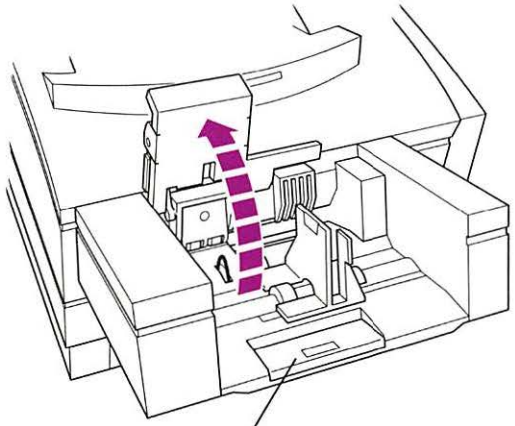
Fit the extension on the feeder's front into the tracks on the inside walls of the opening. Gently slide the envelope feeder down at an angle until the feeder's angled face is flush against the printer's side.

Your LaserWriter Pro Envelope Feeder is now installed.



Filling the envelope feeder

1. Raise the envelope weight.



You can pull out this extension to support long envelopes.

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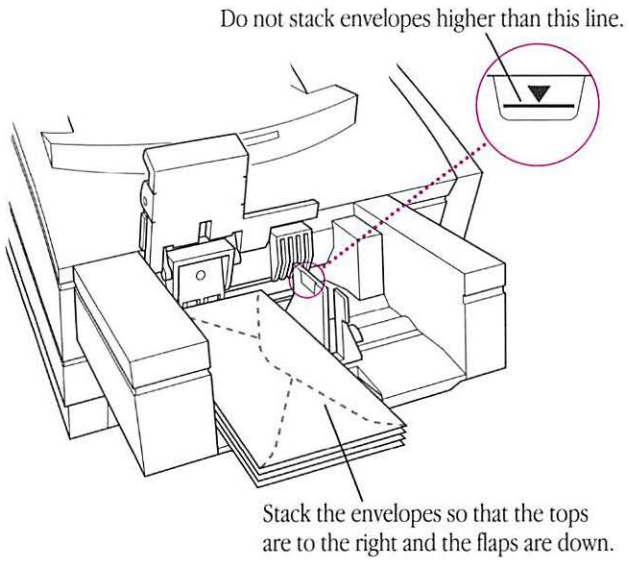
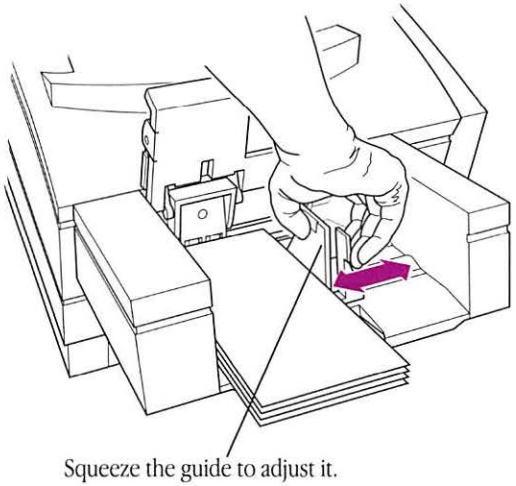
2. **Stack the envelopes so that their bottoms are against the left side of tray and their tops are on the right, flaps down.**



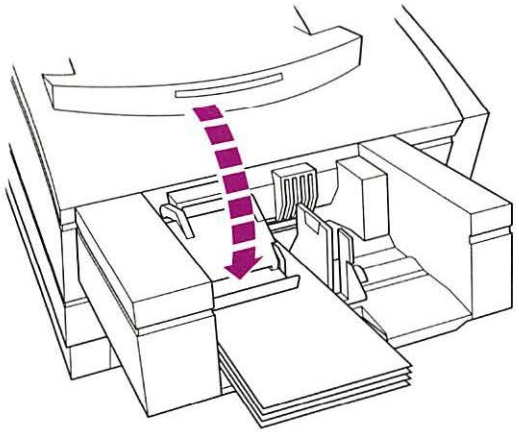
Make sure the envelopes are neatly stacked and aligned, and that they fit snugly against the side and back of the feeder. The feeder can hold up to 75 standard business envelopes. To prevent envelope jams, don't fill the tray above the maximum line marked on the feeder.

3. **Set the width guide to match your envelopes' width.**



Adjust the width guide so that it fits snugly against the envelopes, but not so tightly that it might cause binding.

4. **Lower the envelope weight.**



Printing envelopes

You've now completed installing the LaserWriter Pro Envelope Feeder and filling it with envelopes. For information about printing options, see Chapter 3 if you are using a Macintosh computer or Chapter 4 if you are using an IBM PC or IBM-PC-compatible computer.

Using the LaserWriter Pro 500-Sheet Feeder

Follow these instructions for installing the LaserWriter Pro 500-Sheet Feeder and filling it with paper.

Installing the 500-sheet feeder

Before you install the 500-sheet feeder, make sure your printer is ready.

- The printer must be turned off and the power cord unplugged.
- The printer must be disconnected from your computer or network.

