

i n v e n t

use

hp LaserJet 5100Le

hp LaserJet 5100Le printer

use guide

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Glossary

Printer Basics

Overview

Congratulations on your purchase of an HP LaserJet 5100 series printer. If you have not done so, see the start guide provided with the printer for setup instructions.

Now that the printer is set up and ready to use, take a few moments to get to know the printer. This chapter introduces the following:

- Features and benefits of the printer.
- Important printer parts and locations.
- Accessories and supplies available for the printer.
- The layout and basic operation of the printer's control panel.
- Helpful printer software for increased printing flexibility.

Printer Features and Benefits

Many of the printer's features and benefits are outlined below. Specific chapters contain more information on each feature. See this guide's index or contents to locate this information.

Wide Format Printing

Increased capability from your laser printer:

- Prints on paper sizes up to 312 x 470 mm (12.28 x 18.5 inches).
- Prints full bleed images (up to A3 size and 279 x 432 mm [11 x 17 inches]) by printing images on larger paper that can be trimmed to the edges.

High Print Quality

Professional results that meet the demands of complex documents:

- ProRes 1200 (true 1200 dpi) for highest quality graphics printing.
- FastRes 1200 for fast, high-quality image printing.
- HP UltraPrecise toner for high quality print.

High Performance

Faster printing for improved productivity:

- Prints 22 pages per minute (A4) or 11 pages per minute (A3).
- 300 MHz RISC microprocessor.
- Prints the first page in less than 13 seconds.

Ease of Use

Easy to use and administer:

- Helpful printer software provided on a compact disc.

Expandability

Ability to grow with the printing needs of workgroups:

- 3 built-in DIMM slots for memory expansion.
- Available flash and memory DIMM cards.
- Up to 192 MB maximum memory capability.

Paper Handling

Versatile to meet a combination of user needs:

- 100 sheet multi-purpose tray.
- 250 sheet paper tray.

Best Value

Providing industry-leading value to customers:

- 10,000 page print cartridge.

Euro Character

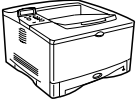
Equipping customers for a changing world market:

- This printer is currently enabled to print the all-new euro character. HP is committed to maximizing document portability through supporting and promoting euro symbol standards.
- To learn more about printing the euro character, visit HP's LaserJet euro website at <http://www.hp.com/go/laserjeteuro>.

Environmental Features

- EconoMode uses approximately 50% less toner, which extends the life of the print cartridge (HP does not recommend full-time use of EconoMode)
- PowerSave setting saves energy (meets ENERGY STAR guidelines)

Printer Information



Congratulations on your purchase of the HP LaserJet 5100Le printer! This printer (product number: Q1863A) is a 22 pages per minute (ppm) laser printer that comes standard with a 100-sheet multi-purpose Tray 1, a 250-sheet Tray 2, and 16 MB of memory. The printer is able to print full-bleed images on paper sizes up to A3 and 11 x 17 in (279 x 432 mm).

Printer Parts and Locations

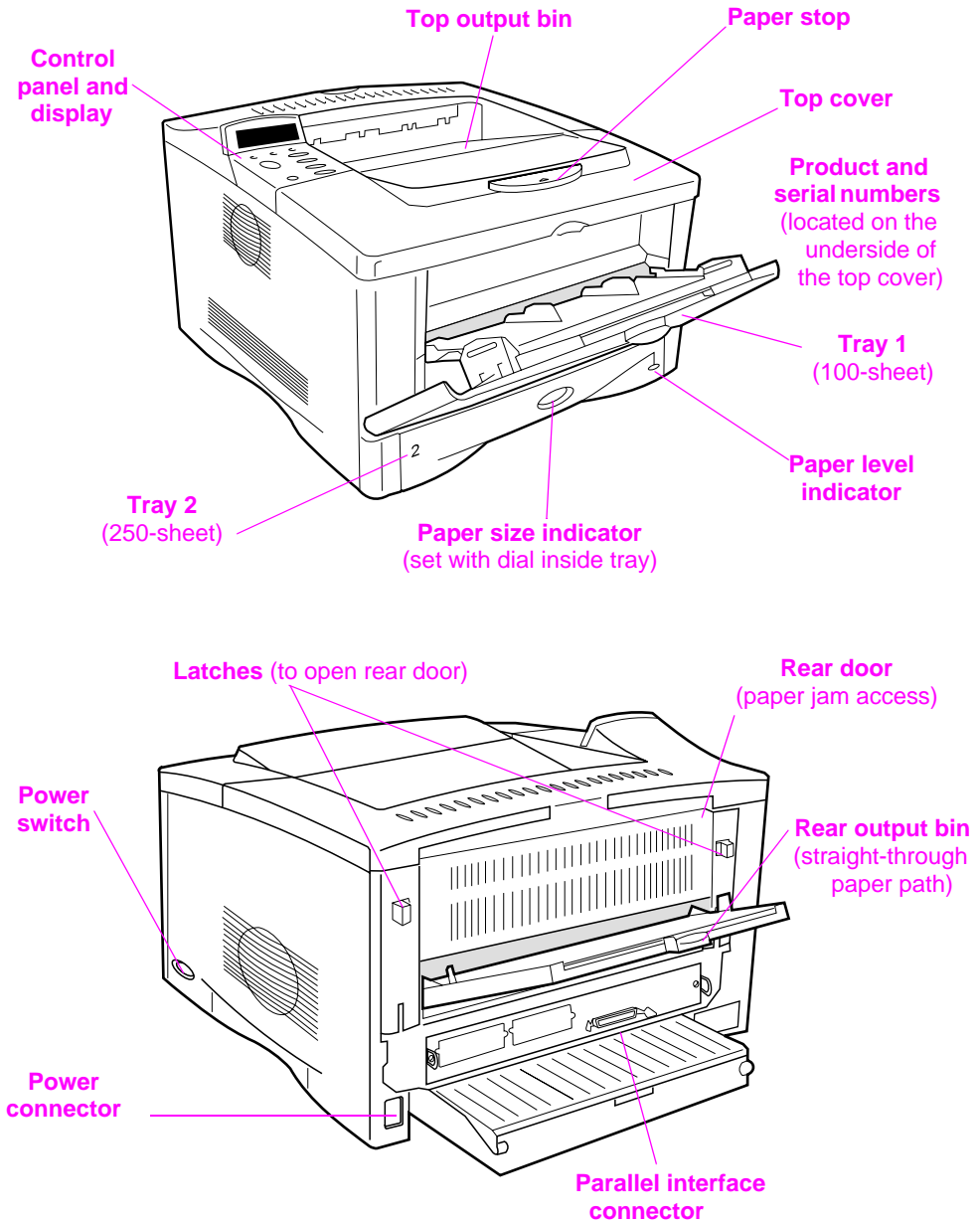
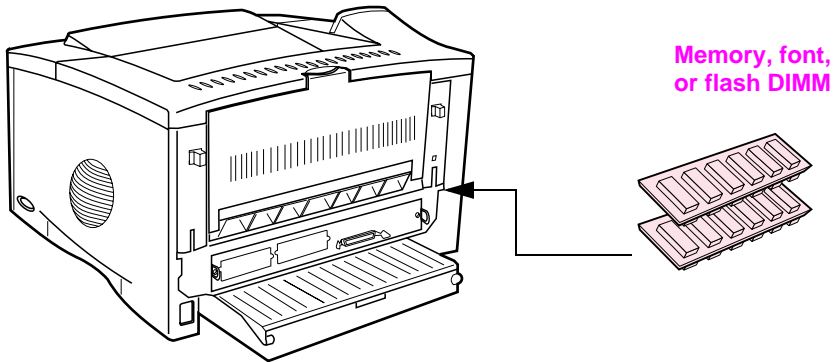


Figure 1 Printer Parts (front and rear views)

Accessories and Supplies

You can increase the capabilities of the printer with optional accessories and supplies.



Note

Use accessories and supplies specifically designed for the printer to ensure optimum performance.

Figure 2 Optional Accessories

Ordering Information

Use only accessories specifically designed for this printer. To order an accessory, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)

Ordering Information

	Item	Description or Use	Part Number
Printing Supplies	HP Multipurpose Paper	HP brand paper for a variety of uses (1 box of 10 reams, 500 sheets each). To order a sample, in the U.S. call 1-800-471-4701.	HPM1120
	HP LaserJet Paper	Premium HP brand paper for use with HP LaserJet printers (1 box of 10 reams, 500 sheets each). To order a sample, in the U.S. call 1-800-471-4701.	HPJ1124
	HP LaserJet Recycled Paper	HP brand recycled paper for a variety of uses. 500 sheets. To order a sample, in the U.S. call 1-800-471-4701.	E1120
	Print Cartridge (10,000 pages)	Replacement HP UltraPrecise print cartridge.	C4129J
Memory, Fonts, and Mass Storage	Dual In-line Memory Module (DIMM)	Boosts the ability of the printer to handle large print jobs (maximum 192 MB with HP brand DIMMs):	
	SDRAM DIMMs	16 MB	C7843A
		32 MB	C7845A
		64 MB	C9680A
	Flash DIMM	Permanent storage for fonts and forms:	
2 MB 4 MB		C4286A C4287A	
Cable and Interface Accessories	Parallel Cables	2 Meter IEEE-1284 cable	C2950A
		3 Meter IEEE-1284 cable	C2951A

	Item	Description or Use	Part Number
Documentation	<i>HP LaserJet Printer Family Print Media Guide</i>	A guide to using paper and other print media with HP LaserJet printers.	5963-7863
	<i>PCL 5/PJL Technical Reference Documentation CD</i>	A guide to using printer commands with HP LaserJet printers.	5961-0976
	<i>HP LaserJet 5100Le Start Guide</i>	An additional copy of the start guide.	Q1860-90901
Maintenance	Printer Maintenance Kit	Contains user-replaceable parts and instructions for routine printer maintenance.	
		110 V printer:	
		new	Q1860-67902
		exchange	Q1860-69002
	220 V printer:		
	new	Q1860-67903	
	exchange	Q1860-69003	

Control Panel Layout

The printer's control panel consists of the following:

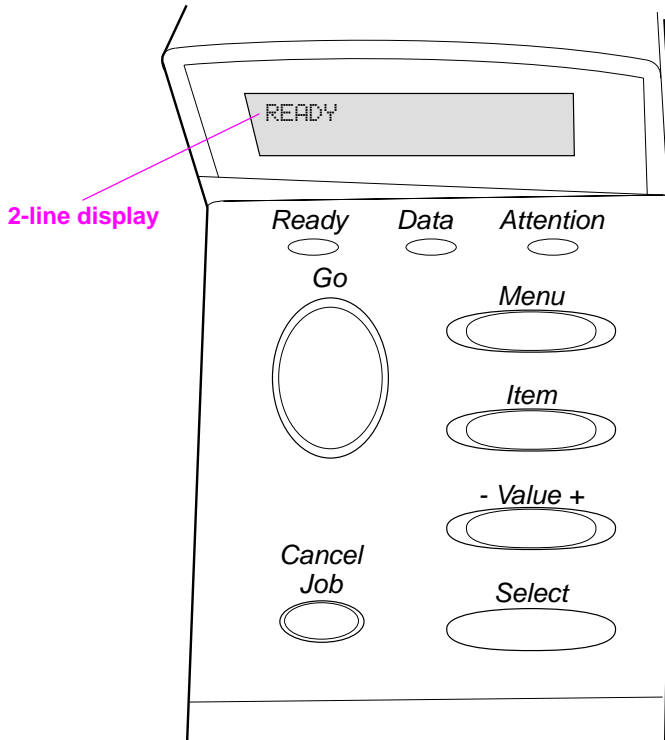


Figure 3 Control Panel Layout

Control Panel Lights

Light	Indication
Ready	The printer is ready to print.
Data	The printer is processing information.
Attention	Action is required. See the control panel display.

Control Panel Keys

Key	Function
[Go]	<ul style="list-style-type: none">• Places the printer either online or offline.• Prints any data residing in the printer's buffer.• Allows the printer to resume printing after being offline. Clears most printer messages and places the printer online.• Allows the printer to continue printing with an error message such as TRAY x LOAD [TYPE] [SIZE] or UNEXPECTED PAPER SIZE.• Confirms a manual feed request if Tray 1 is loaded and TRAY 1 MODE=CASSETTE has been set from the Paper Handling Menu in the printer's control panel.• Overrides a manual feed request from Tray 1 by selecting paper from the next available tray.• Exits the control panel menus. (To save a selected control panel setting, first press [Select].)
[Cancel Job]	Cancels the print job that the printer is processing. The time it takes to cancel depends on the size of the print job. (Press it only once.)
[Menu]	Cycles through the control panel menus. Press the right end of the button to move forward or the left end of the button to move backward.
[Item]	Cycles through the selected menu's items. Press the right end of the button to move forward or the left end of the button to move backward.
[- Value +]	Cycles through the selected menu item's values. Press [+] to move forward or [-] to move backward.
[Select]	<ul style="list-style-type: none">• Saves the selected value for that item. An asterisk (*) appears next to the selection, indicating that it is the new default. Default settings remain when the printer is switched off or reset (unless you reset all factory defaults from the Resets Menu).• Prints one of the printer information pages from the control panel.

Control Panel Menu

For a complete list of control panel items and possible values, see page B-1.

Press **[Menu]** for access to all control panel menus.

To change a control panel setting:

- 1 Press **[Menu]** until the desired menu appears.
- 2 Press **[Item]** until the desired item appears.
- 3 Press **[- Value +]** until the desired setting appears.
- 4 Press **[Select]** to save the selection. An asterisk (*) appears next to the selection in the display, indicating that it is now the default.
- 5 Press **[Go]** to exit the menu.

Note

Settings in the printer driver and software application override control panel settings. (Software application settings override printer driver settings.)

If you cannot access a menu or item, it is not an option for the printer.

To print a control panel menu map:

To see the current settings for all of the menus and items available in the control panel, print a control panel menu map.

- 1 Press **[Menu]** until INFORMATION MENU appears.
- 2 Press **[Item]** until PRINT MENU MAP appears.
- 3 Press **[Select]** to print the menu map.

You might want to store the menu map near the printer for reference.

Configure the control panel display language (Optional)

By default, the control panel on the printer displays messages in English. If necessary, set the printer to display messages and print configuration pages in another supported language.

- 1 Turn the printer off.
- 2 Hold down **[Select]** while turning on the printer.
- 3 When `SELECT LANGUAGE` appears in the LED display, release **[Select]**.
- 4 After the printer has finished initializing, `LANGUAGE = ENGLISH` will appear in the LED display.
- 5 When `LANGUAGE = ENGLISH` appears in the display, press **[- VALUE +]** to scroll through the available languages.
- 6 Press **[Select]** to save the desired language as the new default.
- 7 Press **[Go]** to return to `READY`.
- 8 To activate your new language choice, turn the printer off and then turn the printer on.
- 9 The LED display text should now appear in the selected language.

Note

For Japanese, language selection will change the default symbol set for the specific language. For all other languages, the default symbol set is PC-8.

Printer Software

The printer comes with helpful software on a compact disc. See the start guide for installation instructions.

Note

Check the ReadMe file provided on the compact disc for additional software included and supported languages.

The printer drivers provided on the compact disc must be installed to take full advantage of the printer's features. The other software programs are recommended, but are not required for operation. See the ReadMe file for more information.

The most recent drivers, additional drivers, and other software are available from the Internet. Depending on the configuration of Windows-driven computers, the installation program for the printer software automatically checks the computer for Internet access to obtain the latest software. If you do not have access to the Internet, see the telephone support flyer included with the printer to obtain the most recent software.

Printer Drivers

Printer drivers access the printer features and allow the computer to communicate with the printer (via a printer language).

Note

Check the ReadMe file provided on the compact disc for additional software included and supported languages.

Certain printer features are available only from the PCL 6 driver. See the printer software help for availability of features.

Drivers Included with the Printer

The following printer drivers are included with the printer. The most recent drivers are available on the Internet. Depending on the configuration of Windows computers, the installation program for the printer software automatically checks the computer for Internet access to obtain the latest drivers.

	PCL 5e	PCL 6
Windows 95	✓	✓
Windows 98	✓	✓
Windows Me ¹	✓	✓
Windows NT® 4.0	✓	✓
Windows 2000	✓	✓
Windows XP	✓	✓

1. Microsoft® Windows® Millennium Edition

Within the computer installation program, select **Typical Install** to install the PCL 5e, and PCL 6 drivers. Select **Custom Install** to install only the software you prefer, or if you are a network administrator. Select **Minimum Install** to install only the PCL 6 driver for basic printing.

Additional Drivers

You can obtain the following printer drivers by downloading them from the Internet, or by requesting them from an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)

- OS/2 PCL/PCL 6 printer driver*
- AutoCAD™ (Rev. 15 compatible Windows printer driver available on the compact disc. Rev. 14 printer driver available with HP LaserJet 5100 printer drivers (<http://www.hp.com/lj5100>).)

*The OS/2 drivers are also available from IBM, and are packaged with OS/2.

Note

If the desired printer driver is not on the compact disc or is not listed here, check the software application's installation disks or ReadMe files to see if they include support for the printer. If not, contact the software manufacturer or distributor and request a driver for the printer.

Software for Windows

Use the **Typical Install** or **Custom Install** option to install the HP software. (This includes several printer drivers. For more information, see page 17.)

Access the Windows Printer Driver

To configure the driver, access it in one of the following ways:

Operating System	Temporarily Change Settings (from a software application)	Change Default Settings (across all applications)
Windows 95, Windows 98, and Windows Me	From the File menu, click Print , and then click Setup or Properties . (The actual steps can vary; this is the most common method.)	Click the Start button, point to Settings , and then click Printers . Right-click the printer icon, and select Properties .
Windows NT 4.0	From the File menu, click Print , and then click Setup or Properties . (The actual steps can vary; this is the most common method.)	Click the Start button, point to Settings , and then click Printers . Right-click the printer icon, and select Document Defaults or Properties .
Windows 2000	From the File menu, click Print , and then click Setup or Properties . (The actual steps can vary; this is the most common method.)	Click the Start button, point to Settings , and then click Printers . Right-click the printer icon, and select Printing Preferences or Properties .
Windows XP	From the File menu, click Print , and then click Setup or Properties . (The actual steps can vary; this is the most common method.)	Click the Start button, point to Printers and Faxes . Right-click the printer icon, and select Properties .

Note

Settings in the printer driver and software application override control panel settings. (Software application settings override printer driver settings.)

Choose the Right Driver for Your Needs

Choose a printer driver based on the way you use the printer.

- Use the PCL 6 driver to take full advantage of the printer's features. Unless backward compatibility with previous PCL drivers or older printers is necessary, the PCL 6 driver is recommended.
- Use the PCL 5e driver if you want print results to look comparable to those from older printers. Certain features are not available in this driver. (Do not use the PCL 5e driver provided with this printer with older printers.)

Printer Driver Help

Each printer driver has help screens that can be activated either from the Help button, the F1 key, or a question mark symbol in the upper right corner in the printer driver (depending on the Windows operating system used). These help screens give detailed information about the specific driver. Printer driver help is separate from the software application help.

Software for Linux

For information about Linux support for the printer, see the HP Linux support homepage: <http://hp.sourceforge.net/>.

Printing Tasks

Overview

This chapter presents **basic printing tasks**, such as:

- Selecting the output bin.
- Loading the trays.
- Printing on special paper, such as letterhead and envelopes.

This chapter also introduces some **advanced printing tasks**, to help you take full advantage of the printer's features. These tasks are "advanced" because they require you to change settings from a software application, the printer driver, or the printer's control panel.

- The printer driver allows you to:
 - Create Quick Sets to save the printer's setup information for different kinds of print jobs.
 - Print pages with a watermark in the background.
 - Print the first page of a document on a different kind of paper than the rest of the pages.
 - Print multiple pages on one sheet of paper.
 - Store, Quick Copy, and proof and hold print jobs.

(See "Using Features in the Printer Driver" on page 43.)

- Tray 1 can be used in several different ways. See "Customizing Tray 1 Operation" on page 45.
- If you frequently use several kinds of paper or share the printer with others, print by type and size to ensure that print jobs always print on the desired paper. See "Printing by Type and Size of Paper" on page 47.

Selecting the Output Bin

The printer has two output locations: the rear output bin and the top output bin. To use the top output bin, be sure the rear output bin is closed. To use the rear output bin, open it.

The following table shows the minimum and maximum sizes of paper supported in the output bins.

	Top Output Bin	Rear Output Bin
Width	From 3.9 to 11.7 inches wide (100 to 297 mm wide)	From 3 to 12.28 inches wide (76 to 312 mm wide)
Length	From 5 to 18.5 inches long (127 to 470 mm long)	

Guidelines

- If paper coming out of the top output bin has problems, such as excessive curl, try printing to the rear output bin.
- To avoid paper jams, do not open or close the rear output bin while the printer is printing.
- Do not print envelopes, labels, paper wider than 11.7 inches (297 mm) wide, small custom-size paper, postcards, or light or heavy paper to the top output bin.
- For printing stacks of large paper only, the paper stop on the top output bin prevents long paper from being pushed over the edge of the printer.

Printing to the Top Output Bin

The top output bin collects paper face-down, in correct order. The top output bin should be used for most print jobs and is recommended for printing the following:

- over 50 sheets of paper, continuously
- transparencies

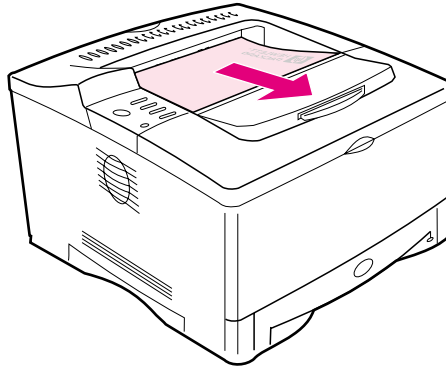


Figure 6 Top Output Bin

Printing to the Rear Output Bin

The printer always prints to the rear output bin if it is open. Paper comes out of the printer face-up, with the last page on top.

To open the rear output bin, grasp the handle at the top of the bin and pull the bin down. Slide out the first extension, then flip open the second extension if necessary.

Printing from Tray 1 to the rear output bin provides the straightest paper path. Opening the rear output bin might improve output quality with the following:

- envelopes
- labels
- paper wider than 11.7 inches (297 mm) or less than 3.9 inches (100 mm) wide
- small custom-size paper
- postcards
- paper lighter than 16 lb (60 g/m²) or heavier than 28 lb (105 g/m²)

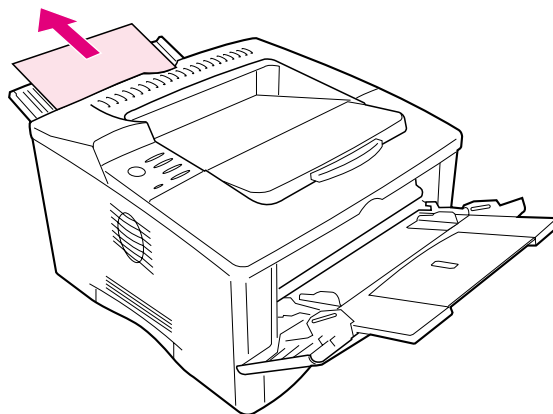
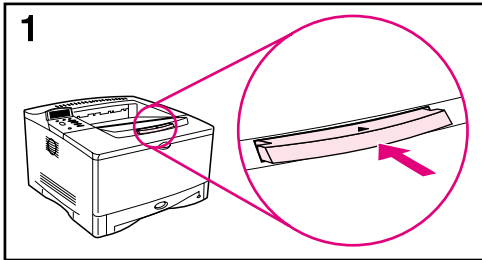


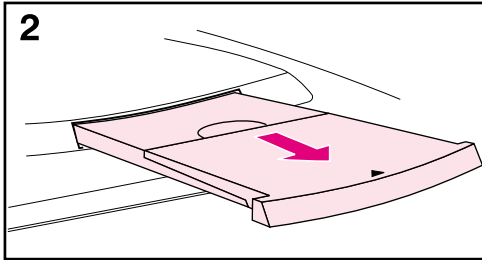
Figure 7 Rear Output Bin

Adjust the Paper Stop

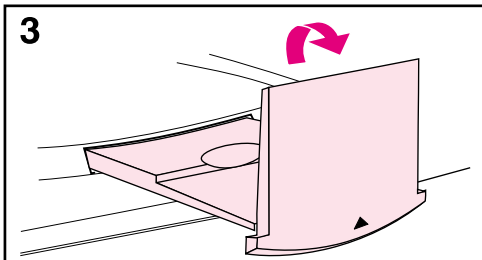


For printing stacks of large paper only, the paper stop on the top output bin prevents long paper from being pushed over the edge of the printer.

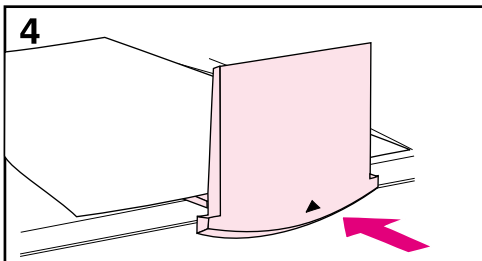
1 Push in the center of the paper stop to release it.



2 Pull the paper stop out until it stops.

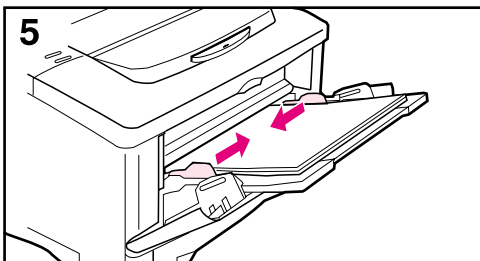
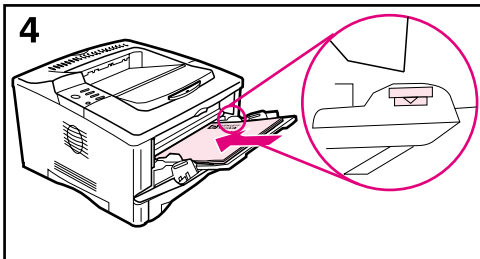
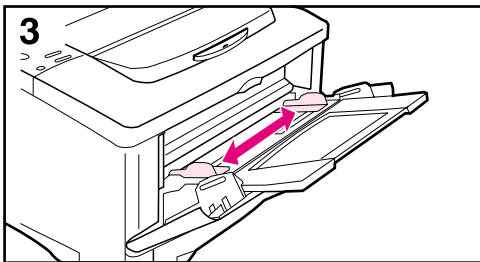
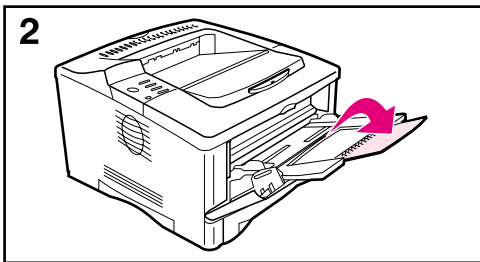
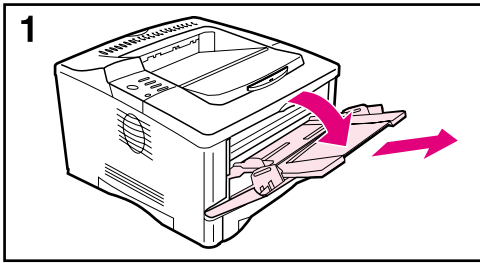


3 Flip up the end section.



4 Adjust the paper stop to the desired size.

Loading Tray 1



Note

To avoid paper jams, do not load trays while the printer is printing.

Tray 1 is a multi-purpose tray that holds a variety of paper, including up to 100 sheets of paper, 10 envelopes, or 20 index cards. The printer might pull paper from Tray 1 first. To change this, see page 45. For supported sizes of paper, see page A-4.

1 Open Tray 1 and pull out the tray extension.

2 If the paper being loaded is longer than 9 in (229 mm), flip open the second tray extension.

3 Set the side guides to the desired size.

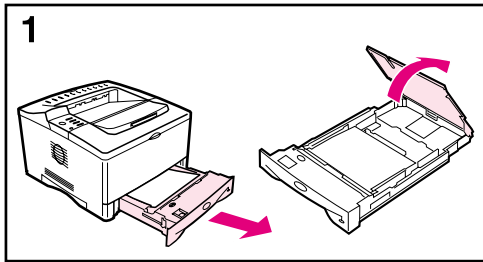
4 Load Tray 1. Paper should fit under the arrows and tabs on the guides. For correct orientation, see page 32.

- For example, load letter, A4, A5, Executive, and B5 size paper with the long edge toward the printer.

- Load other sizes of paper with the short edge toward the printer.

5 Make sure the guides touch the edges of the paper without bending it.

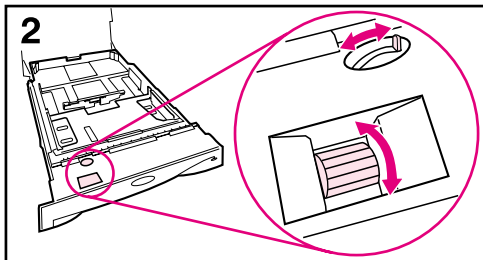
Loading Tray 2



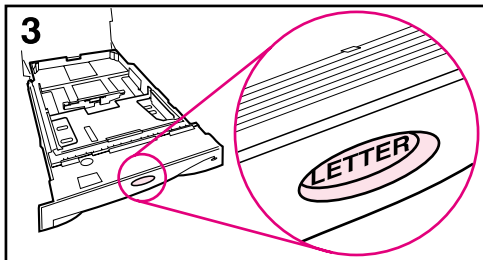
The following instructions are for loading Tray 2. For supported sizes of paper, see page A-5.

Note

To avoid paper jams, do not load trays while the printer is printing.

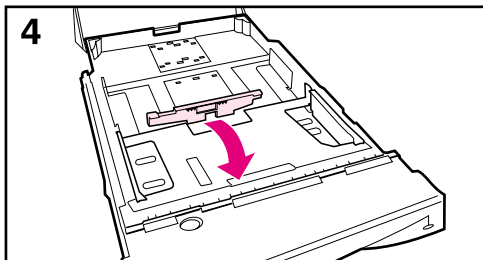


- 1 Pull the tray completely out of the printer. Lift the tray cover.
- 2 Rotate the dial in the tray so the printer will read the correct size of paper. The toggle switch accesses more sizes. An error might occur if the dial is not set properly.



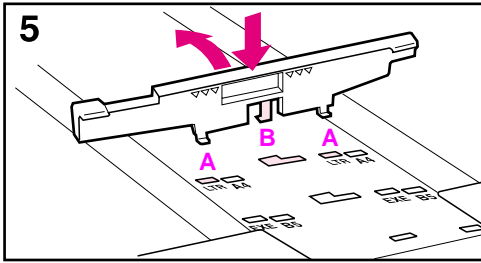
Note

Setting the dial adjusts the printer's sensors. It does not adjust the guides inside the tray.



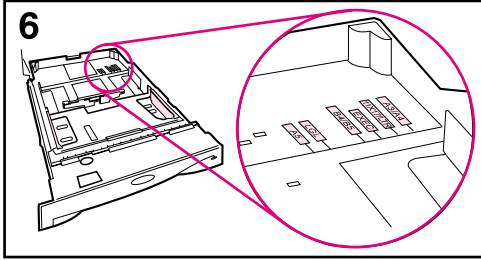
- 3 Make sure the paper size setting matches the size of paper loaded, or the printer might jam or other errors might occur.
- 4 Tilt the blue rear guide toward the front of the tray to detach it.

Continued on the next page.

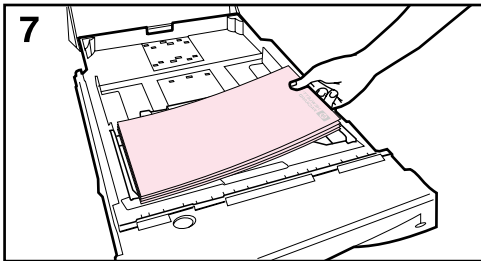


5 Align the rear guide with the desired paper size. With the guide angled slightly toward the front of the tray, insert the two front tabs (A) into the appropriate holes. Push the guide upright, snapping the center tab (B) into place.

The guide must always be placed correctly in the tray (even for 11 x 17 or A3 paper).



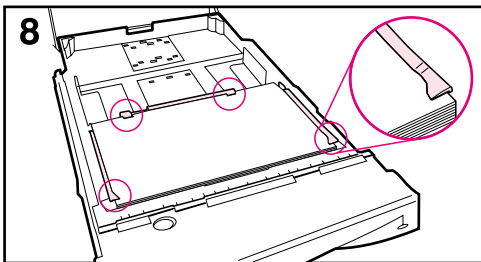
6 Adjust the side guides to the proper size.



7 Load the tray. For correct orientation, see page 32.

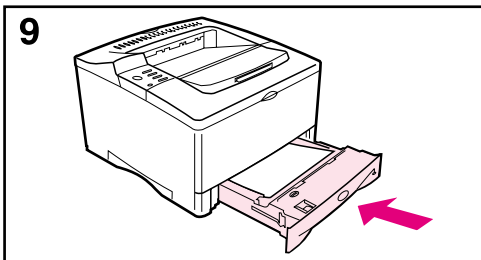
8 Make sure the paper is flat in the tray at all four corners and below the tabs on the guides.

9 Close the tray cover. Slide the tray back into the printer.



Note

If you want to print by type and size of paper from the printer driver, configure the tray settings in the printer's control panel to match the type of paper loaded in each tray (page 47).



Printing Special Paper

Special paper includes letterhead, prepunched (including 3-hole punched), envelopes, labels, transparencies, full-bleed images, rotated paper, index cards, postcards, custom-size, and heavy paper.

Printing Letterhead, Prepunched, or Preprinted Paper

When printing letterhead, prepunched, or preprinted paper, it is important to load the trays with the correct orientation.

Note

It may be necessary to print prepunched paper in a rotated orientation (page 37).

Printing in portrait or landscape mode is usually selected from the software application or printer driver. If the option is not available, change the Orientation setting from the Printing Menu in the printer's control panel (page B-9).

Paper Orientation

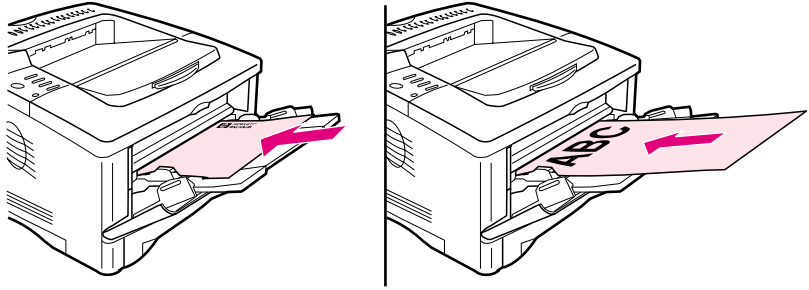


Figure 8 Paper Orientation for Tray 1

- Load letter, A4, A5, Executive, and B5 paper with the side-to-be-printed facing up, and the top, short edge toward the right.
- Load other sizes of paper with the side-to-be-printed facing up, and the top, short edge toward the printer.

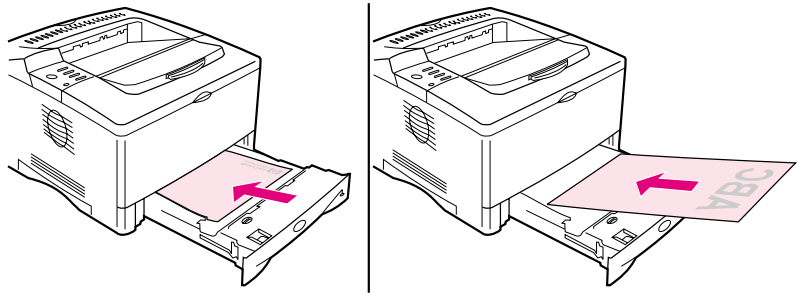


Figure 9 Paper Orientation for Tray 2

- Load letter, A4, A5, Executive, and B5 paper with the side-to-be-printed facing down, and the top, short edge toward the right.
- Load other sizes with the side-to-be-printed facing down, and the top, short edge toward the front of the tray.

Printing Envelopes

Many types of envelopes can be printed from Tray 1. (Up to 10 can be stacked in the tray.) Printing performance depends on the construction of the envelope. Always test a few sample envelopes before purchasing a large quantity.

- Set margins at least 0.6 inch (15 mm) from the edge of the envelope.
- To minimize curl and wrinkling, always print envelopes to the rear output bin.

When you print large numbers of envelopes and standard paper, for best printing performance print paper first, then envelopes. To alternate paper and envelopes, from the Configuration Menu in the printer's control panel select `SMALL PAPER SPEED=SLOW`.

WARNING!

Never use envelopes with coated linings, exposed self-stick adhesives, or other synthetic materials. These items can emit noxious fumes.

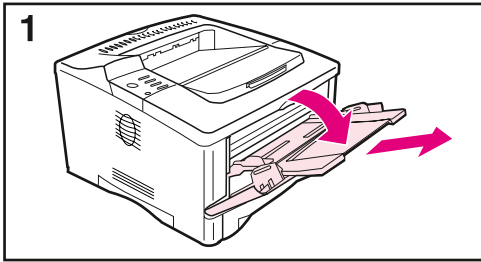
Caution

Envelopes with clasps, snaps, windows, coated linings, exposed self-stick adhesives, or other synthetic materials can severely damage the printer.

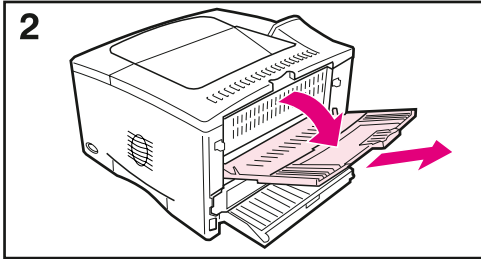
To avoid jamming and possible printer damage, never try to print on both sides of an envelope.

Before you load envelopes, make sure they are flat and not damaged or stuck together. Do not use envelopes with pressure-sensitive adhesive. (For envelope specifications, see page A-9.)

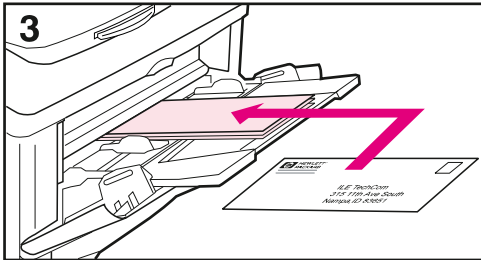
Loading Envelopes in Tray 1



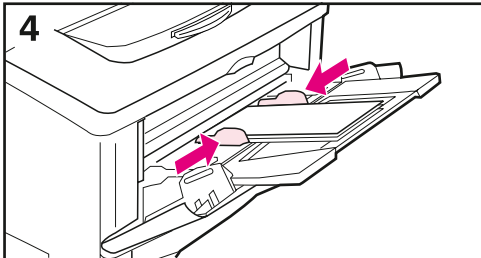
1 Open Tray 1 and pull out the tray extension. If the envelopes are longer than 9 inches (229 mm), flip open the second tray extension.



2 Open the rear output bin and pull out the tray extension. (This reduces envelope curl and wrinkling.)



3 Load up to 10 envelopes in the center of Tray 1 with the side-to-be-printed facing up, and the postage-end toward the front of the tray. Slide the envelopes into the printer as far as they will go without forcing them.



4 Adjust the guides to touch the envelope stack without bending the envelopes. Make sure the envelopes fit under the tabs on the guides.

Printing Labels

Use only labels recommended for use in laser printers. Multi-thickness labels and labels that do not stack flat might print better rotated. To print rotated paper, see page 37. Make sure that labels meet the specifications for the input tray you use (page A-8).

Do:

- Print a stack of 50 labels from Tray 1 or a stack of 50 to 100 labels from Tray 2.
- For proper page orientation when printing labels, see page 32.
- Try opening the rear output bin (page 26) to prevent curl and other problems.

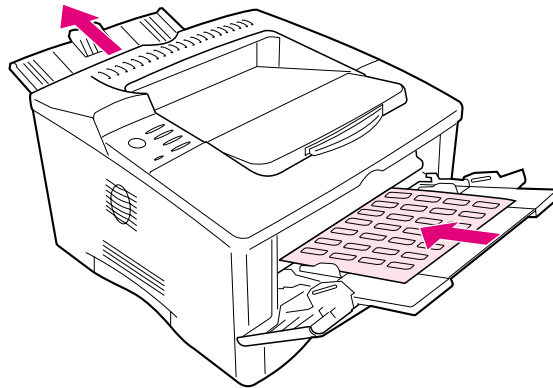


Figure 10 Printing Labels

Do not:

Caution

Failure to follow these instructions can damage the printer.

- Do not load Tray 2 to capacity because labels are heavier than paper.
- Do not use labels that are separating from the backing sheet, wrinkled, or damaged in any way.
- Do not use labels that have the backing sheet exposed. (Labels must cover the entire backing sheet with no exposed spaces.)
- Do not feed a sheet of labels through the printer more than once. The adhesive backing is designed for only one pass through the printer.