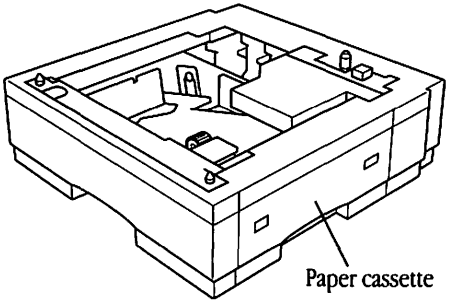
▲ **Warning:** To install the 500-sheet feeder, you must place the LaserWriter Pro on top of the cassette base. Because of the printer's weight, do not lift the printer by yourself. Always have two people lift the printer to avoid injury. ▲

The cassette base adds approximately 5 inches to the height of the LaserWriter Pro. Begin by selecting a location for the LaserWriter Pro 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 temporarily move the LaserWriter Pro 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. **Unpack the cassette base and remove any packing materials within the base and paper cassette.**

2. **Insert the paper cassette in the cassette base.**

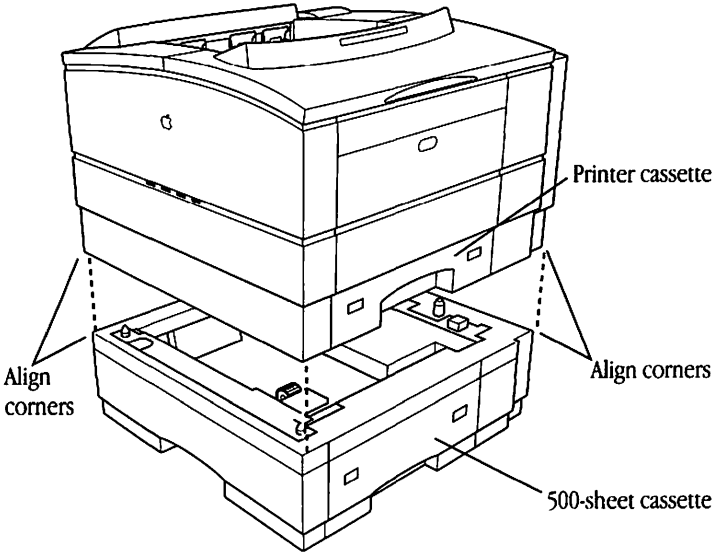


You don't need to fill the cassette with paper at this time. For instructions about loading paper into the cassette, see "Filling the 500-Sheet Cassette with Paper," next.

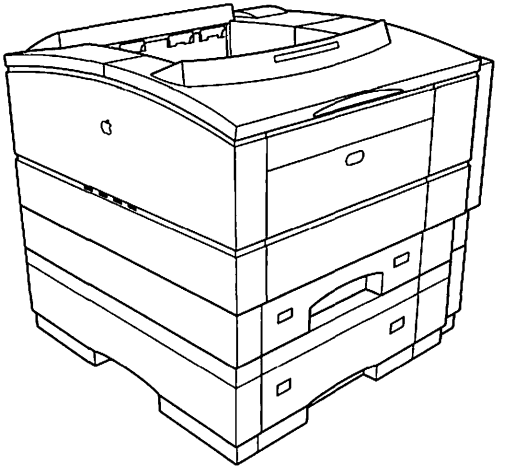
3. **Place the cassette base where you want the LaserWriter Pro to be located.**

Orient the cassette base so that its paper cassette and the printer's multipurpose tray and paper cassette will be on the same side when the printer is on the cassette base.

4. **With another person, lift the LaserWriter Pro, position it directly over the cassette base, and gently lower the printer until it sits evenly on the cassette base.**



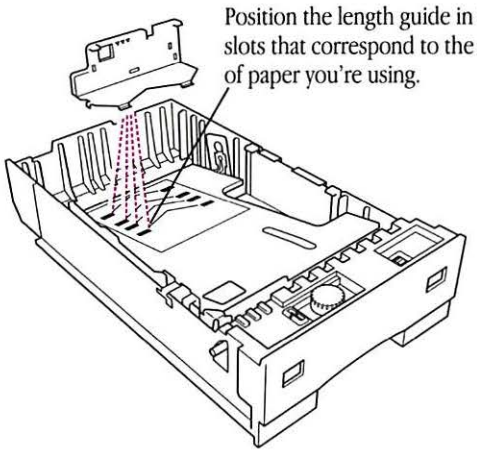
As you lower the printer, align the corners of the printer directly over those of the base.



You can now reconnect the LaserWriter Pro power cable to the printer and reconnect the printer to your computer or network.

Filling the 500-sheet cassette with paper

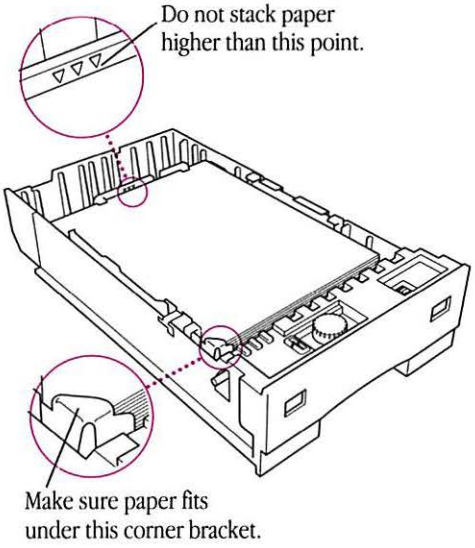
1. **Slide the paper cassette out of the 500-sheet feeder.**
2. **Set the length guide to the position that corresponds to your paper's length. Set the width guide to its maximum width setting.**



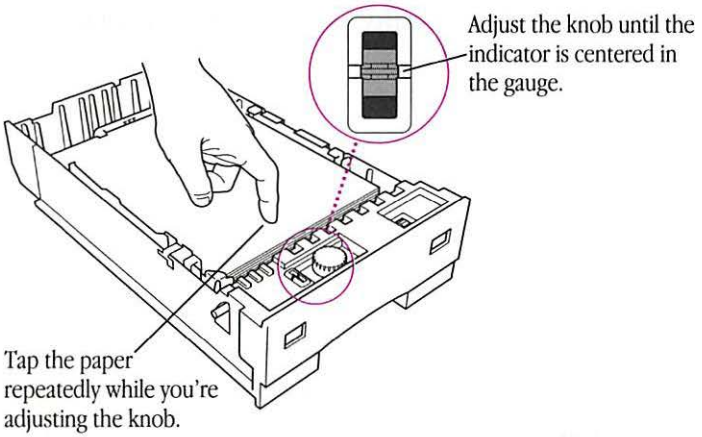
The cassette is marked with positions for paper of U.S. letter, A4, B5, and U.S. legal sizes.