Printing Transparencies

Use only transparencies recommended for use in laser printers. For transparency specifications, see page A-8.

- Load transparencies in Tray 1 with the side-to-be printed facing up and the top edge toward the right.
- To prevent transparencies from becoming too hot or sticking together, use the top output bin by closing the rear output bin (page 25). Remove each transparency from the output bin before printing another.
- Place transparencies on a flat surface to cool after removing them from the printer.

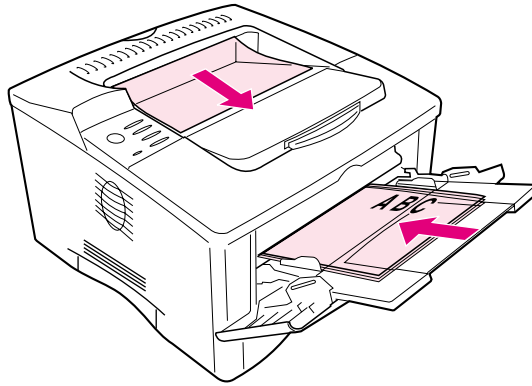


Figure 11 Printing Transparencies

Printing Rotated Paper

The printer can print letter, A4, A5, Executive, and B5 (JIS) in a rotated orientation (short-edge first) from Tray 1. Rotated paper prints more slowly than paper that feeds long-edge first. Some types of paper feed better if rotated, such as prepunched paper or labels that do not stack flat.

Tray 1:

- 1 From the Paper Handling Menu in the printer's control panel, select `TRAY 1 MODE=CASSETTE`.
- 2 Also from the Paper Handling Menu, select `LTR-R`, `A4-R`, `A5-R`, `EXEC-R`, or `JB5-R` as the Tray 1 size.
- 3 Load paper with the side-to-be printed facing up, and the top, short-edge toward the printer.
- 4 In the printer driver or software application select the paper size as you *normally* would and select Tray 1.

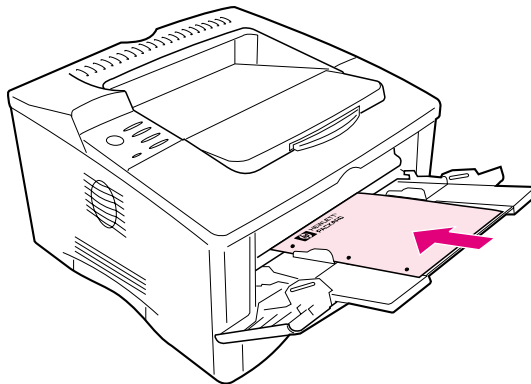


Figure 12 Printing Rotated Paper from Tray 1

Printing Full-Bleed Images

Full-bleed images extend from edge to edge of the page. To achieve this effect, use larger paper, then trim its edges to the desired size.

Caution

Never print directly to the edge of paper. This causes toner to accumulate inside the printer, which may affect print quality and damage the printer. Print on paper up to 12.28 by 18.5 in (312 by 470 mm), leaving margins on all four sides of at least .08 inch (2 mm).

Note

When printing paper wider than 11.7 inches (297 mm), always use the rear output bin.

Printing Cards, Custom-Size and Heavy Paper

Custom-size paper can be printed from Tray 1. For paper specifications, see page A-2.

Tray	Minimum Size	Maximum Size
Tray 1	3 by 5 inches (76 by 127 mm)	12.28 by 18.5 inches (312 by 470 mm)

The maximum paper weight is 53 lb (199 g/m²) from Tray 1.

Note Heavy paper and very small or very large custom-size paper should be printed from Tray 1 to the rear output bin. Open the rear output bin to use it (page 26).

The printer's control panel can be set for one custom size at a time. Do not load more than one size of custom paper into the printer.

When you print large numbers of small or narrow media and standard paper, for best printing performance print paper first, then the small or narrow media. To alternate paper and small or narrow media, from the Configuration Menu in the printer's control panel select `SMALL PAPER SPEED=SLOW`.

For information on setting custom paper sizes, see page 40.

Guidelines for Printing Custom-Size Paper

- Do not attempt to print on paper smaller than 3 inches (76 mm) wide or 5 inches (127 mm) long.
- Set page margins at least .17 inch (4.23 mm) away from the edges.

Setting Custom Paper Sizes

When custom paper is loaded, size settings need to be selected from the software application (the preferred method), the printer driver, and from the printer's control panel.

Note

All settings in the printer driver and software application (except configuring custom paper sizes) override control panel settings. (Software application settings override printer driver settings.) The control panel must be set if the PCL 5e driver is used, or custom paper is loaded long-edge first (X is longer than Y).

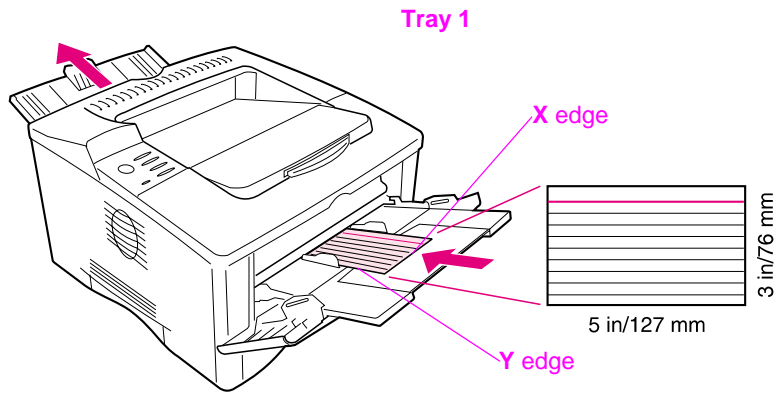


Figure 13 Printing Custom-Size Paper

If the settings are not available from the software, set the custom paper size from the control panel:

- 1** From the Printing Menu set `CONFIGURE CUSTOM PAPER=YES`.
- 2** From the Printing Menu, select inches or millimeters as the unit of measurement.
- 3** From the Printing Menu, set the X dimension (the front edge of the paper) as shown in Figure 13. The X dimension can be 3 to 12.28 inches (76 to 312 mm) for Tray 1. Set the Y dimension (the side edge of the paper) as shown in Figure 13. The Y dimension can be 5 to 18.5 inches (127 to 470 mm) for Tray 1.
- 4** If custom paper is loaded into Tray 1 and `TRAY 1 MODE=CASSETTE`, then set `TRAY 1 SIZE=CUSTOM` from the Paper Handling Menu in the printer's control panel. See "Customizing Tray 1 Operation" on page 45.
- 5** In the software, select **Custom** as the paper size.

For example, if the custom paper is 8 by 10 inches (203 by 254 mm), set X=8 inches and Y=10 inches (X=203 millimeters and Y=254 millimeters).

Printing Vellum

Vellum is special lightweight paper similar to parchment. Print vellum from Tray 1 only, and open the rear output bin. Do not print on both sides of vellum.

- 1 Load vellum with the side-to-be-printed facing up and the top, short edge toward the right.
- 2 Open the rear output bin.
- 3 From the Paper Handling Menu in the printer's control panel, set `TRAY 1 MODE=CASSETTE`.
- 4 From the printer driver, set the type of paper for Tray 1 to vellum, and select paper by type. For details on selecting by type of paper, see page 47.

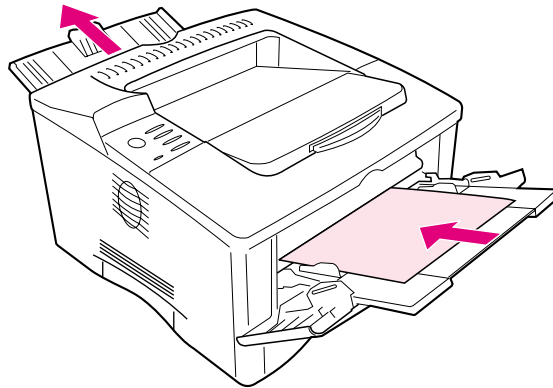


Figure 14 Printing Vellum

Advanced Printing Tasks

This section will help you take full advantage of the printer's features. These tasks are "advanced" because they require you to change settings from the printer's control panel or the printer driver.

Using Features in the Printer Driver

When you print from a software application, many of the printer's features are available from the printer driver. To access Windows printer drivers, see page 16.

Note

HP PCL 5e, and PCL 6 drivers are slightly different. Check the drivers for available options. The PCL 6 driver takes full advantage of the printer's features.

Settings in the printer driver and software application override control panel settings. (Software application settings override printer driver settings.)

Saving Printer Setup Information

Printer drivers allow you to save the printer settings you use most often as the default settings. For example, the driver might be set to print on letter size paper, portrait orientation, with automatic tray selection (from the first available tray).

Some PCL 6 printer drivers will allow you to save printer settings for multiple kinds of print jobs. For example, you might want to create a Quick Set for envelopes, or for printing the first page of a document on letterhead.

Look for the **Quick Sets** option in the Windows PCL 6 printer driver, or see the printer driver help for more information.

Printing with a Watermark

A watermark is a notice, such as "Top Secret," printed in the background of each page in a document. Check the driver for available options.

Printing the First Page on Different Paper

From the PCL 6 printer driver, you can choose to print the first page of a document on different paper than the rest of the pages. Look for “Use different paper for first page” in the printer driver.

Printing Multiple Pages on One Sheet of Paper

You can print more than one page on a single sheet of paper. This feature is available in some printer drivers, and provides a cost-effective way to print draft pages.

To print more than one page on a sheet of paper, look for a Layout or Pages Per Sheet option in the printer driver. (This is sometimes called 2-up, 4-up, or n-up printing.)

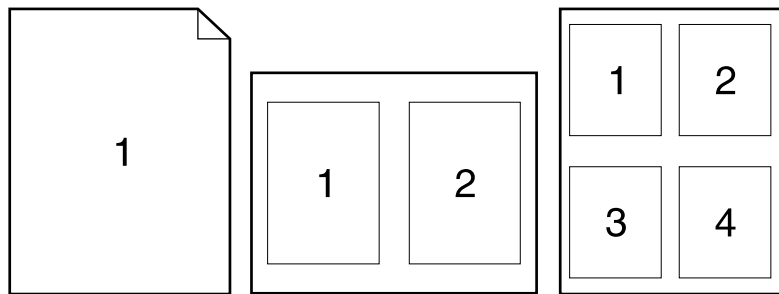


Figure 15 Sample Layout Options (1-up, 2-up, and 4-up)

Customizing Tray 1 Operation

Customize Tray 1 to fit your printing needs.

The printer can be set to print from Tray 1 as long as it is loaded, or to print only from Tray 1 if the type of paper loaded is specifically requested. Set `TRAY 1 MODE=FIRST` or `TRAY 1 MODE=CASSETTE` from the Paper Handling Menu in the printer's control panel. (Print speed might be slightly slower when printing from Tray 1 when `TRAY 1 MODE=FIRST`.)

Tray 1 Mode=First

If you do not keep paper in Tray 1 all the time, or you use Tray 1 only for manually feeding paper, keep the default setting, `TRAY 1 MODE=FIRST` in the Paper Handling Menu.

- `TRAY 1 MODE=FIRST` means that the printer usually pulls paper from Tray 1 first unless it is empty.
- You can still choose paper from other trays by specifically choosing another tray in the printer driver.

Tray 1 Mode=Cassette

`TRAY 1 MODE=CASSETTE` means the printer treats Tray 1 like the other tray. Instead of looking for paper in Tray 1 first, the printer pulls paper either starting from the bottom tray upward, or the tray that matches type or size settings selected from the software.

- When `TRAY 1 MODE=CASSETTE` is set, an option appears in the Paper Handling Menu to configure **size** as well as **type** settings for Tray 1.
- Through the printer driver, you can select paper from any tray (including Tray 1) by type, size, or source. To print by type and size of paper, see page 47.

Manually Feeding Paper from Tray 1

The Manual Feed feature allows you to print on special paper from Tray 1, such as envelopes or letterhead. If Manual Feed is selected, the printer will print only from Tray 1.

Select Manual Feed through the software or printer driver. Manual Feed can also be enabled from the Paper Handling Menu in the printer's control panel.

Note

When Manual Feed is selected, if `TRAY 1 MODE=FIRST` the printer automatically prints (if paper is in the tray). If `TRAY 1 MODE=CASSETTE` the printer prompts to load Tray 1 whether or not Tray 1 is loaded. This enables you to load different paper if necessary. Press **[Go]** to print from Tray 1.

Printing by Type and Size of Paper

You can configure the printer to select paper by **type** (such as plain or letterhead) and **size** (such as letter or A4), as opposed to **source** (a paper tray).

Benefits of Printing by Type and Size of Paper

If you frequently use several different kinds of paper, once trays are set up correctly, you do not have to check which paper is loaded in each tray before you print. This is especially helpful when the printer is shared, and more than one person loads or removes paper.

Printing by type and size of paper is a way to be sure that print jobs always print on the desired paper. (Some printers have a feature which “locks out” trays, to prevent printing on the wrong paper. Printing by type and size of paper eliminates the need to lock out trays.)

To print by type and size of paper, do the following:

- 1 Be sure to adjust and load the trays correctly. (See the sections on loading paper, starting on page 28.)
- 2 From the Paper Handling Menu in the printer's control panel, select the paper **type** for each tray. If you are unsure what type you are loading (such as bond or recycled), check the label on the package of paper. For supported types, see page A-2.
- 3 Select the paper **size** settings from the control panel.
 - **Tray 1:** If the printer has been set to `TRAY 1 MODE=CASSETTE` from the Paper Handling Menu, also set the Tray 1 size from the Paper Handling Menu. If custom paper is loaded, set the size of custom paper from the Printing Menu to match the paper loaded in Tray 1. To print custom-size paper, see page 40.
 - **Tray 2:** Paper size settings are adjusted when paper is properly loaded into the printer and the paper size dials are set to match the paper size (See the sections on loading paper, starting on page 29.)
- 4 From the software or printer driver, select the desired type and size of paper.

Note

To print by type and size, it might be necessary to unload or close Tray 1, or set `TRAY 1 MODE=CASSETTE` from the Paper Handling Menu in the printer's control panel. For more information, see page 45.

Settings in the printer driver and software application override control panel settings. (Software application settings override printer driver settings.)

Job Retention

There are two job retention features available for the printer: Private Job and Proof and Hold. See the following pages for more information on each of these features.

Note

The private job and the proof and hold features work by using the printer's available RAM memory. A minimum of 32 MB of RAM is required.

To access each of the features, first follow the steps below, then continue to the section that describes the feature you wish to use.

- 1 Select **Print** from the application's menu.
- 2 Click **Properties** to display the properties dialog box.
- 3 Click the **Destination** tab to display the destination options.
- 4 Click **Options** under **Destination Features** to display **Job Retention Options**.

Proofing and Holding a Job

The proof and hold feature provides a quick and easy way to print and proof one copy of a job and then print the additional copies. The job is held on the printer's memory until the user prints the additional copies. After the additional copies are printed, the proof and hold job is deleted from the printer.

Note

The proof and hold feature works by using the printer's available RAM memory. A minimum of 32 MB of RAM is required.

Printing the Remaining Copies of a Held Job

The user can print the remaining copies of a job from the control panel.

- 1 Press **[Menu]** repeatedly until PRIVATE/STORED JOBS MENU appears.
- 2 Press **[Item]** until your user name appears.
- 3 Press **[-Value+]** until the desired job name appears.
- 4 Press **[Select]** to select the job. COPIES=x appears.
- 5 Press **[-Value+]** until the desired number of copies appears.
- 6 Press **[Select]** to print the job.

Deleting a Held Job

When a user sends a proof and hold job, the printer overwrites any previous jobs with the same name.

Note

If you turn the printer off and then back on, all quick copy, proof and hold, and private jobs are deleted.

A stored proof and hold job can also be deleted from the control panel.

- 1 Press **[Menu]** repeatedly until PRIVATE/STORED JOBS MENU appears.
- 2 Press **[Item]** until your user name appears.
- 3 Press **[-Value+]** until the desired job name appears.
- 4 Press **[Select]** to select the job. COPIES=x appears.
- 5 Press **[-Value+]** until DELETE appears.
- 6 Press **[Select]** to delete the job.

Printing a Private Job

The private printing feature lets a user specify that a job is not printed until that user releases it using a 4-digit Personal Identification Number (PIN) through the printer's control panel. The user specifies the PIN in the driver and it is sent to the printer as part of the print job.

Note

The private job feature works by using the printer's available RAM memory. A minimum of 32 MB of RAM is required.

Specifying a Private Job

To specify that a job is private from the driver, select the Private Job option and type a 4-digit PIN.

Releasing a Private Job

The user can print a private job from the control panel.

- 1 Press **[Menu]** repeatedly until PRIVATE/STORED JOBS MENU appears.
- 2 Press **[Item]** until your user name appears.
- 3 Press **[-Value+]** until the desired job name appears.
- 4 Press **[Select]**. PIN: 0000 appears.
- 5 Press **[-Value+]** to change the first number of the PIN, and then press **[Select]**. An * appears in place of the number. Repeat these steps to change the remaining three numbers of the PIN. COPIES=x appears.
- 6 Press **[-Value+]** until the desired number of copies appears.
- 7 Press **[Select]** to print the job.

Deleting a Private Job

When a user sends a private job, the printer overwrites any previous jobs with the same name. A private job is automatically deleted from the printer's memory after the user releases it for printing.

Note

If you turn the printer off and then back on, all quick copy, proof and hold, and private jobs are deleted.

A private job can also be deleted from the printer's control panel before it is ever printed.

- 1 Press **[Menu]** repeatedly until PRIVATE/STORED JOBS MENU appears.
- 2 Press **[Item]** until your user name appears.
- 3 Press **[-Value+]** until the desired job name appears.
- 4 Press **[Select]** to select the job. PIN:0000 appears.
- 5 Press **[-Value+]** to change the first number of the PIN, and then press **[Select]**. An * appears in place of the number. Repeat these steps to change the remaining three numbers of the PIN. COPIES=x appears.
- 6 Press **[-Value+]** until DELETE appears.
- 7 Press **[Select]** to delete the job.

Printer Maintenance

Overview

This chapter explains basic printer maintenance.

- Performing routine maintenance.
- Managing the print cartridge.
- Cleaning the printer.

Performing Routine Maintenance

To ensure optimum print quality, the printer will prompt you to perform printer maintenance every 150,000 pages. When the `PERFORM PRINTER MAINTENANCE` message appears on the control panel, you will need to purchase a printer maintenance kit and install the new parts. To check the number of pages the printer has printed, print a configuration page (page 80).

To order the printer maintenance kit, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)

The kit includes:

- fuser assembly
- transfer roller
- feed rollers
- necessary instructions

For more information on installing the printer maintenance kit, see the instructions that accompany it.

Note

The printer maintenance kit is a consumable and is not covered under warranty or standard service agreements.

Managing the Print Cartridge

HP Policy on Non-HP Print Cartridges

Hewlett-Packard Company cannot recommend use of non-HP print cartridges, either new or remanufactured. Because they are not HP products, HP cannot influence their design or control their quality.

Caution

Any damage caused by a non-HP print cartridge is not covered under the HP warranty and service agreements.

To install a new HP print cartridge, follow the instructions included in the start guide. To replace a HP print cartridge and recycle the used cartridge, follow the instructions included with the new cartridge.

Print Cartridge Storage

Do not remove the print cartridge from its package until you are ready to use it. (The shelf life of a cartridge in an unopened package is approximately 2.5 years.)

Caution

To prevent damage to the print cartridge, do not expose it to light for more than a few minutes.

Print Cartridge Life Expectancy

The life of the print cartridge depends on the amount of toner that print jobs require. When printing text at 5% coverage, an HP print cartridge lasts an average of 10,000 pages. (A typical business letter is about 5% coverage.) This assumes that print density is set to 3 and EconoMode is off. (These are the default settings.)

Caution

HP does not recommend full-time use of EconoMode. (If EconoMode is used consistently to print media with less than 5% toner coverage, it is possible that the toner supply will outlast the mechanical parts in the print cartridge.)

Continue Printing When Toner is Low

When toner is low, the printer's control panel displays the `TONER LOW` message.

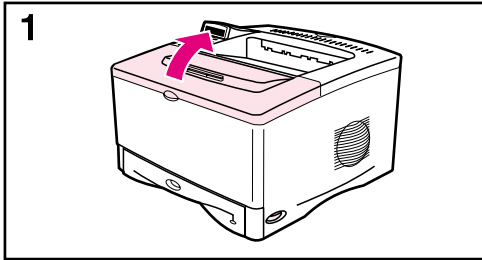
- If the `TONER LOW` message displays, but the printer continues printing, `TONER LOW` is set to `CONTINUE` (the default setting).
- If the printer stops printing when low toner is detected, `TONER LOW` is set to `STOP`. To resume printing, press **[Go]**.