3. **Insert your paper within the guides.**

Don't load paper higher than the maximum point indicated on the tray.



4. **With the paper cassette fully loaded with paper, adjust the paper-weight knob until the indicator is centered in the gauge.**

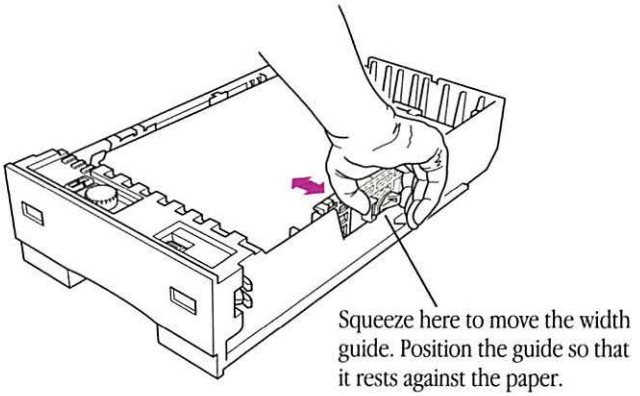


Setting the paper weight allows the cassette to feed paper into the printer with the precise pressure required for your paper. Adjust the paper-weight knob only when the cassette is fully loaded.

Once the paper weight is set, you don't need to reset it as long as you continue to use paper of the same size and weight. Also, you don't need to completely fill the cassette with paper each time.

When loading paper of a different size or weight, fill the cassette fully and then adjust the paper-weight knob.

5. **Set the width guide to match your paper's width.**



Adjust the width guide so that it fits snugly against the paper, but not so tightly that it might cause binding. To avoid paper jams, always set the length and width guides to the correct positions for your specific paper.

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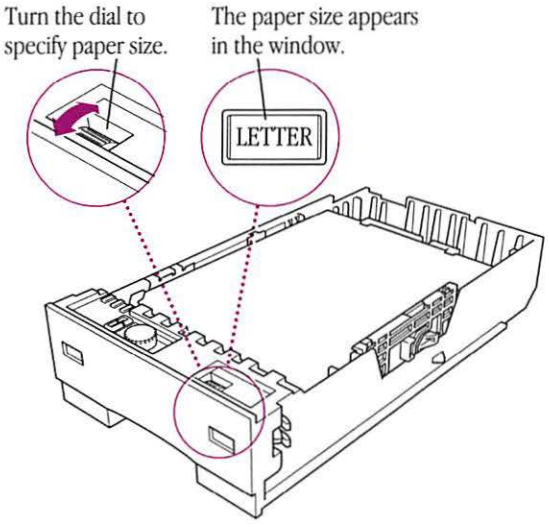
6. **Turn the paper-size dial until your paper size appears on the front panel of the paper cassette.**



Setting this dial indicates to the printer the size of the paper in the cassette.

7. **Insert the paper cassette into the cassette base.**

Printing using the cassette base

You've now completed installing the LaserWriter Pro 500-Sheet Feeder and filling it with paper. For information about printing options, see Chapter 3 if you are using a Macintosh computer or Chapter 4 if you are using an IBM PC or IBM-PC-compatible computer.

Installing the LaserWriter Pro 500-Sheet Universal Cassette

Follow these instructions for installing the LaserWriter Pro 500-Sheet Universal Cassette.

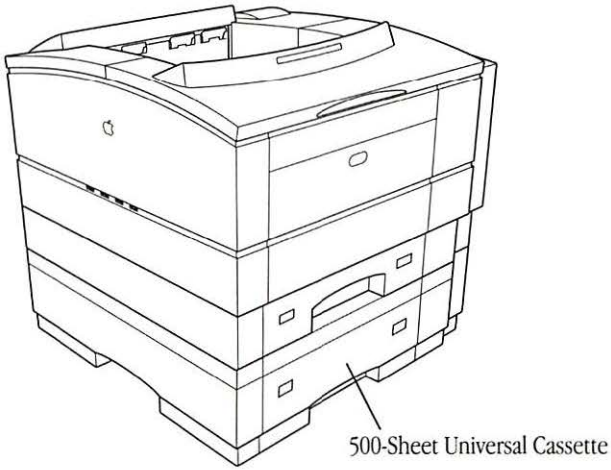
For instructions about filling the cassette with paper, see "Filling the 500-Sheet Cassette With Paper" earlier in this chapter.

1. **Unpack the cassette and remove any packing materials within it.**

2. **Slide the current paper cassette out of the cassette base.**

   You may fill the paper cassette with paper at this time if you want. For complete instructions, see "Filling the 500-Sheet Cassette with Paper" earlier in this chapter.

3. **Insert your LaserWriter Pro 500-Sheet Universal Cassette into the 500-sheet feeder.**



The cassette is now installed.