The printer will continue to display `TONER LOW` until you replace the print cartridge.

Select `TONER LOW=CONTINUE` or `TONER LOW=STOP` from the Configuration Menu in the control panel (page B-13).

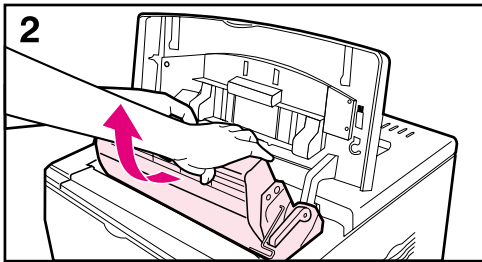
Redistributing the Toner

When toner is low, faded or light areas might appear on a printed page. You might be able to temporarily improve print quality by redistributing the toner. The following procedure might allow you to finish the current print job before replacing the print cartridge.



1 Open the top cover.

2 Remove the print cartridge from the printer.



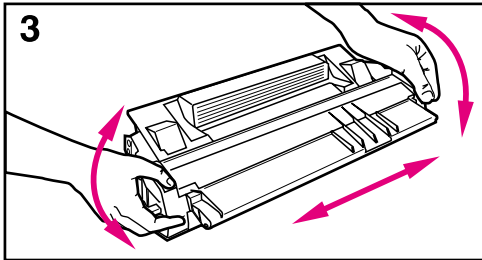
WARNING!

Avoid reaching too far into the printer. The adjacent fusing area might be hot!

Caution

To prevent damage to the print cartridge, do not expose it to light for more than a few minutes.

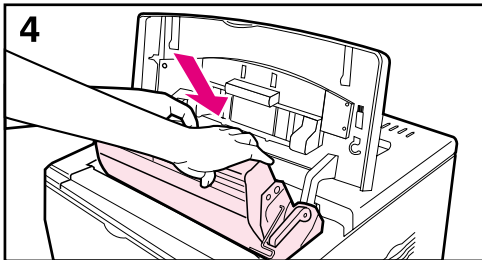
3 Rotate the print cartridge and gently shake it from side to side to redistribute the toner.



Note

If toner gets on your clothing, wipe it off with a dry cloth and wash clothing in cold water. (Hot water sets toner into fabric.)

4 Reinsert the print cartridge into the printer and close the top cover.



If the print remains light, install a new print cartridge. (Follow the instructions provided with the new print cartridge.)

Cleaning the Printer

To maintain print quality, follow the cleaning procedure (on the following page) every time the print cartridge is changed, or whenever print quality problems occur. As much as possible, keep the printer free from dust and debris.

- Clean the outside of the printer with a slightly water-dampened cloth.
- Clean the inside with a dry, lint-free cloth.

Caution

Do not use ammonia-based cleaners on or around the printer.

While cleaning the printer, be careful not to touch the transfer roller (the black, rubber roller, located underneath the print cartridge). Skin oils on the roller can cause print quality problems.

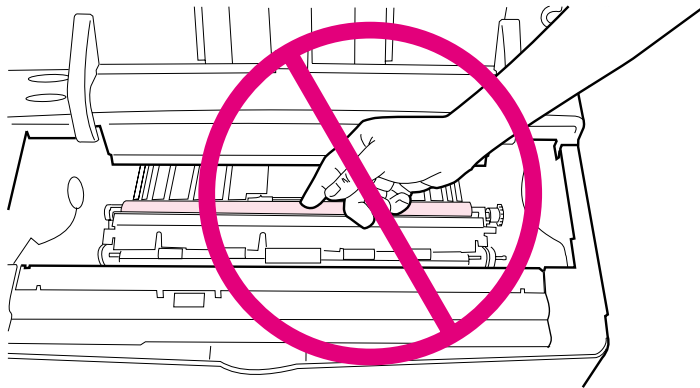
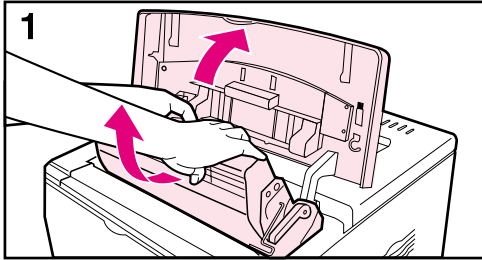


Figure 20 Location of the Transfer Roller—Do Not Touch!

Cleaning the Printer

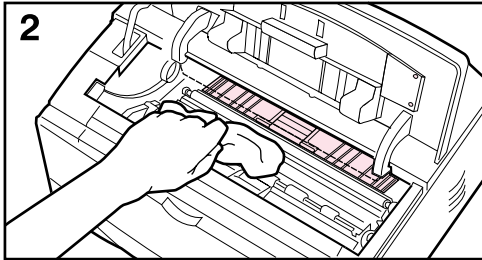


Before beginning these steps, turn the printer off and unplug the power cord.

- 1 Open the top cover and remove the print cartridge.

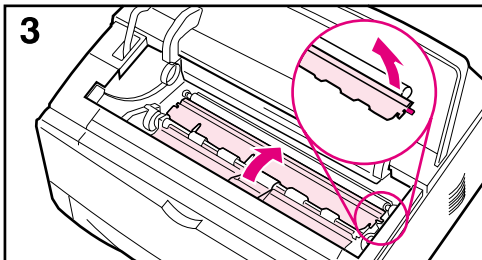
WARNING!

Avoid reaching too far into the printer. The adjacent fusing area might be hot!



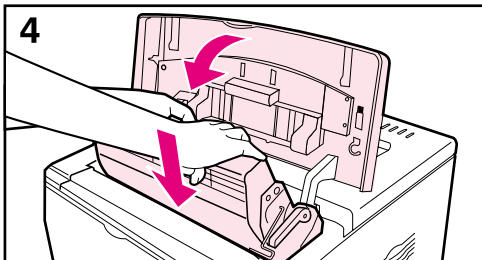
Caution

To prevent damage to the print cartridge, do not expose it to light for more than a few minutes.



Note

If toner gets on your clothing, wipe it off with a dry cloth and wash clothing in cold water. (Hot water sets toner into fabric.)



- 3 Using the green handles, lift the paper access plates and wipe off any residue with a dry, lint-free cloth.
- 4 Close the paper access plates, replace the print cartridge, close the top cover, plug in the power cord, and turn the printer on.

Using the Printer Cleaning Page

If toner specks appear on the front or back side of your print jobs, follow the procedure below.

From the printer's control panel, do the following:

- 1 Press **[Menu]** until PRINT QUALITY MENU appears.
- 2 Press **[Item]** until CREATE CLEANING PAGE appears.
- 3 Press **[Select]** to create the cleaning page.
- 4 Follow the instructions on the cleaning page to complete the cleaning process.

Note

In order for the cleaning page to work properly, print the page on copier grade paper (not bond or rough paper).

You might need to create a cleaning page more than once. When toner has been cleaned from inside the printer, shiny black spots will appear on the page's black strip. If white spots appear on the black strip, create a cleaning page again.

To ensure good print quality with certain types of paper, use the cleaning page every time the print cartridge is replaced. If the cleaning page is frequently needed, try a different type of paper.

Problem Solving

Overview

This chapter will help you to troubleshoot and solve printer problems.

Clear paper jams:

Occasionally, paper can jam during printing. This section will help you to locate paper jams, properly clear them from the printer, and solve repeated paper jams.

Understand printer messages:

Many different messages can appear on the printer's control panel display. Some messages tell the printer's current status, such as `INITIALIZING`. Other messages require an action, such as `CLOSE TOP COVER`. Many of these messages are self-explanatory. However, some messages indicate a problem with the printer, or require further action or description. This section lists these types of messages, and tells what to do if a message persists.

Correct output quality problems:

The printer should produce print jobs of the highest quality. If print jobs do not look sharp and clear, defects such as lines, specks, or smears appear on the page, or paper is wrinkled or curled, use this section to troubleshoot and solve the output quality problem.

Determine printer problems:

Before you can fix a printer problem, you must understand where the problem lies. Use the flowchart in this section to determine the printer problem, and then follow the corresponding troubleshooting suggestions.

Check printer configuration:

From the printer, you can print information pages, which give details about the printer and its configuration.

Clearing Paper Jams

If the printer's control panel displays a paper jam message, look for paper in the locations indicated in Figure 15, then see the procedure for clearing the paper jam. You might need to look for paper in other locations than indicated in the paper jam message. If the location of the paper jam is not obvious, look first in the top cover area.

When clearing paper jams, be very careful not to tear the paper. If a small piece of paper is left in the printer, it could cause additional jams. If paper jams are a recurring problem, see page 62.

Note A paper jam message might also display if the rear door is open.

The top cover of the printer must be opened and then closed to clear a paper jam message.

Paper jams can occur at the following locations:

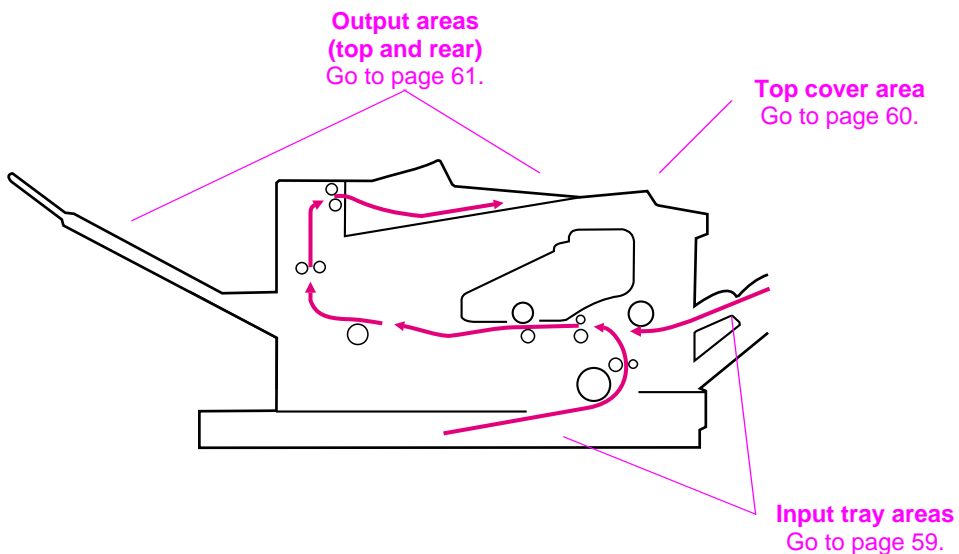
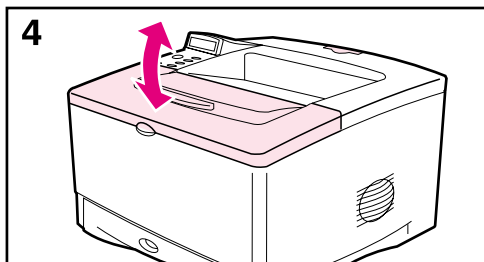
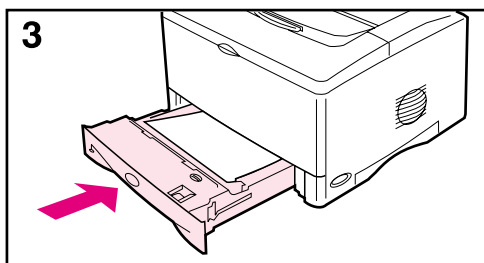
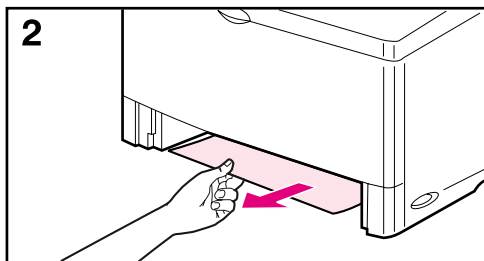
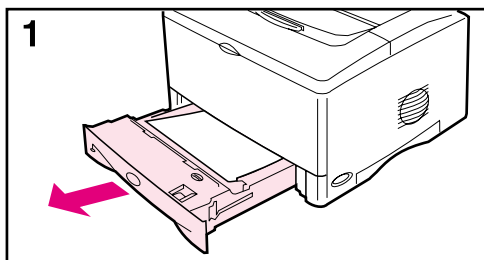


Figure 15 Paper Jam Locations

Note Loose toner might remain in the printer after a paper jam, but the toner should clear after a few sheets are printed.

Clearing Jams from the Input Tray Areas



Note

To remove paper from the Tray 1 area, slowly pull the paper out of the printer. For all other trays, follow the steps below.

1 Slide the tray out of the printer, and remove any damaged paper from the tray.

2 If the edge of the paper is visible in the feed area, slowly pull the paper down and out of the printer. If the paper is not visible, look in the top cover area (page 60).

Note

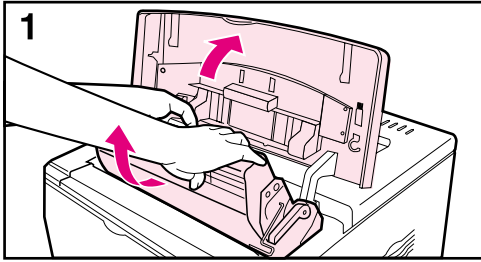
Do not force the paper if it will not move easily. If the paper is stuck in a tray, try removing it through the tray above (if applicable) or through the top cover area (page 60).

3 Before replacing the tray, make sure the paper is flat in the tray at all four corners and below the tabs on the guides.

4 Open and close the top cover to clear the paper jam message.

If a paper jam message persists, there is still paper in the printer. Look for paper in another location (page 58).

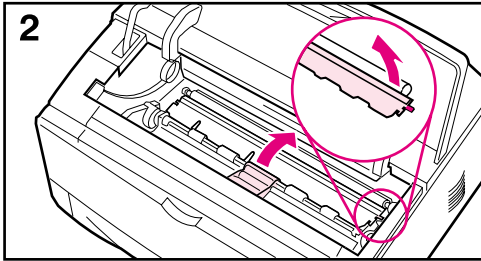
Clearing Jams from the Top Cover Area



- 1 Open the top cover and remove the print cartridge.

Caution

To prevent damage to the print cartridge, do not expose it to light for more than a few minutes.

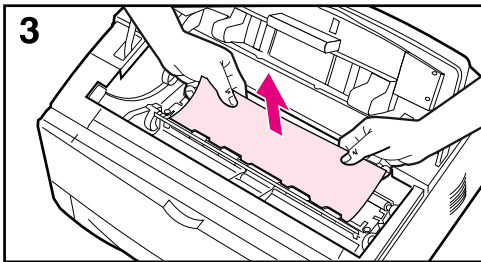


- 2 Use the green handles to lift the paper access plates.

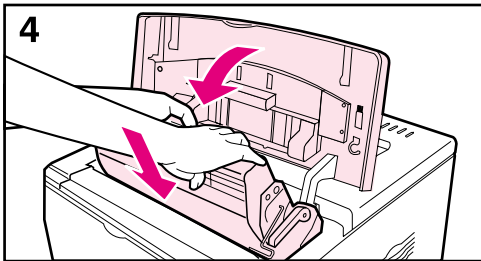
- 3 Slowly pull the paper out of the printer. Do not tear the paper!

Note

Avoid spilling loose toner. Using a dry, lint-free cloth, clean any loose toner that might have fallen into the printer (page 54).



If loose toner falls into the printer, it might cause temporary problems with print quality. Loose toner should clear from the paper path after a few pages are printed.

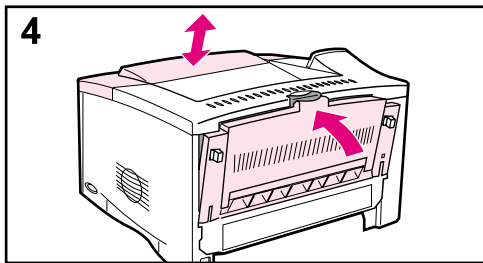
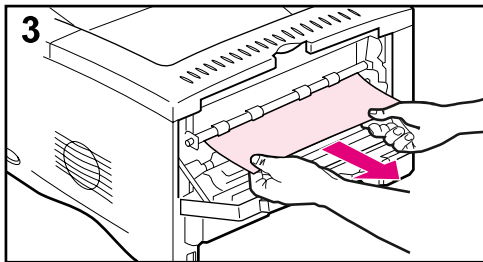
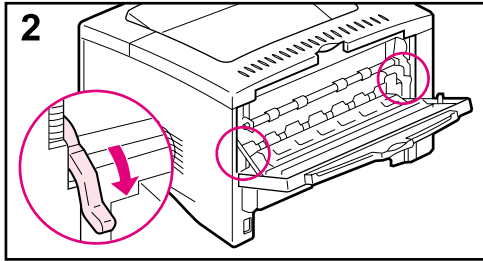
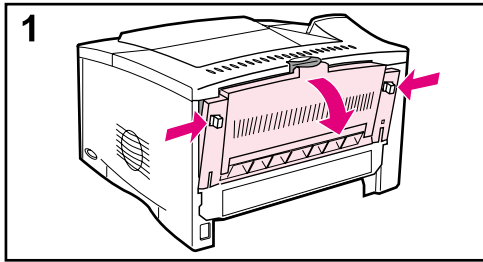


If toner gets on your clothing, wipe it off with a dry cloth and wash clothing in cold water. (Hot water sets toner into fabric.)

- 4 Close the paper access plates, replace the print cartridge, and close the top cover.

If a paper jam message persists, there is still paper in the printer. Look for paper in another location (page 58).

Clearing Jams from the Output Areas



Note

If paper is jammed in the top output area, but most of the paper is still inside the printer, it is best to remove it through the rear door.

- 1 Push in the two gray latches to release the rear door.
- 2 Push down the green paper release levers.
- 3 Grasp both sides of the paper, and slowly pull the paper out of the printer. (There might be loose toner on the paper. Be careful not to spill it on yourself or into the printer.)

Note

If paper is difficult to remove, try opening the top cover and removing the print cartridge to release pressure on the paper.

- 4 Close the rear door. (The levers automatically return to their original positions when the rear door is closed.) Open and close the top cover to clear the paper jam message.

If a paper jam message persists, there is still paper in the printer. Look for paper in another location (page 58).

Solving Repeated Paper Jams

If paper jams occur frequently, try the following:

- Check all the paper jam locations. A piece of paper might be stuck somewhere in the printer. (See page 58.)
- Check that paper is correctly loaded in the trays, that the trays are correctly adjusted for the loaded paper size, and that the trays are not overfilled. (See the sections on loading paper, starting on page 24.)
- Check that Tray 2 is completely inserted into the printer. (If the tray is opened during a print job, this might cause a paper jam.)
- Check that all covers and doors are closed. (If a cover or door is opened during a print job, this might cause a paper jam.)
- Try printing to a different output bin (page 20).
- The sheets might be sticking together. Try bending the stack to separate each sheet. Do not fan the stack.
- If you are printing from Tray 1, try feeding fewer sheets of paper or fewer envelopes at a time.
- If you are printing small sizes (such as index cards), make sure the paper is oriented correctly in the tray (page 36).
- Turn over the stack of paper in the tray. Also try rotating the paper 180°.
- Try rotating paper (such as perforated or multi-sheet forms and labels) to feed through the printer from a different orientation (page 33).
- Check the quality of the paper being printed. Damaged or irregular paper should not be used.
- Use only paper that meets HP specifications (pages A-2 through A-12).
- Do not use paper that has already been used in a printer or copier. (Do not print on both sides of envelopes, transparencies, vellum, or labels.)
- Check that the power supplied to the printer is steady, and meets printer specifications (page A-14).
- Clean the printer (page 54).
- Contact an HP-authorized service or support provider to perform routine printer maintenance. (See the telephone support flyer included with the printer.)

Understanding Printer Messages

The following table explains messages that might display on the printer's control panel. Printer messages and their meanings are listed in alphabetical order, with numbered messages following.

If a message persists:

- If a message persists requesting that you load a tray, or if a message indicates that a previous print job is still in the printer's memory, press **[Go]** to print or press **[Cancel Job]** to clear the job from the printer's memory.
- If a message persists after performing all of the recommended actions, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)

Note

Not all messages are described in this user's guide (many are self-explanatory).

Some printer messages are affected by the Auto Continue and Clearable Warning settings from the Configuration Menu in the printer's control panel (page B-13).

Printer Messages

Message	Explanation or Recommended Action
ACCESS DENIED MENU LOCKED	The printer control panel function you are trying to access has been locked to prevent unauthorized access.
CHECKING PAPER PATH	The engine is rolling its rollers to check for possible paper jams.
CHOSEN LANGUAGE NOT AVAILABLE	A print job requested a printer language that does not exist in the printer. The job will not print and will be cleared from memory. Print the job using a driver for a different printer language, or add the requested language to the printer (if available). Press [Go] to continue.
CLOSE TOP COVER	The top cover is open and must be closed for printing to continue.
FLASH n INITIALIZING alternates with DO NOT POWER OFF	The flash DIMM can take a long time to initialize the first time that it is used.