Using the LaserWriter Pro 250-Sheet Universal Cassette

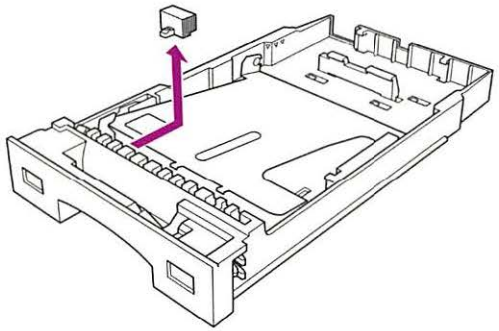
Follow these instructions for installing the LaserWriter Pro 250-Sheet Universal Cassette and filling it with paper.

Installing the 250-sheet universal cassette

1. **Unpack the cassette and its cover and remove any packing materials within the cassette.**
2. **Remove the small orange block holding down the paper lift plate.**

   Inside the cassette is a plastic retainer that holds the paper lift plate securely down for shipping. Remove the retainer by gently pushing down on it and pulling back to free it from the tray.

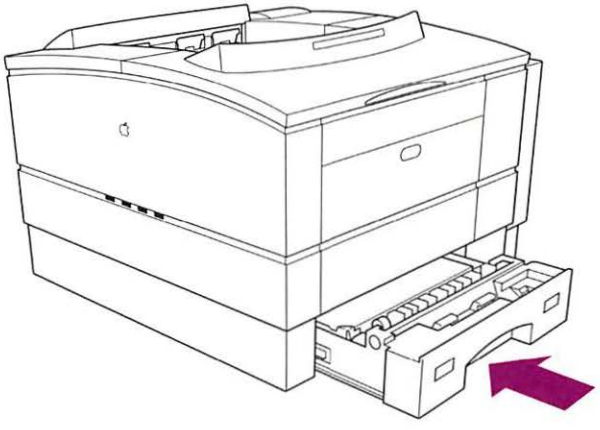
Remove the retainer from the cassette.



continues ▶

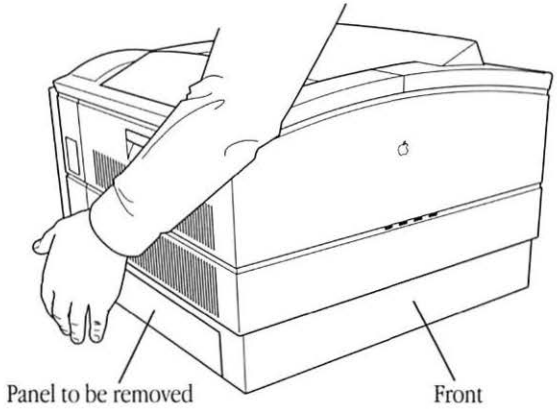
3. **Slide the standard LaserWriter Pro paper cassette out of the printer.**

4. **Slowly slide the 250-sheet universal cassette into the printer's cassette slot until it touches the back of the printer and stops.**



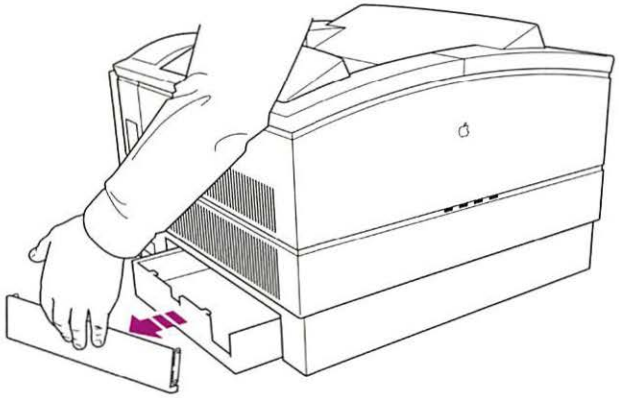
You don't need to fill the cassette with paper at this time. For instructions, see "Filling the 250-Sheet Universal Cassette," next.

5. **On the side of the printer opposite the paper cassette (left side), position your hand over the plastic panel at the base of the printer.**



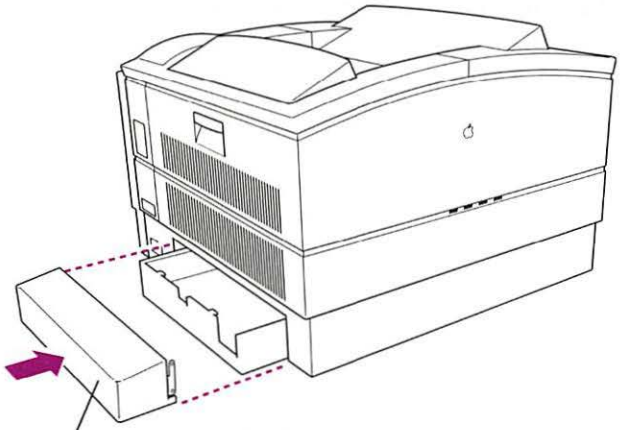
You will remove this panel by gently pushing the paper cassette against it until the panel pops free. Position your hand so that you can block or catch the panel.

6. **Gently but firmly push the paper cassette into the printer until the plastic panel pops out.**



Store the panel for later use. The 250-sheet universal cassette can now slide completely into the printer. It extends approximately 2 inches out the printer's side.

7. **Fit the cover into the printer so that it covers the exposed portion of the paper cassette.**

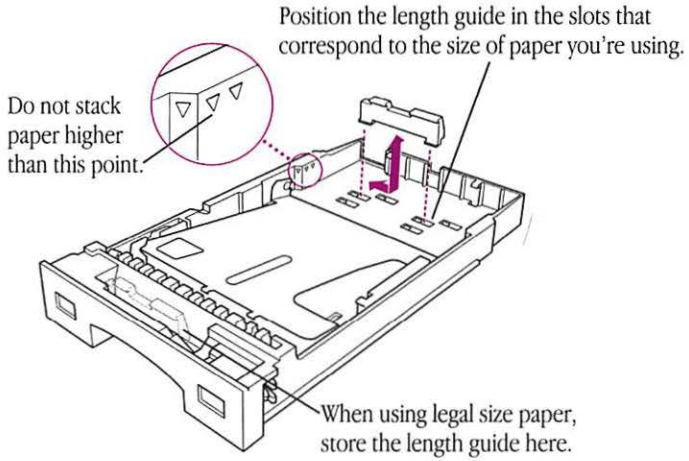


Attach the cover to this side of the printer.

The cassette is now installed.

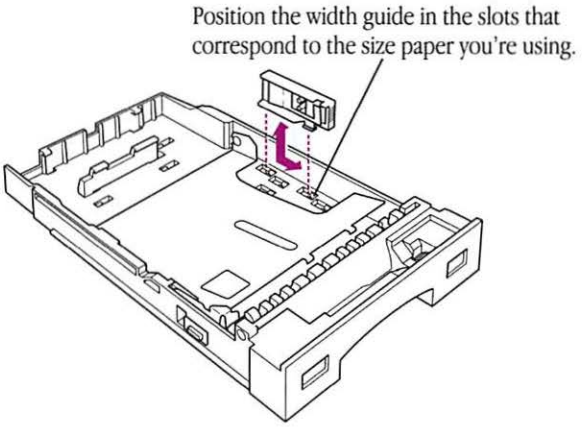
Filling the 250-sheet universal cassette

1. **Slide the cassette out of the printer.**
2. **Set the length guide to the position that corresponds to your paper's length.**



To move the guide to a different position, gently push the guide to the right and lift it from the slots. Then insert the guide into the appropriate slots and push left to lock it in place. The cassette is marked with positions for paper of U.S. letter, A4, B5, and U.S. legal sizes.

3. **Set the width guide to match your paper's width.**



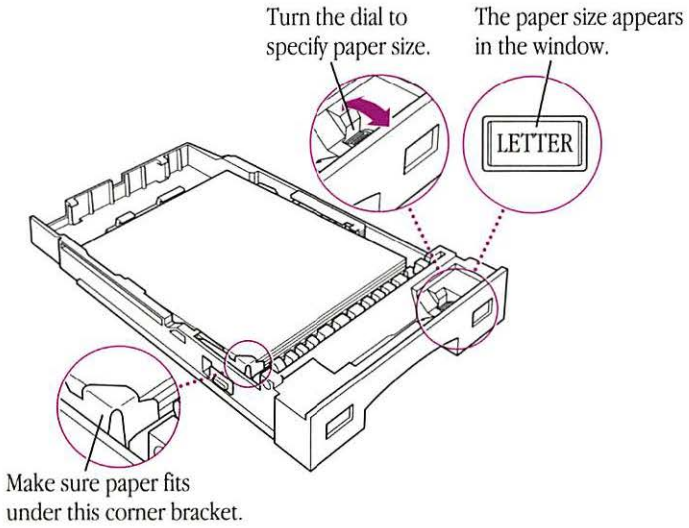
To move the guide to a different position, gently push the guide back and lift it from the slots. Then insert the guide into the appropriate slots and pull forward to lock it in place.

To avoid paper jams, always set the length and width guides to the correct positions for your specific paper.

4. **Insert your paper within the guides.**

Don't load paper higher than the maximum point indicated on the tray.

5. **Turn the paper-size dial until your paper size appears on the front panel of the paper cassette.**



Setting this dial indicates to the printer the size of the paper in the cassette.

6. **Insert the paper cassette into the printer.**

Printing using the 250-sheet universal cassette

You've now completed installing the LaserWriter Pro 250-Sheet Universal Cassette and filling it with paper. For information about printing options, see Chapter 3 if you are using a Macintosh computer or Chapter 4 if you are using an IBM PC or IBM-PC-compatible computer.

Appendix C

LaserWriter Pro Specifications and Parts List

Specifications

Marking engine

- Canon EX laser-xerographic.

Controller

- LaserWriter Pro 600 controller hardware contains a 25 MHz 68030 CPU, 2 MB of ROM, 4 MB of RAM (expandable to 32 MB), LocalTalk/RS-422 interface, RS-232 serial interface, and Centronics parallel interface.
- LaserWriter Pro 630 controller hardware contains a 25 MHz 68030 CPU, 2 MB of ROM, 8 MB of RAM (expandable to 32 MB), LocalTalk/RS-422 interface, RS-232 serial interface, Centronics parallel interface, Ethernet interface, and SCSI interface.

Laser

- Type: Semiconductor laser GaAlAs
- Wavelength: 780 nm
- Output power: 5 mW

Printer Fonts

Sixty-four fonts are provided with the LaserWriter Pro, including such fonts as ITC Avant Garde®, ITC Bookman®, Chicago, Courier, Delphian, Garamond Condensed, Geneva, Helvetica®, Helvetica Black, Helvetica Compressed, Helvetica Narrow, Lubalin Graph, Lucida Bright, Machine, Monaco, Nadianne, New Century Schoolbook, New York, Old English Text, Onyx, Oxford, Palatino®, Swing, Symbol, Times®, ITC Zapf Chancery®, ITC Zapf Dingbats®, and Zeal.