Message	Explanation or Recommended Action
FLASH DEVICE FAILURE	The flash DIMM had a critical failure and no longer can be used. Remove the flash DIMM and replace it with a new one.
FLASH FILE OPERATION FAILED	The requested operation could not be performed. You might have attempted an illegal operation, such as trying to download a file to a non-existent directory.
FLASH FILE SYSTEM IS FULL	Delete files from the flash DIMM or add another one. Download or delete fonts. (See the software help for more information.)
FLASH IS WRITE PROTECTED	The flash DIMM is protected, and no new files can be written to it.
INSTALL TONER CARTRIDGE	The print cartridge has been removed and must be replaced for printing to continue.
INSTALL TRAY x	The printer is unable to print the current job, because the specified tray (x) is open or not inserted correctly. Re-insert the specified tray.
LOADING PROGRAM <number> alternates with DO NOT POWER OFF	Programs and fonts can be stored on the printer's file system. At bootup time these entities are loaded into RAM. (These entities can take a long time to load into RAM depending on the size and number of entities being loaded.) The <number> specifies a sequence number indicating the current program being loaded.
MANUALLY FEED [TYPE] [SIZE]	Load the requested paper into Tray 1. Press [Go] if the desired paper is already loaded in Tray 1. Press [-Value+] to scroll through the available types and sizes. Press [Select] to accept the alternate type or size.
MEMORY FULL STORED DATA LOST	There is no available memory in the printer. The current job might not print correctly and some resources (such as downloaded fonts or macros) might have been deleted. You might want to add more memory to the printer (page C-1).
MEMORY SETTINGS CHANGED	The printer changed its memory settings because it did not have enough memory to use the previous settings for I/O Buffering and Resource Saving. This usually occurs after removing memory from the printer, or adding a printer language. You might want to change memory settings for I/O Buffering and Resource Saving (although default settings are usually best) or add more memory to the printer (page C-1).

Message	Explanation or Recommended Action
MEMORY SHORTAGE JOB CLEARED	The printer did not have enough free memory to print the entire job. The remainder of the job will not print and will be cleared from memory. Press [Go] to continue. Change the Resource Saving setting from the printer's control panel (page C-5) or add more memory to the printer (page C-1).
MEMORY SHORTAGE PAGE SIMPLIFIED	The printer had to compress the job in order to fit it in available memory. Some data loss might have occurred. Press [Go] to continue. You might want to add more memory to the printer (page C-1).
MOPY PAGE TOO COMPLEX alternates with PRESS GO TO CONTINUE	The data (dense text, rules, raster or vector graphics) sent to the printer was too complex. Press [Go] to print the transferred data. (Some data might be lost.) If this message appears often, simplify the print job.
OFFLINE	Press [Go] to place the printer online.
OUTPUT BIN FULL CLEAR (BIN nnn) n (bin name)	The output bin is full and needs to be emptied.
PERFORM PRINTER MAINTENANCE	Hewlett-Packard recommends that only HP-authorized service technicians service the printer. However, you can perform most routine maintenance. When the PERFORM PRINTER MAINTENANCE message appears on the control panel, you will need to purchase a printer maintenance kit and install the new parts.
RESEND UPGRADE	There is an error in the printer's flash firmware. Resend a valid firmware image.
TRAY x EMPTY	Load the empty tray (x) to clear the message. If you do not load the specified tray, the printer will continue printing from the next available tray, and the message will continue to display.

Message	Explanation or Recommended Action
TRAY x LOAD [TYPE] [SIZE]	<p>Load the requested paper into the specified tray (x). (See the sections on loading paper, starting on page 24.)</p> <p>Ensure that the trays are correctly adjusted for size. The size displayed on the front of the paper tray must match the size of paper loaded in the tray. The tray type settings (and size for Tray 1) must be set from the printer's control panel (page 43).</p> <p>If you are trying to print A4 or letter size paper, and this message appears, make sure the default paper size is set correctly from the Printing Menu in the printer's control panel.</p> <p>Press [Go] to print from the next available tray.</p> <p>Press [-Value+] to scroll through the available types and sizes. Press [Select] to accept the alternate type or size.</p>
TRAY 2 LOAD LEGAL (or similar messages requesting that you load paper)	<p>Load the requested paper into the indicated tray, or press [Select] to override the message and to print on a loaded paper size.</p> <p>If printing does not continue, press [Go].</p>
UNSUPPORTED SIZE IN TRAY [YY]	<p>An external paper handling device detected an unsupported paper size. The printer will go offline until the condition is corrected.</p>
USE [TYPE] [SIZE] INSTEAD?	<p>If the requested paper size or type is not available, the printer asks if it should use another paper size or type instead.</p> <p>Press [-Value+] to scroll through the available types and sizes. Press [Select] to accept the alternate type or size.</p>
XX.YY PRINTER ERROR PRESS GO TO CONTINUE	<p>A printer error has occurred that can be cleared by pressing [Go] in the printer's control panel.</p>
13.x PAPER JAM [LOCATION]	<p>Remove jammed paper from the specified location (page 58). Open and close the top cover to clear the message.</p> <p>If the message persists after all jams have been cleared, a sensor might be stuck or broken. Contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>
20 INSUFFICIENT MEMORY alternates with PRESS GO TO CONTINUE	<p>The printer received more data than can fit in its available memory. You might have tried to transfer too many macros, soft fonts, or complex graphics.</p> <p>Press [Go] to print the transferred data (some data might be lost), then simplify the print job or install additional memory (page C-1).</p>

Message	Explanation or Recommended Action
21 PAGE TOO COMPLEX alternates with PRESS GO TO CONTINUE	<p>The data (dense text, rules, raster or vector graphics) sent to the printer was too complex.</p> <p>Press [Go] to print the transferred data. (Some data might be lost.)</p> <p>To print the job without losing data, from the Configuration Menu in the printer control panel, set PAGE PROTECT=ON, print the job, and then return PAGE PROTECT=AUTO. (For more information, see page B-12.) Do not leave PAGE PROTECT=ON; it might degrade performance.</p> <p>If this message appears often, simplify the print job.</p>
22 PARALLEL I/O BUFFER OVERFLOW alternates with PRESS GO TO CONTINUE	<p>Too much data was sent to the parallel port.</p> <p>Check for a loose cable connection and be sure to use a high-quality cable (page 7). (Some non-HP parallel cables might be missing pin connections, or might otherwise not conform to the IEEE-1284 specification.)</p> <p>This error can occur if the driver you are using is not IEEE-1284 compliant. For best results, use an HP driver that came with the printer (page 17).</p> <p>Press [Go] to clear the error message. (Data will be lost.)</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>
41.3 UNEXPECTED PAPER SIZE	<p>The paper size you are trying to print is not the same as the settings for the tray.</p> <p>Make sure that all trays are correctly adjusted for size. The size displayed on the front of the paper tray must match the size of paper loaded in the tray. (The printer will continue trying to print the job until size settings are correct.)</p> <p>If you are trying to print from Tray 1, make sure the printer's control panel setting for paper size is correctly configured (page B-4).</p> <p>After performing the actions above, press [Go]. The page containing the error will automatically be reprinted. (Or, you might want to press [Cancel Job] to clear the job from the printer's memory.)</p>
41.x PRINTER ERROR alternates with PRESS GO TO CONTINUE	<p>A temporary printing error occurred.</p> <p>Press [Go]. The page containing the error will automatically be reprinted.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>
50.x FUSER ERROR	<p>An internal error has occurred. Turn the printer off, and then turn the printer on.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>

Message	Explanation or Recommended Action						
51.x or 52.x PRINTER ERROR	<p>A temporary printing error occurred.</p> <p>Press [Go]. The page containing the error will automatically be reprinted.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>						
53.x,y,zz PRINTER ERROR	<p>There is a problem with the printer's memory. The DIMM that caused the error will not be used. Values of x, y, and zz are as follows:</p> <table><tr><td>x = DIMM type</td><td>0 = ROM 1 = RAM</td></tr><tr><td>y = Device location</td><td>0 = Internal memory (ROM or RAM) 1 to 3 = DIMM slots 1, 2, or 3</td></tr><tr><td>zz = Error number</td><td></td></tr></table> <p>Turn the printer off, and then reseal the DIMM that caused the error. Turn the printer on.</p> <p>If the problem persists, move the DIMM to a different slot or replace the specified DIMM (page C-2).</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>	x = DIMM type	0 = ROM 1 = RAM	y = Device location	0 = Internal memory (ROM or RAM) 1 to 3 = DIMM slots 1, 2, or 3	zz = Error number	
x = DIMM type	0 = ROM 1 = RAM						
y = Device location	0 = Internal memory (ROM or RAM) 1 to 3 = DIMM slots 1, 2, or 3						
zz = Error number							
55 PRINTER ERROR alternates with PRESS GO TO CONTINUE	<p>A temporary printing error occurred.</p> <p>Press [Go]. The page containing the error will automatically be reprinted.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>						
56.x, 57.x, 58.x, or 59.x PRINTER ERROR	<p>A temporary printing error occurred.</p> <p>Turn the printer off, and then turn the printer on.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>						
62.x PRINTER ERROR	<p>There is a problem with the printer's memory. The x value refers to the location of the problem:</p> <table><tr><td>0 = Internal memory</td></tr><tr><td>1 to 3 = DIMM slots 1, 2, or 3</td></tr></table> <p>You might need to replace the specified DIMM.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>	0 = Internal memory	1 to 3 = DIMM slots 1, 2, or 3				
0 = Internal memory							
1 to 3 = DIMM slots 1, 2, or 3							
64.x PRINTER ERROR	<p>A temporary printing error occurred.</p> <p>Turn the printer off, and then turn the printer on.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>						

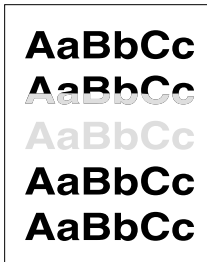
Message	Explanation or Recommended Action
68 NVRAM ERROR CHECK SETTINGS	<p>An error occurred in the printer's nonvolatile memory (NVRAM) and one or more printer settings has been reset to its factory default.</p> <p>Print a configuration page and check the printer settings to determine which values have changed (page 80).</p> <p>Hold down [Cancel Job] while turning the printer on. This will clean up the NVRAM by removing old areas that are not being used.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>
68 NVRAM FULL CHECK SETTINGS	<p>The printer's nonvolatile memory (NVRAM) is full. Some settings might have been reset to the factory defaults.</p> <p>Print a configuration page and check the printer settings to determine which values have changed (page 80).</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>
69.x PRINTER ERROR	<p>A temporary printing error occurred.</p> <p>Turn the printer off, and then turn the printer on.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>
79.xxxx PRINTER ERROR	<p>The printer detected an error. The numbers (xxxx) indicate the specific type of error.</p> <p>Turn the printer off, and then turn the printer on. Try printing a job from a different software application. If the job prints, go back to the first application and try printing a different file. (If the message only appears with a certain software application or print job, contact the software vendor for assistance.)</p> <p>If the message persists with different software applications and print jobs, record the numbers that appear (xxxx) and contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)</p>

Correcting Output Quality Problems

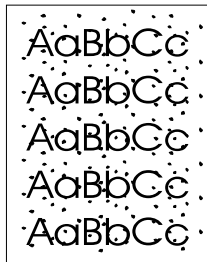
Use the examples below to determine which output quality problem you are experiencing, then see the following table to troubleshoot the problem.

Note

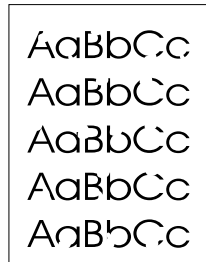
The examples below depict letter-size paper that has passed through the printer long-edge first. (If the paper has passed through the printer short-edge first, lines and repeating defects will run vertically rather than horizontally.)



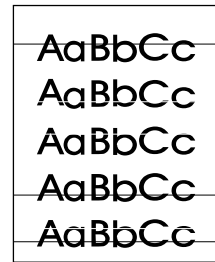
Light Print or
Fade



Toner Specks
(front or back)



Dropouts



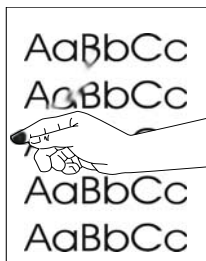
Lines



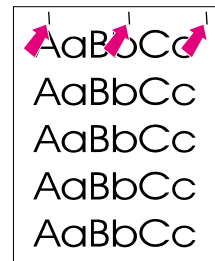
Gray
Background



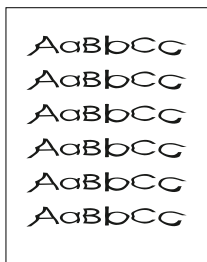
Toner Smear



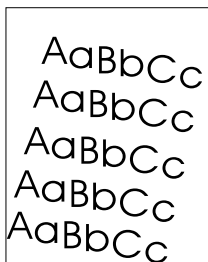
Loose Toner



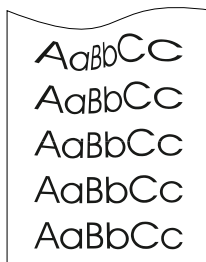
Repeating
Defects



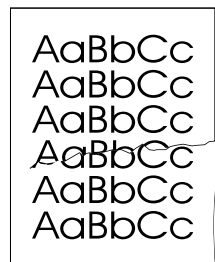
Misformed
Characters



Page Skew



Curl or Wave



Wrinkles or
Creases

Figure 16 Examples of Output Quality Problems

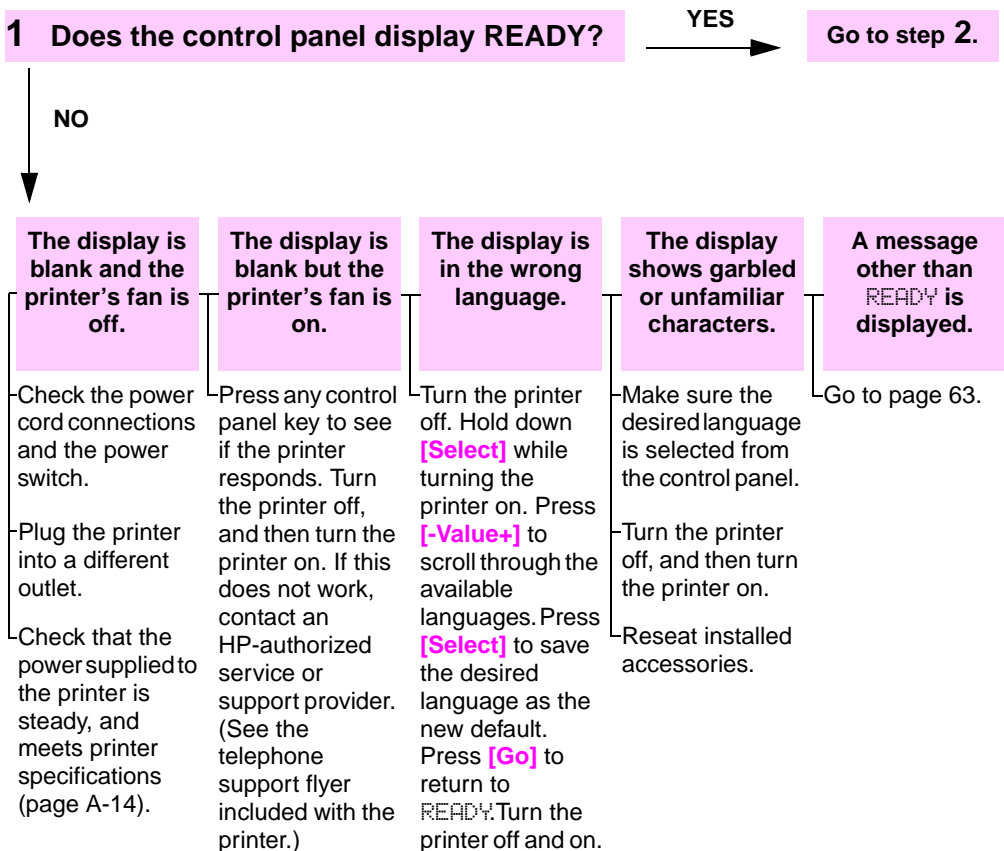
Light Print or Fade	Toner Specks	Dropouts	Lines	Gray Background	Toner Smear	Loose Toner	Repeating Defects	Misformed Characters	Page Skew	Curl or Wave	Wrinkles or Creases	Troubleshooting Steps (Follow the steps in the order they are listed.)
	✓		✓		✓	✓	✓				✓	1. Print a few more pages to see if the problem will correct itself.
	✓		✓		✓	✓	✓					2. Clean the inside of the printer (page 54) or use the printer's cleaning page (page 56).
✓		✓										3. Make sure EconoMode is off in the software and in the control panel (page B-7).
					✓				✓	✓	✓	4. Turn over the stack of paper in the tray. Also try rotating the paper 180°.
✓	✓	✓ ₁		✓	✓ ₁	✓ ₁		✓ ₁	✓	✓	✓	5. Check the paper (or other print media) type and quality (pages A-2 through A-12).
✓		✓		✓	✓				✓	✓	✓	6. Check the printer's environment (page A-14).
									✓		✓	7. Make sure paper is loaded correctly and that the guides fit properly against the paper stack. (See the sections on loading paper, starting on page 24.)
										✓	✓	8. Print to a different output bin (page 20).
✓		✓		✓								9. Adjust the toner density setting (page B-7).
		✓				✓						10. Change the fuser mode setting to High (page B-5) or choose rough paper type from the printer driver (page 43).
										✓	✓	11. Change the fuser mode setting to Low (page B-5).
✓		✓										12. Redistribute the toner in the print cartridge (page 53).
✓		✓	✓	✓	✓		✓	✓				13. Install a new HP print cartridge. (See instructions with the print cartridge.)
	✓						✓					14. To alternate small and standard paper, from the Configuration Menu set SMALL PAPER SPEED=SLOW .
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15. After trying all the steps suggested above, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)

Determining Printer Problems

Troubleshooting Flowchart

If the printer is not responding properly, use the flowchart to determine the problem. If the printer does not pass a step, follow the corresponding troubleshooting suggestions.

If you cannot resolve the problem after following the suggestions in this user's guide, contact an HP-authorized service or support provider. (See the telephone support flyer included with the printer.)



2 Can you print a configuration page?

YES

Go to step 3.

NO

Print a configuration page to verify that the printer is feeding paper correctly (page 80).

A configuration page does not print.

Check that all trays are properly loaded, adjusted, and installed in the printer. (See the sections on loading paper, starting on page 24.)

From the computer, check the print queue or print spooler to see if the printer has been paused. If there are problems with the current print job, or if the printer is paused, a configuration page will not print. (Press **[Cancel Job]** and try Step 2 again.)

A blank page prints.

Check that the sealing tape is not still in the print cartridge. (See the start guide or the instructions that came with the print cartridge.)

The print cartridge might be empty. Install a new print cartridge.

A message other than READY or PRINTING CONFIGURATION is displayed.

Go to page 63.

3 Can you print from a software application?

YES

Go to step 4.

NO

Print a short document from a software application.

The job will not print.

A page of commands prints.

- If the job will not print, and a message is displayed, see page 63.
 - From the computer, check to see if the printer has been paused.
 - Check the interface cable connections. Disconnect and reconnect the cable at the computer and the printer.
 - Test the cable by trying it on another computer (if possible).
 - Make sure the cable is IEEE-1284 compliant.
 - To verify that it is not a computer problem, print from another computer (if possible).
 - Make sure the print job is being sent to the correct port (LPT1, or network printer port, for example).
 - Check that you are using the proper printer driver (page 16).
 - Reinstall the printer driver. (See the start guide.)
 - Check that the port is configured and working properly. (One way to check this is to connect another printer to that port and print.)
 - From the Configuration Menu in the printer's control panel, make sure that `PERSONALITY=AUTO` (page B-11).
 - You might be missing a printer message that could help you solve the problem. From the Configuration Menu in the printer's control panel, temporarily turn the Clearable Warnings and Auto Continue settings off (page B-13) and then print the job again.
- The printer might have received PostScript code.

4 Does the job print as expected?

YES

continued

NO

Print is garbled or only a portion of the page prints.

- Check that you are using the proper printer driver (page 17).
- The data file sent to the printer might be corrupt. To test, try printing it on another printer (if possible), or try a different file.
- Check the interface cable connections. Test the cable by trying it on another computer (if possible).
- Replace the printer cable with a high-quality cable (page 7).
- Reduce the job's complexity, print at a lower resolution (page B-6), or install more printer memory (page C-1).
- You might be missing a printer message that could help you solve the problem. From the Configuration Menu in the printer's control panel, temporarily turn the Clearable Warnings and Auto Continue settings off (page B-13) and then print the job again.