The LaserWriter Pro supports printing in plain, bold, italic, and bold italic, with additional styles depending on the application. Printable font sizes are limited only by the resolution of the printer and the size of the paper.

The LaserWriter Pro can print TrueType fonts at any size, limited only by the resolution of the printer and the size of the paper.

The LaserWriter Pro can support additional TrueType and PostScript fonts from other suppliers.

Speed

- Eight pages per minute maximum. Actual speed depends on the images printed.

Interfaces

- LocalTalk/RS-422 interface, RS-232, Centronics (parallel) on both the LaserWriter Pro 600 and 630; Ethernet and SCSI on the LaserWriter Pro 630 only.

Life expectancy

- Minimum life expectancy is five years or 450,000 pages, with no monthly page limit. Recommended service interval is 200,000 pages.

Print feed

- Automatic with 250-sheet paper cassette and 100-sheet multipurpose tray.

Printing materials

16- to 24-pound laser-quality bond (60 to 90 g/m^2) in normal mode; up to 32-pound (120 g/m^2) stock in manual mode with the multipurpose tray open. Accepts most textured and colored stock. Accepts medium-weight photocopier transparencies. Envelopes can be printed with manual feed or from the optional envelope feeder. Labels can be printed with manual feed.

The paper used should not scorch, melt, transfer material, or release hazardous emissions when heated to 200° C (393° F) for 0.1 seconds.

Paper sizes and capacity

Supports U.S. letter and A4 in standard paper cassette. Each paper cassette holds 250 sheets of 20-pound (75 g/m^2) 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 500-sheet and 250-sheet universal cassettes are available that support letter, A4, B5, and U.S. legal paper sizes. An envelope feeder that can automatically feed up to 75 envelopes is also available.

Dimensions

- Height 12.13 in. (30.8 cm)
- Width 16.75 in. (42.5 cm)
- Depth 16.9 in. (42.9 cm)

Weight

- 39 lb (17.696 kg)

Imageable area

- Maximum printable line: 8.22 in. (208.7 mm)
- Minimum top margin: 0.114 in. (2.9 mm)
- Minimum bottom margin: 0.197 in. (5.0 mm)
- Minimum left margin: 0.138 in. (3.5 mm)
- Minimum right margin: 0.138 in. (3.5 mm)

The printer senses cassette size and adjusts to maintain these margins. In the manual feed or envelope cassette mode, the operator must prevent printing beyond the margin to avoid depositing toner on the transfer roller. Actual imageable area may vary, depending on the application and the installed RAM.

Environmental information

Operating

- Temperature 50° to 90° F (10° to 32° C)
- Humidity 20 to 80 percent

Nonoperating

- Temperature 32° to 95° F (0° to 35° C)
- Humidity 10 to 80 percent RH noncondensing

Storage (Toner Cartridge)

- Temperature –4° to 104° F (–20° to 40° C)
- Humidity 10 to 95 percent RH noncondensing

Storage (Engine)

- Temperature –4° to 122° F (–20° to 50° C)
- Humidity 10 to 95 percent RH noncondensing

Voltage requirements

U.S./Japan

- 90 to 110.5V AC, 58 to 62 Hz
- 103.5 to 126.5V AC, 58 to 62 Hz

Europe/Australia

- 194V to 264V AC, 48 to 52 Hz

Power consumption

Standby

- 95W/hour average

Operating

- 560W maximum at 100 to 115V
- 530W maximum at 220 to 240V

Ozone emission

Ozone gas is emitted by almost all laser printers and photocopiers. The LaserWriter Pro printer technology allows it to emit practically no ozone gas (less than .01 parts of ozone per million parts of air). The current OSHA permissible exposure limit for ozone is 0.1 parts of ozone per million parts of air (ppm). The ozone emissions from the LaserWriter Pro printer comply with Underwriters Laboratory (UL) safety limits.

Depending on the levels of concentration, ozone can be a mild-to-severe irritant with known effects ranging from dry throat and nose, headache, and sore eyes to nausea, vomiting, and pulmonary congestion. For this reason various regulatory agencies have established limits regarding the amount of ozone to which employees may be exposed. The employer is responsible for providing a work environment that meets these standards.

You can usually identify ozone by its characteristic odor, even in concentrations well below the permissible exposure limit. However, as the concentration of ozone or the duration of exposure increases, your ability to smell it may decrease.

To minimize ozone exposure, install the LaserWriter Pro in a well-ventilated area and keep the equipment properly maintained. If there are other laser printers or photocopying machines in the same area, additional air circulation may be required. Do not place the LaserWriter Pro in a small, enclosed space that lacks adequate ventilation. Position the printer so that the fan exhaust does not blow directly into an individual's face. Finally, maintain the relative humidity between 30 and 70 percent. Extremely low humidity can slow the natural breakdown of ozone in the air.

Communication settings

The following table shows the communication settings in effect when the printer is new. The push-button switch on the printer's connector panel can be set to positions 0 through 9. Switch positions 0 through 5 are fixed, and the settings for these positions cannot be changed. Positions 6 through 9 are user-configurable; you can change the settings for these positions to match the needs of the computer you are connecting. "Available Settings," at the end of this appendix, lists all the options available for each setting.

From a Macintosh computer, you use the LaserWriter Utility program to display and change communication settings. From a computer other than a Macintosh, you can send PostScript commands to the printer to change the communication settings. Contact your Apple dealer or technical representative for assistance.