Printing stops in the middle of the job.

- [Cancel Job]** might have been pressed.
- Check that the power supplied to the printer is steady, and meets printer specifications (page A-14).

Print speed is slower than expected.

- Simplify the print job.
- Add more memory to the printer (page C-1).

A control panel setting is not taking effect.

- Check settings in the printer driver or software application. (Printer driver and software commands override control panel settings.)

Does the job print as expected? (continued) **YES** → **Go to step 5.**

↓
NO

The print job is not formatted correctly.

- Check that you are using the proper printer driver (page 17).
- Check the software settings. (See the software help.)
- Try a different font.
- Make sure the setting of the dial in the tray matches the size of the paper loaded in the tray.
- If TRAY 1=FIRST is set in Paper Handling Menu, the printer pulls paper from Tray 1, regardless of size.

Pages are not fed correctly or are damaged.

- Make sure paper is loaded correctly and that the guides are not too tight or too loose against the paper stack. (See the sections on loading paper, starting on page 28.)
- If you are trying to print A4 paper, the side guides in the tray might have slipped out of place. (Make sure the side guides are locked into position.)
- If you are having problems printing custom-size paper, see page 40.
- If pages are wrinkled or curled, or if the image is skewed on the page, see page 71.

There are print quality problems.

- Adjust the print resolution (page B-6).
- Check that REt is on (page B-6).
- Go to page 71.

5 Does the printer select the proper trays and output locations?

YES

For other problems, check the Contents, the Index, or the printer software help.

NO

The printer pulls from the wrong tray.

A message other than READY is displayed.

Make sure paper trays are correctly configured for paper size and type (page 47). Print a configuration page to see current tray settings (page 80).

Make sure the tray selection (or paper type) in the printer driver or software application is set correctly. (The printer driver and software application settings override the printer's control panel settings.)

If you do not want to print from Tray 1, remove any paper loaded in the tray or change the TRAY 1 MODE setting to CASSETTE (page 45). By default, paper loaded in Tray 1 will be printed first.

If you want to print from Tray 1, but cannot select the tray from a software application, see page 45.

Go to page 63.

Linux Problem Solving

For information about Linux problem solving, see the HP Linux support homepage: <http://hp.sourceforge.net/>.

Checking the Printer's Configuration

From the printer's control panel, you can print pages that give details about the printer and its current configuration. The following information pages are described here:

- Menu Map
- Configuration Page
- PCL Font List

For a complete list of the printer's information pages, see the Information Menu in the printer's control panel (page B-3).

Menu Map

To see the current settings for the menus and items available in the control panel, print a control panel menu map:

- 1 Press **[Menu]** until INFORMATION MENU appears.
- 2 Press **[Item]** until PRINT MENU MAP appears.
- 3 Press **[Select]** to print the menu map.

You might want to store the menu map near the printer for reference. The content of the menu map varies, depending on the options currently installed in the printer. (Many of these values can be overridden from the printer driver or software application.)

For a complete list of control panel items and possible values, see page B-1. To change a control panel setting, see page 11.

Configuration Page

Use the configuration page to view current printer settings, to help troubleshoot printer problems, or to verify installation of optional accessories, such as memory (DIMMs), and printer languages.

To print a configuration page:

- 1 Press **[Menu]** until INFORMATION MENU appears.
- 2 Press **[Item]** until PRINT CONFIGURATION appears.
- 3 Press **[Select]** to print the configuration page.

Figure 17 is a sample configuration page. Numbers in the sample printout match the numbers in the table. The content of the configuration page varies, depending on the options currently installed in the printer.

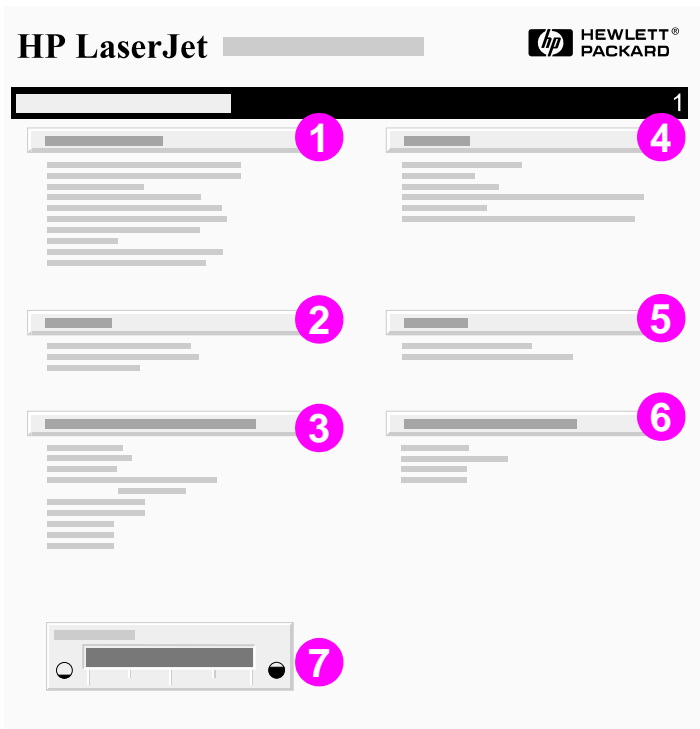


Figure 17 Sample Configuration Page

1	Printer Information	Lists the serial number, page counts, and other information for the printer.
2	Event Log	Lists the number of entries in the log, the maximum number of entries viewable, and the last three entries. The second page of the event log is the manufacturing page. This page contains information that may assist HP Customer Care representatives in solving possible printer problems.
3	Installed Personalities and Options	Lists all printer languages that are installed (such as PCL) and lists options that are installed in each DIMM slot.
4	Memory	Lists printer memory, PCL Driver Work Space (DWS), I/O buffering information, and resource saving information.
5	Security	Lists the status of the printer's control panel lock and control panel password.
6	Paper Trays and Options	Lists the size settings for all trays.
7	Toner Level	Provides a graphic representation of how much toner is left in the cartridge.

PCL Font List

Use the font lists to see which fonts are currently installed in the printer. (The font lists also show which fonts are resident on a flash DIMM.)

To print a PCL font list:

- 1 Press **[Menu]** until INFORMATION MENU appears.
- 2 Press **[Item]** until PRINT PCL FONT LIST appears.
- 3 Press **[Select]** to print the font list.

The following describes the information that can be found on the PCL font list:

- **Font** gives the font names and samples.
- **Pitch/Point** indicates the pitch or point size of the font.
- **Escape Sequence** (a PCL programming command) is used to select the designated font. (See the legend at the bottom of the font list page.)

Note

For step-by-step instructions on using printer commands to select a font with DOS applications, see page D-7.

- **Font #** is the number used to select fonts from the printer's control panel (not the software application). Do not confuse the font # with the font ID, described below. The number indicates the DIMM slot where the font is stored.
 - **SOFT**: Downloaded fonts, which stay resident in the printer until other fonts are downloaded to replace them, or until the printer is turned off.
 - **INTERNAL**: Fonts that permanently reside in the printer.
- **Font ID** is the number you assign to soft fonts when you download them through software.

Specifications

Overview

This appendix includes:

- Paper specifications
- Printer specifications
- Cable specifications

Paper Specifications

HP LaserJet printers produce excellent print quality. This printer accepts a variety of media, such as cut-sheet paper (including recycled paper), envelopes, labels, transparencies, vellum, and custom-size paper. Properties such as weight, grain, and moisture content are important factors affecting printer performance and output quality.

The printer can use a variety of paper and other print media in accordance with the guidelines in this manual. Paper that does not meet these guidelines may cause the following problems:

- poor print quality
- increased paper jams
- premature wear on the printer, requiring repair

Note

For best results, use only HP brand paper and print media. Hewlett-Packard Company cannot recommend the use of other brands. Because they are not HP products, HP cannot influence or control their quality.

It is possible for paper to meet all of the guidelines in this manual and still not produce satisfactory results. This might be the result of improper handling, unacceptable temperature and humidity levels, or other variables over which Hewlett-Packard has no control.

Before purchasing a large quantity of paper, make sure it meets the requirements specified in this user's guide and in the *HP LaserJet Printer Family Print Media Guide*. (To order the guide, see page 7.) Always test paper before purchasing a large quantity.

Caution

Using paper outside HP specifications may cause problems for the printer, requiring repair. This repair is not covered by the Hewlett-Packard warranty or service agreements.

Polyester media

The use of polyester media through the printer for offset printing applications will not effect or impact any existing printer warranties.

However, image print quality defects and jams are possible when using polyester media. Only 1 sheet at a time should be fed through Tray 1.

The media vendor should be contacted to resolve any performance issues related to the use of polyester media. For more information, see the polyester media drawer statement at http://www.hp.com/cposupport/printers/support_doc/bpl07088.html.

Supported Sizes and Weights of Paper

Tray 1	Dimensions ¹	Weight	Capacity ²
Minimum Size (custom)	3 by 5 in (76 by 127 mm)	16 to 53 lb (60 to 199 g/m ²)	100 sheets of 20 lb (75 g/m ²) paper
Maximum Size (custom)	12.28 by 18.5 in (312 by 470 mm)		
Transparencies	Same as minimum and maximum paper sizes listed above.	Thickness: 0.0039 in to 0.0045 in (0.099 to 0.114 mm)	75 transparencies
Labels		Thickness: 0.005 in to 0.007 in (0.127 mm to 0.178 mm)	50 labels
Envelopes		20 to 28 lb (75 to 105 g/m ²)	10 envelopes

1. The printer supports a wide range of paper sizes. Check the printer software for supported sizes. To print custom-size paper, see page 35.

2. Capacity may vary depending on paper weight and thickness, and environmental conditions.

Tray 2	Dimensions ¹	Weight	Capacity ²
Letter	8.5 by 11 in (216 by 279 mm)	16 to 28 lb (60 to 105 g/m ²)	250 sheets of 20 lb (75 g/m ²) paper
A4	8.3 by 11.7 in (210 by 297 mm)		
Executive	7.3 by 10.5 in (191 by 267 mm)		
Legal	8.5 by 14 in (216 by 356 mm)		
B5 (JIS)	7.2 by 10 in (182 by 257 mm)		
A5	5.8 by 8.2 in (148 by 210 mm)		
11 x 17	11 by 17 in (279 by 432 mm)		
A3	11.7 by 16.5 in (297 by 420 mm)		
B4 (JIS)	10.1 by 14.3 in (257 by 364 mm)		

1. The printer supports a wide range of media sizes. Check the printer software for supported sizes.

2. Capacity may vary depending on media weight and thickness, and environmental conditions.

Supported Types of Paper

The printer supports the following types of paper:

- plain
- letterhead
- prepunched
- bond
- color
- rough
- preprinted
- transparency
- labels
- recycled
- card stock
- vellum

Guidelines for Using Paper

For best results, use conventional 20 lb (75 g/m²) paper. Make sure the paper is of good quality, and free of cuts, nicks, tears, spots, loose particles, dust, wrinkles, voids, and curled or bent edges.

If you are unsure what type of paper you are loading (such as bond or recycled), check the label on the package of paper.

Some paper causes print quality problems, jamming, or damage to the printer.

Symptom	Problem with Paper	Solution
Poor print quality or toner adhesion. Problems with feeding.	Too moist, too rough, too smooth, or embossed; faulty paper lot.	Try another kind of paper, between 100-250 Sheffield, 4-6% moisture content.
Dropouts, jamming, curl.	Stored improperly.	Store paper flat in its moisture-proof wrapping.
Increased gray background shading.	Too heavy.	Use lighter paper. Open the rear output bin.
Excessive curl. Problems with feeding.	Too moist, wrong grain direction or short-grain construction.	Open the rear output bin. Use long-grain paper. Set FUSER MODE=LOW (page B-5).
Jamming, damage to printer. Problems with feeding.	Cutouts or perforations. Ragged edges.	Use higher-quality paper with cutouts or perforations. Use good quality paper.

Note

Do not use letterhead paper that is printed with low-temperature inks, such as those used in some types of thermography.

Do not use raised letterhead.

Lower-quality cutout, perforated, or pre-punched media increases the risk of jams.

The printer uses heat and pressure to fuse toner to the paper. Make sure that any colored paper or preprinted forms use inks that are compatible with the printer's temperature (400° F or 205° C for 0.1 second).

Paper Weight Equivalence Table

Use this table to determine approximate equivalent points in weight specifications other than U.S. bond weight. For example, to determine the equivalent of 20 lb U.S. bond weight paper in U.S. cover weight, locate the bond weight (in row 3, second column) and scan across the row to the cover weight (in the fourth column). The equivalent is 28 lb.

Shaded areas indicate a standard weight for that grade.

	U.S. Post Card ¹ thickness (mm)	U.S. Bond Weight (lb)	U.S. Text/Book Weight (lb)	U.S. Cover Weight (lb)	U.S. Bristol Weight (lb)	U.S. Index Weight (lb)	U.S. Tag Weight (lb)	Europe Metric Weight (g/m ²)	Japan Metric Weight (g/m ²)
1		16	41	22	27	33	37	60	60
2		17	43	24	29	35	39	64	64
3		20	50	28	34	42	46	75	75
4		21	54	30	36	44	49	80	80
5		22	56	31	38	46	51	81	81
6		24	60	33	41	50	55	90	90
7		27	68	37	45	55	61	100	100
8		28	70	39	49	58	65	105	105
9		32	80	44	55	67	74	120	120
10		34	86	47	58	71	79	128	128
11		36	90	50	62	75	83	135	135
12	.18	39	100	55	67	82	91	148	148
13	.19	42	107	58	72	87	97	157	157
14	.20	43	110	60	74	90	100	163	163
15	.23	47	119	65	80	97	108	176	176
16		53	134	74	90	110	122	199	199

1. U.S. Post Card measurements are approximate. Use for reference only.

Labels

Caution

To avoid damaging the printer, use only labels recommended for use in laser printers.

If you have problems printing labels, use Tray 1 and open the rear output bin.

Never print on the same sheet of labels more than once.

Label Construction

When selecting labels, consider the quality of each component:

- **Adhesives:** The adhesive material should be stable at 400° F (205° C), the printer's maximum temperature.
- **Arrangement:** Only use labels with no exposed backing between them. Labels can peel off sheets with spaces between the labels, causing serious jams.
- **Curl:** Prior to printing, labels must lie flat with no more than 0.5 inch (13 millimeters) of curl in any direction.
- **Condition:** Do not use labels with wrinkles, bubbles, or other indications of separation.

To print sheets of labels, see page 31.

Transparencies

Transparencies used in the printer must be able to withstand 400° F (205° C), the printer's maximum temperature, for 0.1 second. Close the rear output bin to print transparencies to the top output bin.

Caution

To avoid damaging the printer, use only transparencies recommended for use in laser printers.

If you have problems printing transparencies, use Tray 1.

To print transparencies, see page 32.

Vellum

Vellum is special lightweight paper similar to parchment. Print vellum from Tray 1 only, and open the rear output bin. Do not print on both sides of vellum.

Vellum used in the printer must be able to withstand 400° F (205° C), the printer's maximum temperature, for 0.1 second. To print vellum, see page 38.

Envelopes

Envelope Construction

Envelope construction is critical. Envelope fold lines can vary considerably, not only between manufacturers, but also within a box from the same manufacturer. Successful printing on envelopes depends upon the quality of the envelopes. When selecting envelopes, consider the following components:

- **Weight:** The weight of the envelope paper should not exceed 28 lb (105 g/m²), or jamming may result.
- **Construction:** Prior to printing, envelopes should lie flat with less than 0.25 inch (6 mm) curl, and should not contain air. (Envelopes that trap air may cause problems.)
- **Condition:** Make sure envelopes are not wrinkled, nicked, or otherwise damaged.
- **Sizes in Tray 1:** From 3 by 5 inches (76 by 127 mm) to 8.5 by 14 inches (216 by 356 mm) 12.28 by 18.5 inches (312 by 470 mm).

Always print envelopes from Tray 1 (page 29). To prevent envelopes from wrinkling or jamming, open the rear output bin.

Envelopes with Double-Side-Seams

Double-side-seam construction has vertical seams at both ends of the envelope rather than diagonal seams. This style may be more likely to wrinkle. Be sure the seam extends all the way to the corner of the envelope as illustrated below.

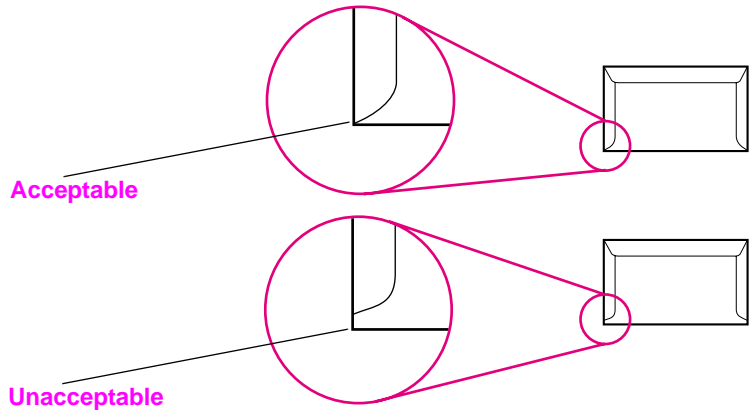


Figure A-1 Envelopes with Double-Side-Seams

Envelopes with Adhesive Strips or Flaps

Envelopes with a peel-off adhesive strip or with more than one flap that folds over to seal must use adhesives compatible with the heat and pressure in the printer. The extra flaps and strips might cause wrinkling, creasing, or jams.

Envelope Margins

The following table gives typical address margins for a Commercial #10 or DL envelope.

Type of Address	Top Margin	Left Margin
Return Address	0.6 in (15 mm)	0.6 in (15 mm)
Delivery Address	2 in (51 mm)	3.5 in (89 mm)

Note

For the best print quality, position margins no closer than 0.6 inch (15 millimeters) from the edges of the envelope.

Envelope Storage

Proper storage of envelopes helps contribute to good print quality. Envelopes should be stored flat. If air is trapped in an envelope, creating an air bubble, then the envelope may wrinkle during printing.

Card Stock and Heavy Paper

Many types of card stock can be printed from Tray 1, including index cards and postcards. Some card stock performs better than others because its construction is better suited for feeding through a laser printer.

For optimum printer performance, do not use paper heavier than 53 lb (199 g/m²) in Tray 1 or 28 lb (105 g/m²) in other trays. Paper that is too heavy might cause misfeeds, stacking problems, paper jams, poor toner fusing, poor print quality, or excessive mechanical wear.

Note

Printing on heavier paper may be possible if the tray is not filled to capacity, and paper with a smoothness rating of 100-180 Sheffield is used.

Card Stock Construction

- **Smoothness:** 36-53 lb (135-199 g/m²) card stock should have a smoothness rating of 100-180 Sheffield. 16-36 lb (60-135 g/m²) card stock should have a smoothness rating of 100-250 Sheffield.
- **Construction:** Card stock should lie flat with less than 0.2 inch (5 millimeters) of curl.
- **Condition:** Make sure card stock is not wrinkled, nicked, or otherwise damaged.
- **Sizes:** Use only card stock within the following size ranges:
 - minimum: 3 by 5 inches (76 by 127 mm)
 - maximum: 12.28 by 18.5 inches (312 by 470 mm)

Note

Before loading card stock in Tray 1, make sure it is regular in shape and not damaged. Also, make sure the cards are not stuck together.

Card Stock Guidelines

- If cards curl or jam, try printing from Tray 1 and opening the rear output bin.
- Set margins at least 0.08 inch (2 mm) away from the edges of the paper.

Printer Specifications

Physical Dimensions

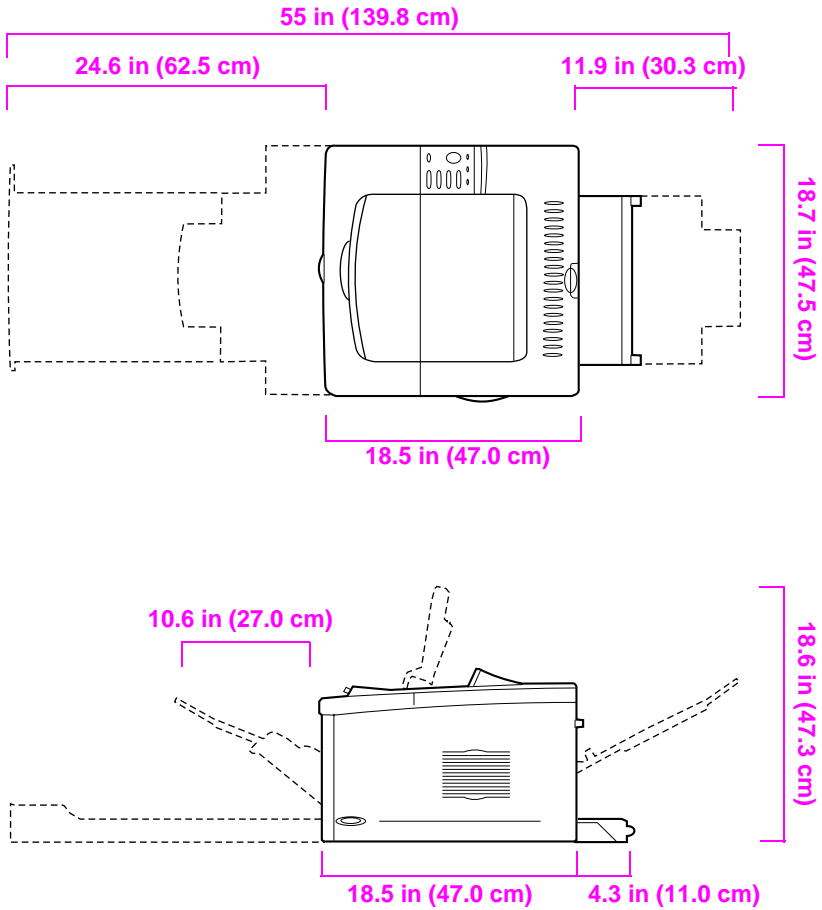


Figure A-2 HP LaserJet 5100Le Printer Dimensions (top and side views)

Printer Weight (without print cartridge)

HP LaserJet 5100Le printer: 50 lb (23 kg)

Environmental Specifications

Electrical Specifications

Printer State	Power Consumption (average, in watts)
Printing	325-330
Standby	30
PowerSave (default activation time 30 minutes)	fewer than 30
Off	0

Minimum Recommended Circuit Capacity

100-127 Volt	10.5 amps
220-240 Volt	5.3 amps

Power Requirements (Acceptable Line Voltage)

100-127 Volt	50-60 Hz
220-240 Volt	50-60 Hz

Acoustic Emissions (Per ISO 9296)

Printer State	Sound Power ¹
Printing, 22 pages per minute (ppm)	$L_{wad} = 6.6$ bels (A)
Printing, 11 ppm	$L_{wad} = 6.3-6.2$ bels (A)
PowerSave	$L_{wad} = 4.4-0$ bels (A)

1. You might want to install printers with sound power $L_{wad} \geq 6.3$ bels (A) or more in a separate room or cubicle.

General Specifications

Operating temperature	50-91° F (10-32° C)
Relative Humidity	20-80%
Speed, in pages per minute (ppm)	Up to 11 ppm, A3 size paper. Up to 22 ppm, A4 size paper.
Expandable Memory	Up to 192 MB total, combining standard and accessory memory DIMMs.

Control Panel Menus

Overview

You can perform most routine printing tasks from the computer through the printer driver or software application. This is the most convenient way to control the printer, and will override the printer's control panel settings. See the help files associated with the software, or for more information on accessing the printer driver, see page 16.

You can also control the printer by changing settings in the printer's control panel. Use the control panel to access printer features not supported by the printer driver or software application.

Note

Printer driver and software commands override the printer's control panel settings.

You can print a menu map from the control panel that shows the **current** printer configuration (page 11). This appendix lists all the items and **possible** values for the printer. (Default values are listed in the "Item" column.)

Private/Stored Jobs Menu

This menu provides a list of the private and proof and hold jobs in the printer's RAM memory. The user can print or delete these jobs from the control panel. For more information, see page 48.

Note

If there are no private or proof and hold jobs in the printer's RAM memory, this menu is not displayed on the control panel.

Private/Stored Jobs Menu

Item	Explanation
[JOBNAME]	The name of the job stored in the printer's RAM.
PIN:0000	To print a private job, the user must enter the Personal Identification Number (PIN) assigned to the job in the driver.
COPIES=X	The number of copies the user wants to print. 1-999: Prints the requested number of copies of the job. DELETE: Deletes the job from the printer's RAM memory.

Information Menu

This menu contains printer information pages that give details about the printer and its configuration. To print an information page, scroll to the desired page and press **[Select]**.

Information Menu

Item	Explanation
PRINT MENU MAP	The menu map shows the layout and current settings of the control panel menu items. For more information, see page 79.
PRINT CONFIGURATION	The configuration page shows the printer's current configuration.
PRINT PCL FONT LIST	The PCL font list shows all the PCL fonts currently available to the printer. For more information, see page 82.
PRINT FILE DIRECTORY	This item appears only when a flash DIMM containing a recognized file system is installed in the printer. For more information, see page C-1.
PRINT EVENT LOG	The event log lists printer events or errors.
SHOW EVENT LOG	This item allows you to view the most recent printer events on the control panel display. Press [-Value+] to scroll through the event log entries.
PRINT PAPER PATH TEST	The paper path test can be used to verify that the paper path is working properly, or to troubleshoot problems with a type of paper. Choose the input tray, output bin, and number of copies.

Paper Handling Menu

When paper handling settings are correctly configured through the control panel, you can print by choosing the type and size of paper from the printer driver or software application. For more information, see page 43.

Some items in this menu can be accessed from a software application, or from the printer driver (if the appropriate driver is installed). Printer driver and software application settings override control panel settings. For more information, see page 39.

Paper Handling Menu

Item	Values	Explanation
TRAY 1 MODE= FIRST	FIRST CASSETTE	Determine how the printer will use Tray 1. FIRST: If paper is loaded in Tray 1, the printer will pull paper from that tray first. CASSETTE: A paper size must be assigned to Tray 1 using the TRAY 1 SIZE option (the next item in this menu when TRAY 1 MODE=CASSETTE). This allows Tray 1 to be used as a reserved tray. For more information, see page 41.
TRAY 1 SIZE= LETTER	For supported paper sizes, see page A-4.	This item appears only when TRAY 1 MODE=CASSETTE. Set the value to correspond with the paper size currently loaded in Tray 1.
TRAY 1 TYPE= PLAIN	For supported paper types, see page A-5.	This item appears only when TRAY 1 MODE=CASSETTE. Set the value to correspond with the paper type currently loaded in Tray 1.
TRAY 2 TYPE= PLAIN	For supported paper types, see page A-5.	Set the value to correspond with the paper type currently loaded in Tray 2.
MANUAL FEED=OFF	OFF ON	Feed the paper manually from Tray 1, rather than automatically from a tray. When MANUAL FEED=ON and Tray 1 is empty, the printer goes offline when it receives a print job and displays MANUALLY FEED [PAPER SIZE]. For more information, see page 42.

Paper Handling Menu (Continued)

Item	Values	Explanation
OVERRIDE A4/ LETTER=NO	NO YES	Choose YES to print on letter size paper when an A4 job is sent, but no A4 size paper is loaded in the printer (or to print on A4 size paper when a letter job is sent, but no letter paper is loaded in the printer).
CONFIGURE FUSER MODE MENU=NO	NO YES	Configure the fuser mode associated with each paper type. (This is only necessary if you are experiencing problems printing on certain paper types.) NO: The fuser mode menu items are not accessible. YES: Additional items appear (see below). Note To see the default fuser mode for each paper type, select YES, scroll back to the Information Menu, and print a menu map (page B-3).
[TYPE]= NORMAL	NORMAL LOW HIGH VELLUM	This item appears only when CONFIGURE FUSER MODE MENU=YES. Most paper types are set to NORMAL by default. The exceptions are as follows: ROUGH=HIGH VELLUM=VELLUM For a complete list of supported paper types, see page A-5.

Print Quality Menu

Some items in this menu can be accessed from a software application, or from the printer driver (if the appropriate driver is installed). Printer driver and software application settings override control panel settings. For more information, see page 39.

Print Quality Menu

Item	Values	Explanation
RESOLUTION= FASTRES 1200	300 600 FASTRES 1200 PRORES 1200	Select the resolution from the following values: 300: Produces draft print quality at the printer's maximum speed (22 ppm). The 300 dpi (dots per inch) setting is recommended for some bitmapped fonts and graphics, and for compatibility with the HP LaserJet III family of printers. 600: Produces high print quality at the printer's maximum speed (22 ppm). FASTRES 1200: Produces optimum print quality (comparable to 1200 dpi) at the printer's maximum speed (22 ppm). PRORES 1200: Produces optimum print quality (true 1200 dpi) at half the printer's maximum speed (11 ppm). Note It is best to change the resolution from the printer driver or software application. (Driver and software settings override control panel settings.)
RET=MEDIUM	OFF LIGHT MEDIUM DARK	Use the printer's Resolution Enhancement technology (REt) setting to produce print with smooth angles, curves, and edges. All print resolutions, including FastRes 1200, benefit from REt. Note It is best to change the REt setting from the printer driver or software application. (Driver and software settings override control panel settings.)

Print Quality Menu (Continued)

Item	Values	Explanation
ECONOMODE=OFF	OFF ON	<p>Turn EconoMode on (to save toner) or off (for high quality).</p> <p>EconoMode creates draft-quality printing by reducing the amount of toner on the printed page by up to 50%.</p> <p>Caution</p> <p>HP does not recommend full-time use of EconoMode. (If EconoMode is used full-time, it is possible that the toner supply will outlast the mechanical parts in the print cartridge.)</p> <p>Note</p> <p>It is best to turn EconoMode on or off from the printer driver or software application. (Driver and software settings override control panel settings.)</p>
TONER DENSITY=3	1 2 3 4 5	<p>Lighten or darken the print on the page by changing the toner density setting. The settings range from 1 (light) to 5 (dark), but the default setting of 3 usually produces the best results.</p> <p>Use a lower toner density setting to save toner.</p> <p>Note</p> <p>It is best to change the toner density from the printer driver or software application. (Driver and software settings override control panel settings.)</p>
CREATE CLEANING PAGE	No value to select.	<p>Press [Select] to print a cleaning page (for cleaning excess toner from the paper path).</p> <p>In order for the cleaning page to work properly, print the page on copier grade paper (not bond or rough paper). Follow the instructions on the cleaning page.</p> <p>For more information, see page 56.</p>
PROCESS CLEANING PAGE	No value to select.	<p>This item appears only after a cleaning page has been generated (as described above).</p> <p>Press [Select] to process the cleaning page.</p>

Printing Menu

Some items in this menu can be accessed from a software application, or from the printer driver (if the appropriate driver is installed). Printer driver and software application settings override control panel settings. For more information, see page 39.

Printing Menu

Item	Values	Explanation
COPIES=1	1 to 999	Set the default number of copies by selecting any number from 1 to 999. Press [-Value+] once to change the setting by increments of 1, or hold down [-Value+] to scroll by increments of 10. Note It is best to set the number of copies from the printer driver or software application. (Driver and software settings override control panel settings.)
PAPER=A4 (220V printers) and ENVELOPE=DL (220V printers)	For supported paper sizes, see page A-4.	Set the default image size for paper and envelopes. (The item name will change from paper to envelope as you scroll through the available sizes.)
CONFIGURE CUSTOM PAPER=NO	NO YES	NO: The custom paper menu items are not accessible. YES: The custom paper menu items appear (see below).
UNIT OF MEASURE=INCHES (110V printers) or MILLIMETERS (220V printers)	INCHES MILLIMETERS	This item appears only when CONFIGURE CUSTOM PAPER=YES. Select the unit of measurement for the custom paper size.

Printing Menu (Continued)

Item	Values	Explanation
X DIMENSION= 12.28 INCHES (110V printers) or 312 MILLIMETERS (220V printers)	3.00 to 12.28 INCHES (110V printers) or 76 to 312 MILLIMETERS (220V printers)	This item appears only when CONFIGURE CUSTOM PAPER=YES. Select the dimension to be fed into the printer. Note Heavy paper and very small or very large custom-size paper should be printed from Tray 1 to the rear output bin. Open the rear output bin to use it (page 22).
Y DIMENSION= 18.50 INCHES (110V printers) or 470 MILLIMETERS (220V printers)	5.00 to 18.50 INCHES (110V printers) or 127 to 470 MILLIMETERS (220V printers)	This item appears only when CONFIGURE CUSTOM PAPER=YES. Select the other dimension. Note Heavy paper and very small or very large custom-size paper should be printed from Tray 1 to the rear output bin. Open the rear output bin to use it (page 22).
ORIENTATION= PORTRAIT	PORTRAIT LANDSCAPE	Determine the default orientation of print on the page. Note It is best to set the page orientation from the printer driver or software application. (Driver and software settings override control panel settings.)
FORM=60 LINES (110V printers) or 64 LINES (220V printers)	5 to 128	Sets vertical spacing from 5 to 128 lines for default paper size. Press [-Value+] once to change the setting by increments of 1, or hold down [-Value+] to scroll by increments of 10.
PCL FONT SOURCE=INTERNAL	INTERNAL SOFT SLOT 1, 2, or 3	INTERNAL: Internal fonts. SOFT: Permanent soft fonts. SLOT 1, 2, or 3: Fonts stored in one of the three DIMM slots.
PCL FONT NUMBER= 0	0 to 999	The printer assigns a number to each font and lists them on the PCL Font List (page 82). The font number appears in the Font # column of the printout.
PCL FONT PITCH= 10.00	0.44 to 99.99	This item might not appear, depending on the font selected. Press [-Value+] once to change setting by increments of .01 for pitch, or hold down [-Value+] to scroll by increments of 1.

Printing Menu (Continued)

Item	Values	Explanation
PCL FONT POINT SIZE=12.00	4.00 to 999.75	This item might not appear, depending on the font selected. Press [-Value+] once to change setting by increments of .25 for point size, or hold down [-Value+] to scroll by increments of 1.
PCL SYMBOL SET=PC-8	PC-8 many others	Select any one of several available symbol sets from the printer's control panel. A symbol set is a unique grouping of all the characters in a font. PC-8 or PC-850 is recommended for line draw characters. Order the <i>PCL 5/PJL Technical Reference Documentation CD</i> for symbol set charts or for more information (page 7).
COURIER=REGULAR	REGULAR DARK	Select the version of Courier font to use: REGULAR: The internal Courier font available on the HP LaserJet 4 series printers. DARK: The internal Courier font available on the HP LaserJet III series printers. Both fonts are not available at the same time.
WIDE A4=NO	NO YES	The Wide A4 setting changes the number of characters that can be printed on a single line of A4 paper. NO: Up to 78 10-pitch characters can be printed on one line. YES: Up to 80 10-pitch characters can be printed on one line.
APPEND CR TO LF= NO	NO YES	Select YES to append a carriage return to each line feed encountered in backward-compatible PCL jobs (pure text, no job control). Some environments, such as UNIX, indicate a new line using only the line feed control code. This option allows the user to append the required carriage return to each line feed.

Configuration Menu

Items in this menu affect the printer's behavior. Configure the printer according to your printing needs.

Configuration Menu

Item	Values	Explanation
POWERSAVE= 30 MINUTES	OFF 15 MINUTES 30 MINUTES 1 HOUR 2 HOURS 3 HOURS	<p>Set the printer to enter PowerSave after it has been idle for a specified amount of time. Turning PowerSave off is not recommended. The PowerSave feature does the following:</p> <ul style="list-style-type: none">• Minimizes the amount of power consumed by the printer when it is idle.• Reduces wear on the printer's electronic components. (Turns off the display's backlight.) <p>When you send a print job, press a control panel key, open a paper tray, or open the top cover, the printer automatically comes out of PowerSave mode.</p> <p>Note PowerSave turns off the backlight on the display, but the display is still readable.</p>
PERSONALITY= AUTO	AUTO PCL	<p>Select the default printer language (personality). Possible values are determined by which valid languages are installed in the printer.</p> <p>Normally you should not change the printer language (the default is AUTO). If you change it to a specific printer language, the printer will not automatically switch from one language to another unless specific software commands are sent to the printer.</p>

Configuration Menu (Continued)

Item	Values	Explanation
RESOURCE SAVE= OFF	OFF ON AUTO	<p>Dedicate printer memory to save each language's permanent resources. (You might need to add memory to the printer in order for this item to appear.) The amount of memory set aside can be different for each installed language. Some languages might have memory set aside for resource saving without requiring all languages to do so. Any time the amount of memory dedicated to a specific language is changed, all languages will lose all saved resources, including any unprocessed print jobs.</p> <p>OFF: No language resource saving is performed, and language-dependent resources, such as fonts and macros, are lost when language or resolution changes.</p> <p>ON: An item will appear for each installed language that allows the user to allocate a particular amount of memory to that language's resource saving area. (See the items below.)</p> <p>AUTO: The printer automatically determines the amount of memory to use for each installed language's resource saving area.</p> <p>For more information, see page C-5.</p>
PCL MEMORY= 400K	0K and up (This value depends on the amount of installed memory.)	<p>This item appears only when RESOURCE SAVE=ON. Select the amount of memory used for saving PCL resources. Printer default is the minimum amount of memory needed to perform resource saving for PCL. Press [-Value+] to change settings by increments of 10 (up to 100 KB) or by increments of 100 (above 100 KB).</p> <p>For more information, see page C-5.</p>
PAGE PROTECT= AUTO	AUTO ON	<p>This item appears only after a 21 PAGE TOO COMPLEX, PRESS GO TO CONTINUE message displays (page 66).</p> <p>Memory Enhancement technology (MEt) attempts to guarantee that all pages will print. If the page does not print, turn PAGE PROTECT to ON. This might increase chances of a 20 INSUFFICIENT MEMORY, PRESS GO TO CONTINUE message. If this occurs, simplify the print job or install additional memory (page C-1).</p>

Configuration Menu (Continued)

Item	Values	Explanation
CLEARABLE WARNINGS=JOB	JOB ON	<p>Set the amount of time that a clearable warning is displayed on the printer's control panel.</p> <p>JOB: Warning messages display on the control panel until the end of the job from which they were generated.</p> <p>ON: Warning messages display on the control panel until [Go] is pressed.</p>
AUTO CONTINUE= ON	ON OFF	<p>Determine how the printer reacts to errors.</p> <p>ON: If an error occurs that prevents printing, the message will display, and the printer will go offline for 10 seconds before returning online.</p> <p>OFF: If an error occurs that prevents printing, the message will remain on the display and the printer will remain offline until [Go] is pressed.</p>
TONER LOW=CONTINUE	CONTINUE STOP	<p>Determine how the printer behaves when toner is low. The TONER LOW message will first appear when the print cartridge is almost out of toner. (About 100 to 300 sheets can still be printed.)</p> <p>CONTINUE: The printer will continue to print while the TONER LOW message is displayed.</p> <p>STOP: The printer will go offline and wait for further action.</p> <p>For more information, see page 52.</p>
RAM DISK=AUTO	OFF ON AUTO	<p>Determine how the RAM disk is configured. This item appears only if the printer has at least 8 MB of memory.</p> <p>OFF: The RAM disk is disabled.</p> <p>ON: The RAM disk is enabled. Configure the amount of memory to be used through the following item: RAM DISK SIZE.</p> <p>Note</p> <p>If the setting is changed from OFF to ON or from OFF to AUTO, the printer will automatically reinitialize when it becomes idle.</p>

Configuration Menu (Continued)

Item	Values	Explanation
RAM DISK SIZE=xxxK	0K and up (This value depends on the amount of installed memory.)	Determine the size of the RAM disk. This item appears if RAM DISK=ON or AUTO. Press [-Value+] to change settings by increments of 100. Note This setting cannot be changed if RAM DISK=AUTO. Changing this value will cause the printer to reinitialize when it becomes idle.
JAM RECOVERY= AUTO	AUTO ON OFF	Determine how the printer behaves when a paper jam occurs. AUTO: The printer automatically selects the best mode for printer jam recovery (usually ON). This is the default setting. ON: The printer automatically reprints pages after a paper jam is cleared. OFF: The printer does not reprint pages following a paper jam. Printing performance might be increased with this setting.
MAINTENANCE MESSAGE=OFF	OFF	This item appears only after the PERFORM PRINTER MAINTENANCE message displays. OFF: The PERFORM PRINTER MAINTENANCE message will be cleared and will not be displayed again until the next maintenance is due. The message should not be turned off unless the printer maintenance has been performed. If the required maintenance is not performed, the printer's performance will degrade.
NEW TONER CARTRIDGE=NO	YES NO	This item allows the user to tell the printer that a new print cartridge has been installed. Setting this item to YES will reset the HP TonerGauge to full.
JOB HELD TIMEOUT=OFF	OFF 1 HOUR 4 HOURS 1 DAY 1 WEEK	Sets the amount of time that private and proof and hold jobs are kept before being automatically deleted from the queue.