Switch Position	Port Name	Type of Connection	Baud Rate	Parity	Data Bits	Stop Bits	Flow Control	Protocol	Mode
0	8-pin/RS-422	LocalTalk	—	—	—	—	—	—	PostScript
	RS-232	Serial	9600	None	8	1	XON/XOFF	Normal	PostScript
	Ethernet	EtherTalk	—	—	—	—	—	—	PostScript
	Parallel	Centronics						Normal	PostScript
1	8-pin/RS-422	LocalTalk	—	—	—	—	—	—	PostScript
	RS-232	Serial	9600	None	8	1	DTR	Raw	HP PCL 4
	Ethernet	EtherTalk	—	—	—	—	— —	—	PostScript
	Parallel	Centronics						Raw	HP PCL 4
2	8-pin/RS-422	LocalTalk	—	—	—	—	— —	—	PostScript
	RS-232	Serial	19200	None	8	1	XON/XOFF	Normal	PostScript
	Ethernet	EtherTalk	—	—	—	—	— —	—	PostScript
	Parallel	Centronics						Normal	PostScript
3	8-pin/RS-422	LocalTalk	—	—	—	—	— —	—	PostScript
	RS-232	Serial	9600	None	8	1	DTR	Raw	†
	Ethernet	EtherTalk	—	—	—	—	— —	—	PostScript
	Parallel	Centronics						Raw	HP PCL 4
4	8-pin/RS-422	LocalTalk	—	—	—	—	—	—	PostScript
	RS-232	Serial	1200	None	7	1	XON/XOFF	Normal	PostScript
	Ethernet	EtherTalk	—	—	—	—	— —	—	PostScript
	Parallel	Centronics						Normal	PostScript
5	8-pin/RS-422	Serial	9600	None	8	1	XON/XOFF	Normal	PostScript
	RS-232	Serial	9600	None	8	1	XON/XOFF	Normal	PostScript
	Ethernet	EtherTalk	—	—	—	—	—	—	PostScript
	Parallel	Centronics						Normal	PostScript

† Not arbitrated for input

continues ▶

Switch Position	Port Name	Type of Connection	Baud Rate	Parity	Data Bits	Stop Bits	Flow Control	Protocol	Mode
6	8-pin/RS-422	Serial	19200	None	8	1	XON/XOFF	Normal	PostScript
	RS-232	Serial	19200	None	8	1	XON/XOFF	Normal	PostScript
	Ethernet	EtherTalk	—	—	—	—	—	—	PostScript
	Parallel	Centronics						Normal	PostScript
7	8-pin/RS-422	LocalTalk	—	—	—	—	—	—	PostScript
	RS-232	Serial	1200	None	8	1	ETX/ACK	Normal	PostScript
	Ethernet	EtherTalk	—	—	—	—	—	—	PostScript
	Parallel	Centronics						Normal	PostScript
8	8-pin/RS-422	LocalTalk	—	—	—	—	—	—	PostScript
	RS-232	Serial	1200	None	8	1	DTRF	Raw	HP PCL 4
	Ethernet	EtherTalk	—	—	—	—	—	—	PostScript
	Parallel	Centronics						Raw	HP PCL 4
9	8-pin/RS-422	LocalTalk	—	—	—	—	—	—	PostScript
	RS-232	Serial	9600	None	8	1	XON/XOFF	BSP	PostScript
	Ethernet	EtherTalk	—	—	—	—	—	—	PostScript
	Parallel	Centronics						BSP	PostScript

Available settings

The following table briefly describes the communication settings and lists the options available for each.

Setting	Description	Options
Baud rate	The speed of transmission between the computer and the printer	300, 600,1200, 1800, 2400, 3600, 4800, 7200, 9600, 19200, 57600
Parity	The method used to compare transmitted and received data to check for errors	None, odd, even, mark, space
Data bits	The number of bits used to represent each character	7, 8
Stop bits	The number of bits used to indicate the end of a character	1, 2
Flow control	The method used to prevent transmitted data from exceeding the rate at which the receiving end can accept it	XON, XOFF, DTR, ETX/ACK
Protocol	The digital format in which the data is presented	Normal, raw, binary
Mode	The page description standard used to transmit data	PostScript, HP Printer Command Language 4, and Nonprinting Input (not intended for a computer connection)

Accessories

The following list includes both standard and optional parts.

Item	Part Number
LaserWriter Pro toner cartridge	M6018G/A
LaserWriter Pro 500-Sheet Feeder	M6550G/A
LaserWriter Pro 500-Sheet Universal Cassette	M5862G/A
LaserWriter Pro 250-Sheet Universal Cassette	M6525G/A
LaserWriter Pro Envelope Feeder	M6510G/A
LaserWriter Pro 630 Controller Card Upgrade	M5859G/A
LaserWriter Pro 600 PhotoGrade Upgrade	M5861G/A
LocalTalk Locking Connector Kit DIN-8	M2068
LocalTalk Locking Cable Kit –10 Meter	M2066
LocalTalk Locking Cable Kit – 25 Meter	M2069
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 SCSI Cable Extender	M0208
Apple SCSI Cable Terminator II (Black)	M5871G/A
LocalTalk Custom Wiring Kit	M2070

Appendix D

Service and Support

To help you get the best performance from your LaserWriter Pro, Apple Computer, Inc., has established a worldwide network of full-support authorized Apple dealers. If you need answers to technical questions or information about product updates, your authorized Apple dealer can help you. Apple's Technical Support organization backs each dealer and international technical support group via the AppleLink network, a state-of-the-art on-line electronic information service, to ensure prompt, reliable assistance.