I/O Menu

Items in the I/O (input/output) Menu affect the communication between the printer and the computer.

I/O Menu

Item	Values	Explanation
I/O TIMEOUT=15	5 to 300	<p>Select the I/O timeout period in seconds. (I/O timeout refers to the time, measured in seconds, that the printer waits before ending a print job.)</p> <p>This setting allows you to adjust timeout for best performance. If data from other ports appear in the middle of your print job, increase the timeout value.</p> <p>Press [- Value +] once to change settings by increments of 1, or hold down [- Value +] to scroll by increments of 10.</p>
I/O BUFFER=AUTO	AUTO ON OFF	<p>Allocate memory for I/O buffering.</p> <p>AUTO: The printer automatically reserves memory for I/O buffering. Additional configurations are not required and the I/O BUFFER SIZE menu item does not appear.</p> <p>ON: The I/O BUFFER SIZE item appears (see below). Specify the amount of memory to be used for I/O buffering.</p> <p>OFF: I/O buffering is not performed and the I/O BUFFER SIZE item does not appear.</p> <p>For more information, see page C-6.</p>
I/O BUFFER SIZE= 100K	10K and up	<p>This item appears only when I/O BUFFER=ON. Specify the amount of memory for I/O buffering. The maximum amount of memory available for I/O buffering is determined by the amount of memory installed in the printer, the languages installed in the printer, and by other memory allocations that must be made.</p> <p>Press [-Value +] to change settings by increments of 10 (up to 100 KB) or by increments of 100 (above 100 KB).</p>

I/O Menu (Continued)

Item	Values	Explanation
PARALLEL HIGH SPEED=YES	YES NO	Select the speed at which data is transmitted to the printer. YES: The printer accepts faster parallel communications used for connections with newer computers. NO: The printer accepts slower parallel communications used for connections with older computers.
PARALLEL ADV FUNCTIONS=ON	ON OFF	Turn the bidirectional parallel communication on or off. The default is set for a bidirectional parallel port (IEEE-1284). This setting allows the printer to send status readback messages to the computer. (Turning the parallel advanced functions on might slow language switching.)

Resets Menu

Use this menu with caution. You can lose buffered page data or printer configuration settings when you select these items. Only reset the printer under the following circumstances:

- You want to restore the printer's default settings.
- Communication between the printer and computer has been interrupted.

The items in the Resets Menu will clear all memory in the printer, while **[Cancel Job]** clears only the current job.

Resets Menu

Item	Explanation
RESET MEMORY	This item clears the printer buffer and the active I/O input buffer, and makes the control panel defaults current. The DATA RECEIVED message might display on the control panel. Resetting memory during a print job can result in data loss.
RESTORE FACTORY SETTINGS	This item performs a simple reset and restores most of the factory (default) settings. This item also clears the input buffer for the active I/O. The DATA RECEIVED message might display on the printer's control panel.
RESET ACTIVE I/O CHANNEL	This item performs a simple reset and clears the input and output buffers (for the active I/Os only). The DATA RECEIVED message might display on the printer's control panel.
RESET ALL I/O CHANNELS	This item performs a simple reset and clears the input and output buffers for all I/Os.
POWERSAVE	Allows PowerSave feature to be turned on or off.

Printer Memory and Expansion

Overview

The printer has two dual in-line memory module (DIMM) slots for upgrading with:

- More printer memory. DIMMs are available in 16, 32, and 64 MB, for a maximum of 192 MB.
- Flash memory DIMMs, available in 2 and 4 MB. Unlike standard printer memory, flash DIMMs can be used to permanently store downloaded items in the printer, even when the printer is off.
- DIMM-based accessory fonts, macros, and patterns.
- Other DIMM-based printer languages and printer options.

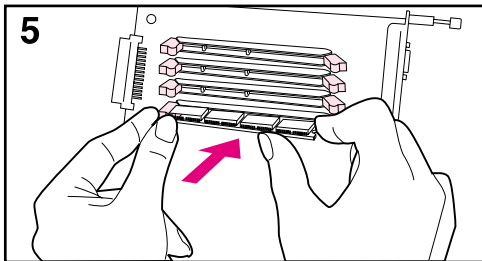
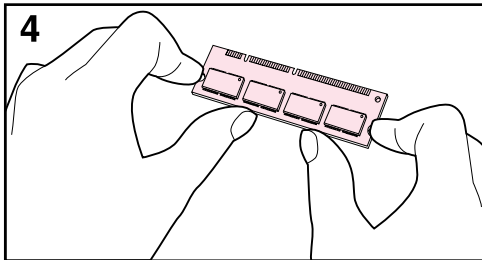
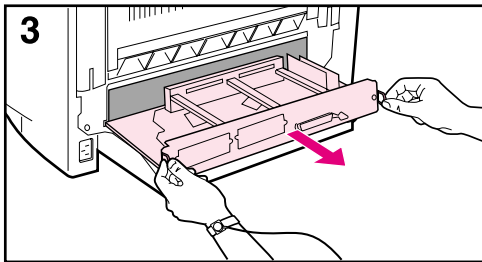
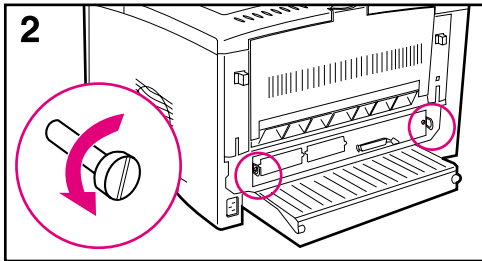
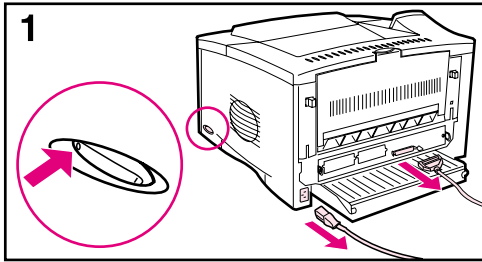
Note

Single in-line memory modules (SIMMs) used on previous HP LaserJet printers are not compatible with the printer.

You might want to add more memory to the printer if you often print complex graphics, use many downloaded fonts, print at ProRes 1200, or print large paper sizes (such as A3, B4, or 11 x 17).

To find out how much memory is installed in the printer, print a configuration page (page 80).

Installing a DIMM

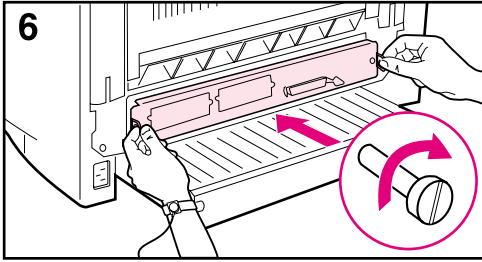


Caution

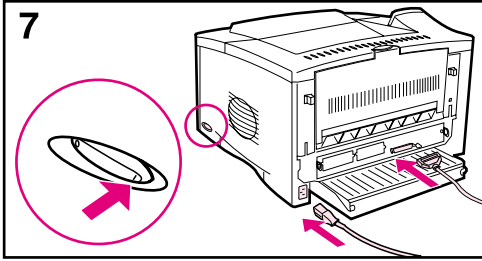
Static electricity can damage dual in-line memory modules (DIMMs). When handling DIMMs, either wear an antistatic wrist strap or frequently touch the surface of the DIMM's antistatic package, then touch bare metal on the printer.

If you have not already done so, print a configuration page to find out how much memory is installed in the printer before adding more memory (page 80).

- 1 Turn the printer off. Unplug the power cord and disconnect any cables.
- 2 Remove the two captive screws on the back of the printer.
- 3 Grasp the tabs and pull the formatter board out of the printer. Place it on a flat, non-conductive surface.
- 4 Remove the DIMM from the antistatic package. Hold the DIMM with fingers against the side edges and thumbs against the back edge. Align the notches on the DIMM with the DIMM slot. (Check that the locks on each side of the DIMM slot are open, or outward.)
- 5 Press the DIMM straight into the slot (press firmly). Make sure the locks on each side of the DIMM snap inward into place. (To remove a DIMM, the locks must be released.) A firmware DIMM must be placed in slot 1 as shown. A memory DIMM may be placed in any slot other than slot 1.



6 Slide the formatter board back into the printer and tighten the two screws.



Checking Memory Installation

Follow this procedure to verify that DIMMs are installed correctly:

- 1 Check that the printer's control panel displays **READY** when the printer is turned on. If an error message appears, a DIMM might have been incorrectly installed. Check the printer messages (page 63).
- 2 Print a new configuration page (page 80).
- 3 Check the memory section on the configuration page and compare it to the configuration page printed before the DIMM installation. If the amount of memory has not increased, the DIMM might not be installed correctly (repeat the installation procedure) or the DIMM might be defective (try a new DIMM).

Note

If you installed a printer language (personality), check the Installed Personalities and Options section on the configuration page. This area should list the new printer language.

Adjusting Memory Settings

Resource Saving

Resource Saving allows the printer to keep downloaded resources (permanent downloaded fonts, macros, or patterns) in memory when the printer language or resolution is changed.

If you do not have a flash DIMM for storing downloaded resources, you might want to change the amount of memory allocated to each language when downloading an unusually large number of fonts, or if the printer is in a shared environment.

The minimum amount of memory that can be allocated to Resource Saving is 400 KB for PCL.

To determine how much memory to allocate to a language:

- 1 From the Configuration Menu, set `RESOURCE SAVE=ON` (page B-12). You might need to add memory to the printer in order for this option to appear in the printer's control panel.
- 2 Also from the Configuration Menu, choose `PCL MEMORY` and change the setting to the highest value displayed. This amount will vary depending upon how much memory is installed in the printer.
- 3 Using a software application, download all the fonts you want to use in the selected language.
- 4 Print a configuration page (page 80). The amount of memory used by the fonts is listed next to the language. Round this figure up to the nearest 100 KB. (For example, if 475 KB are shown, 500 KB should be reserved.)
- 5 From the Configuration Menu, set `PCL MEMORY` to the value determined in step 4.
- 6 Repeat step 3. (You must download all fonts again. See the note below.)

Note

When you change the Resource Saving setting, all downloaded resources (such as fonts or macros) will need to be downloaded again, unless they are stored on a flash DIMM.

I/O Buffering

To allow the computer to continue working without waiting for the print job to finish queuing, the printer uses a portion of its memory (an I/O buffer) to hold jobs in progress. (If I/O buffering is off, no memory is reserved for this function.)

In most cases, it is best to let the printer automatically reserve memory for I/O buffering. (For each megabyte of memory added to the printer, 100 kilobytes are reserved.)

To speed network printing, you might want to increase the amount of memory reserved for I/O buffering.

To change the I/O Buffer setting:

- 1 From the I/O Menu, set I/O BUFFER=ON (page B-15).
- 2 Also from the I/O Menu, set I/O SIZE to the desired value.

Note

When you change the I/O Buffer setting, all downloaded resources (such as fonts or macros) will need to be downloaded again, unless they are stored on a flash DIMM.

Printer Commands

Overview

Most software applications do not require you to enter printer commands. See your computer and software documentation to find the method for entering printer commands, if needed.

PCL PCL printer commands tell the printer which tasks to perform or which fonts to use. This appendix provides a quick reference for users who are already familiar with PCL command structure.

Note

Unless PCL 5e backward compatibility is required, HP recommends that PCL 6 printer drivers be used to take full advantage of all printer features. The PCL 5e printer driver in this printer is not backward compatible with older printers that use PCL 5e printer drivers.

HP-GL/2 The printer has the ability to print vector graphics using the HP-GL/2 graphics language. Printing in the HP-GL/2 language requires that the printer leave PCL language and enter HP-GL/2 mode, which can be done by sending the printer PCL code. Some software applications switch languages through their drivers.

PJL HP's Printer Job Language (PJL) provides control above PCL and other printer languages. The four major functions provided by PJL are: printer language switching, job separation, printer configuration, and status readback from the printer. PJL commands may be used to change printer default settings.

Note

The table at the end of this appendix contains commonly used PCL 5e commands (page D-5). For a complete listing and explanation of how to use PCL, HP-GL/2, and PJL commands, order the *PCL 5/PJL Technical Reference Documentation CD* (page 7).

Understanding PCL Printer Command Syntax

Before using printer commands, compare these characters:

Lowercase l:	<i>l</i>	Uppercase O:	O
Number one:	1	Number 0:	Ø

Many printer commands use the lowercase letter l (*l*) and the number one (1), or the uppercase letter O (O) and the number zero (Ø). These characters may not appear on your screen as shown here. You must use the exact character and case specified for PCL printer commands.

Figure D-1 displays the elements of a typical printer command (in this instance, a command for page orientation).

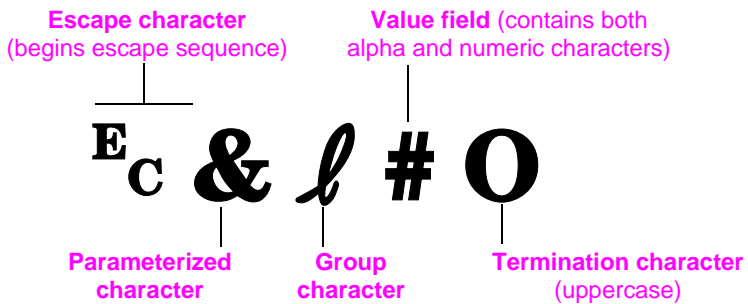


Figure D-1 Printer Command Elements

Combining Escape Sequences

Escape sequences may be combined into one escape sequence string. There are three important rules to follow when combining code:

- 1** The first two characters after the E_C character (the parameterized and group characters, see Figure D-1) must be the same in all of the commands to be combined.
- 2** When combining escape sequences, change the uppercase (termination) character in each individual escape sequence to lower case.
- 3** The final character of the combined escape sequence must be uppercase.

The following is an example of an escape sequence string that would be sent to the printer to select legal paper, landscape orientation, and 8 lines per inch:

```
 $E_C&l3A$  $E_C&l1O$  $E_C&l8D$ 
```

The following escape sequence sends the same printer commands by combining them into a shorter sequence:

```
 $E_C&l3a1o8D$ 
```

Selecting PCL Fonts

PCL printer commands for selecting fonts can be found on the PCL Font List (page 82). A sample section is shown below. Notice the two variable boxes for symbol set and point size.

Univers Medium Scale <esc>(<esc>(s1p v0s0b4148T I 01

These variables must be filled in or the printer will use defaults. For example, if you want a symbol set that contains line-draw characters, select the 10U (PC-8) or 12U (PC-850) symbol set. Other common symbol set codes are listed in the table on page D-7.

Note

Fonts are either “fixed” or “proportional” in spacing. The printer contains both fixed fonts (Courier, Letter Gothic, and Lineprinter) and proportional fonts (CG Times, Arial®, Times New Roman, and others).

Fixed-spaced fonts are generally used in applications such as spreadsheets and databases, where it is important for columns to line up vertically. Proportional-spaced fonts are generally used in text and word processing applications.

Common PCL Printer Commands

Common PCL Printer Commands

	Function	Command	Options (#)
	Reset	E _C E	n/a
Job Control Commands	Number of Copies	E _C &l#X	1 to 999
	Paper Source	E _C &l#H	0 = prints or ejects current page 1 = Tray 2 2 = manual feed, paper 3 = manual feed, envelope 4 = Tray 1 7 = auto select
Page Control Commands	Paper size	E _C &l#A	1 = Executive 2 = Letter 3 = Legal 6 = 11 x 17 17 = 16K 18 = JIS EXEC 19 = 8K 25 = A5 26 = A4 27 = A3 44 = B6-JIS 45 = B5-JIS 46 = B4-JIS 72 = Postcard (double) 80 = Monarch 81 = Commercial 10 90 = DL 91 = International C5 100 = B5 101 = Custom
	Paper Type	E _C &n#	5WdBond = Bond 6WdPlain = Plain 6WdColor = Color 7WdLabels = Labels 9WdRecycled = Recycled 11WdLetterhead = Letterhead 10WdCardstock = Cardstock 11WdPrepunched = Prepunched 11WdPreprinted = Preprinted 13WdTransparency = Transparency #WdCustompapertype = Custom ¹
	Orientation	E _C &l#O	0 = Portrait 1 = Landscape 2 = Reverse Portrait 3 = Reverse Landscape

Common PCL Printer Commands (Continued)

	Function	Command	Options (#)
Page Control Commands (Continued)	Top Margin	$E_C \& l \# E$	# = number of lines
	Text Length (bottom margin)	$E_C \& l \# F$	# = number of lines from top margin
	Left Margin	$E_C \& a \# L$	# = column number
	Right Margin	$E_C \& a \# M$	# = column number from left margin
	Horizontal Motion Index	$E_C \& k \# H$	1/120-inch increments (compresses print horizontally)
	Vertical Motion Index	$E_C \& l \# C$	1/48-inch increments (compresses print vertically)
	Line Spacing	$E_C \& l \# D$	# = lines per inch (1, 2, 3, 4, 5, 6, 12, 16, 24, 48)
	Perforation Skip	$E_C \& l \# L$	0 = disable 1 = enable
Programming Hints	End of Line Wrap	$E_C \& s \# C$	0 = Enable 1 = Disable
	Display Functions On	$E_C Y$	n/a
	Display Functions Off	$E_C Z$	n/a
Language Selection	Enter PCL Mode	$E_C \% \# A$	0 = Use previous PCL cursor position 1 = Use current HP-GL/2 pen position
	Enter HP-GL/2 Mode	$E_C \% \# B$	0 = Use previous HP-GL/2 pen position 1 = Use current PCL cursor position

Common PCL Printer Commands (Continued)

Function	Command	Options (#)
Symbol Sets ²	E _C (#	8U = HP Roman-8 Symbol Set 10U = IBM Layout (PC-8) (code page 437) Default Symbol Set 12U = IBM Layout for Europe (PC-850) (code page 850) 8M = Math-8 19U = Windows 3.1 Latin 1 9E = Windows 3.1 Latin 2 (commonly used in Eastern Europe) 5T = Windows 3.1 Latin 5 (commonly used in Turkey) 579L = Wingdings Font
Primary Spacing	E _C (s#P	0 = fixed 1 = proportional
Primary Pitch	E _C (s#H	# = characters/inch
Set Pitch Mode ³	E _C &k#S	0 = 10 4 = 12 (elite) 2 = 16.5 - 16.7 (compressed)
Primary Height	E _C (s#V	# = points
Primary Style ²	E _C (s#S	0 = upright (solid) 1 = italic 4 = condensed 5 = condensed italic
Primary Stroke Wt. ²	E _C (s#B	0 = medium (book or text) 1 = semi bold 3 = bold 4 = extra bold
Typeface ²	E _C (s#T	Print a PCL font list to view the command for each internal font (page 82).

¹For custom paper, replace "Custompapertype" with the name of the paper, and replace the "#" with the number of characters in the name, plus 1.

²Order the *PCL 5/PJL Technical Reference Documentation CD* for symbol set charts or for more information (page 7).

³The preferred method is to use the primary pitch command.

Glossary

adjustable tray	A paper tray that is able to adapt to more than one size of media. All trays used in the printer are adjustable.
DIMM (dual in-line memory module)	A circuit board that holds extra memory chips for the printer.
drag-and-drop	The ability to execute a function graphically without typing a command. For example, in the Windows 95 Explorer, you can copy or move a file by “dragging” it from one folder and “dropping” it into another.
media	Any material to be printed, including envelopes, labels, transparencies, and all types of paper. (Paper types include letterhead, prepunched, recycled, bond, color stock, card stock, and preprinted.)
full-bleed	Print that extends from edge to edge of a sheet of paper. This effect is achieved by printing on larger paper, then trimming to the edge of the printed image.
Mopy	Multiple original prints.
PCL	HP’s printer control language.
preprinted	Having pre-designed forms already printed on the paper.
printer driver	Program files that allow a software application to communicate with the printer and use its features.
printer driver help	On-screen instructions regarding the use of the printer driver.
printer software	Any or all of the software shipped with the printer. The printer is packaged with a compact disc containing the software needed to access all of the printer’s features. If the printer has been correctly set up, the appropriate software is already installed.

printer software help	On-screen instructions regarding the use of the printer software. Help screens which can be activated from the Help button (or a question mark symbol) in the printer software.
size	In this user's guide, paper size refers to the dimensions of a sheet of paper or other print media.
software application	A computer program or package developed for sale to the general public.
source	In this use guide, paper source refers to the paper tray where paper or other print media is loaded.
type	In this user's guide, paper type refers to the unique properties of paper or other print media, such as rough, transparency, labels, etc.
universal tray	A paper tray that can be adjusted for many paper sizes.
watermark	Text printed on the background of a page.

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