Your dealer has the latest information on new hardware and software products, as well as on product updates. If you wish to upgrade your system, your dealer can help you select compatible components.

If your product requires service, your local authorized Apple dealer is trained and ready to support you. Apple provides factory-quality parts and the latest diagnostic equipment to the more than 3,000 authorized Apple service centers throughout the world. Apple guarantees parts and warranty labor. (Regulations in each country determine the length of warranty. Some restrictions may apply, depending on the country of original purchase.)

If for some reason you cannot return to the authorized dealer from whom you purchased your system, go to the nearest service location. For the location nearest you, in the United States or Canada, call or write one of the following:

Apple Computer, Inc.
Customer Relations
20525 Mariani Avenue
Cupertino, CA 95014
U.S.A.
800-538-9696

Apple Canada, Inc.
7495 Birchmount Road
Markham, Ontario, L3R 5G2
Canada
800-268-7796 or
800-268-7637

For locations in other countries, either call the Apple headquarters in your country or write to the United States address given above.

Apple also offers service options designed to meet your needs. One of these is the AppleCare Service Agreement (available in the United States, Canada, and Australia only), which extends full warranty coverage up to three years. Your AppleCare contract will be honored at any participating authorized Apple dealer in the country of purchase—an added benefit if you relocate. Local service means time saved in getting your Apple system back to work.

You can purchase AppleCare at any time, but it's a good idea to purchase it with your system, or at least before your warranty has expired, to avoid an inspection at your own expense.

Appendix E

HP LaserJet Printer Emulation

This appendix describes the communication setting for the LaserWriter Pro that allows the printer to emulate the Hewlett-Packard LaserJet IIP printer.

When you need to use emulation

The LaserWriter Pro is normally used in PostScript communication mode, which means that it accepts page description information from your computer in the PostScript language. This language also includes all the necessary control information to set the printer's printing and communication features from your computer.

If your computer's software is not able to communicate in the PostScript language, you can use the printer's emulation mode to accept printing commands in a different form, the HP PCL4 language, which is commonly supported by many kinds of IBM-PC-compatible computer software.

How to set the printer to use emulation

The HP PCL4 (LaserJet emulation) mode is one of the standard communication settings available on the LaserWriter Pro. You control the printer's communication settings through the push-button switch on the printer's connector panel, as well as through software commands from the LaserWriter Utility.

For information about port settings and how to set the printer's communication switch, see Chapter 2, "Connecting the LaserWriter Pro." For information about controlling the settings with the LaserWriter Utility, see Chapter 3, "Using Your Printer With a Macintosh Computer."

LaserJet IIP emulation

In this mode you can print both text and bitmapped graphics by using the LaserJet's font selection and positioning commands. The LaserWriter Pro responds to commands from the LaserJet IIP printer driver software. (You need to install the LaserJet IIP printer driver, following the instructions in Chapter 4, "Using Your Printer With an IBM PC or IBM-PC-Compatible Computer.")

The LaserJet IIP emulator contained in the LaserWriter Pro allows you to print just about anything you can print on the LaserJet IIP, with these differences.

- The LaserJet IIP omits characters that overlap the left margin of the paper, but the emulator prints the portion of the character that does not extend into the margin.
- The LaserJet IIP allows you to insert commands to halt printing so that you can insert paper or envelopes manually. The emulator interprets those commands as form feeds.
- Applications that produce justified text with the LaserJet IIP versions of Helvetica (Helv) and Times Roman (Tms Rmn) fonts may generate slightly ragged output on the emulator.
- While the LaserJet IIP prints characters in the closest available point size and pitch for each font, the emulator scales the font to the specified size.
- The line printer font, which is 16.67-pitch Courier, appears with a height of 7.2 points when printed with the emulator, rather than 8.5 points as printed by the LaserJet IIP.
- The Control-C and Control-T key combinations, which you can normally use to interrupt printing or to query the status of the LaserJet IIP, cannot be used with the emulator.
- The emulator does not print nine characters from the LaserJet IIP Roman-8 symbol set. These characters are shown in the following table.

Decimal code	Symbol description
176	overline*
179	degree symbol
227	uppercase D with stroke (Eth)
228	lowercase D with stroke (eth)
240	uppercase Thorn
241	lowercase thorn
247	one-fourth symbol
248	one-half symbol
254	plus/minus sign

* The emulator will print the overline symbol in the Courier typeface.

△ **Important:** When printing documents in close succession, make sure that each one ends with an end-of-file command so they do not run together. (The LaserWriter Pro interprets the Control-D key combination as an end-of-file command.)

If your document does not end with a Control-D character and no other document is ready to print, the printer waits for 30 seconds after receiving data before printing the last page. If another print job immediately follows the document without the end-of-file character, the first page of the new job will begin on the last page of the first document. △

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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. Proof pages were created on Apple LaserWriter printers and on the Tektronix Phaser III PXi color printer. Final pages were output directly to separated film on a Dolev PS imagesetter. Line art was created with Adobe Illustrator. Cover art was produced with Adobe Photoshop. Screen shots were created and modified with system software, Exposure, MacPaint, and Photoshop.

Text type is Apple's corporate font, a condensed version of Garamond. Ornaments are ITC Zapf Dingbats® and custom symbols designed for Apple Computer. Some elements, such as computer voice, are set in Apple Courier, a fixed-width font.

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

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