

English



HP LaserJet 4050, 4050 T,
4050 N, and 4050 TN Printers
User's Guide

HP LaserJet 4050, 4050 T, 4050 N, and 4050 TN Printers



User's Guide



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How to Use This Online User's Guide

This user's guide is provided in an Adobe™ Acrobat portable document format (PDF file). This section will help familiarize you with using PDF documents.



Navigational Features in This Guide



Click the Table of Contents icon to go to the table of contents for the online user's guide. The entries are linked to their related locations in the user's guide.



Click the Introduction icon to return to this section for tips on using this online user's guide.



Click the Index icon to go to the index for the online user's guide. The index entries are linked to their related topics.



Click the Up Arrow icon to go to the previous page.



Click the Down Arrow icon to go to the next page.



Features of Acrobat Reader

Finding Information in PDF Documents

To find specific information in a PDF document, click **Contents** or **Index** in the upper-left corner of the Acrobat Reader window, and then click the topic you want.

Viewing PDF Documents

For complete instructions on how to view PDF documents, see the online help included with Acrobat Reader.



Magnifying the Page View

You can use the zoom-in tool, the magnification box in the status bar, or the toolbar buttons to change the screen magnification. When you zoom in on a document, you can use the hand tool to move the page around.

Acrobat Reader also offers magnification level choices that control how the page fits on-screen:



Fit Page scales the page to fit within the main window.

Fit Width scales the page to fit the width of the main window.

Fit Visible fills the window with the page's content area only.



To increase magnification: Select the zoom-in tool and click on the document page to double the current magnification.

To decrease magnification: Select the zoom-in tool while holding down Ctrl (Windows and UNIX) or Option (Macintosh), and click the center of the area you want to reduce.

Paging Through a Document

The following options are available for paging through a document.



To go to the next page: Click the Next Page button in the toolbar, or press the Right Arrow or Down Arrow.

To return to the previous page: Click the Previous Page button in the toolbar, or press the Left Arrow or Up Arrow.



To go to the first page: Click the First Page button in the toolbar.

To go to the last page: Click the Last Page button in the toolbar.



To jump to a specific numbered page: Click the page number box in the status bar at the bottom of the main window, type the page number, and click **OK**.



Browsing with Thumbnails

A thumbnail is a miniature view of each document page. You can display thumbnails in the overview area. Use a thumbnail to jump quickly to a page and to adjust the view of the current page.



Click on a thumbnail to move to the page it represents.



Finding Words

Use the **Find** command to find part of a word, a complete word, or multiple words in the active document.



Click on the Find button, or choose **Find** from the **Tools** menu.

Printing the document

To print selected pages: From the **File** menu, choose **Print**. Choose **Pages**. In the From and To boxes type the range of pages you wish to print. Then click **OK**.

To print the whole document: From the **File** menu, choose **Print**. Choose **All n pages** (n represents the total number of pages in the document), then click **OK**.

Note

Go to <http://www.adobe.com/> for the latest versions and additional languages of Adobe™ Acrobat Reader.



Where to Look for More Information . . .

Several references are available for use with this printer. For additional copies of the guides below, contact HP Direct at (800) 538-8787 (U.S.) or contact your HP-authorized dealer. Additional information is available at <http://www.hp.com>.

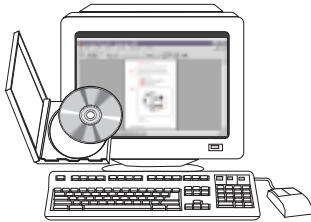


Setting Up the Printer



Getting Started Guide

Step-by-step instructions for installing and setting up the printer.



HP JetDirect Print Server Software Installation Guide*

Step-by-step instructions for configuring the HP JetDirect print server.

*Accompanies printers that include an HP JetDirect print server (network card).

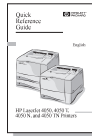


Using the Printer



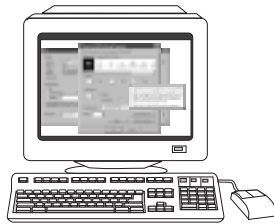
Online User's Guide

Detailed information on using and troubleshooting the printer.



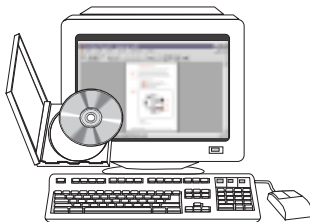
Quick Reference Guide

Tips and quick information in a booklet to keep by the printer. See your network administrator for the copy that came with the printer.



Online Help

Information on printer options that are available from within printer drivers. To view a help file, access the online help through the printer driver.



HP Fast InfraRed Receiver User Guide

Detailed information on using and troubleshooting the HP Fast InfraRed Receiver.



HP Customer Care Service and Support

Online Services

For 24-hour access to information over your modem, we suggest these services:



World Wide Web

Printer drivers, updated HP printer software, plus product and support information may be obtained from the following URLs:
in the U.S. <http://www.hp.com/go/support>



Printer drivers may be obtained from the following sites:

in China

<ftp://www.hp.com.cn/go/support>

in Japan

<ftp://www.jpn.hp.com/go/support>

in Korea

<http://www.hp.co.kr/go/support>

in Taiwan

<http://www.hp.com.tw/go/support>

or the local driver website <http://www.dds.com.tw>

Obtaining Software Utilities and Electronic Information for U.S.:

Monday - Friday: 6:00 am - 10:00 pm MST

Saturday: 9:00 am - 4:00 pm MST

Phone: (805) 257-5565

Fax: (805) 257-6995

HP website: <http://www.hp.com/>

Mail:

Hewlett-Packard Co.

P.O. Box 907

Santa Clarita, CA 91380-9007

U.S.A.

For Canada:

Phone: (905) 206-4663



For Europe:

HP Distribution Europe

The languages supported are also listed above beside the telephone numbers.

Hours of operation are 7:30 am GMT (8:30 am CET) to 17:00 GMT (18:00 CET).

	<u>Within UK</u>	<u>Internationally</u>
English speaking line	01429 865511	+44 1429 865511
French speaking line		+44 1429 863343
German speaking line		+44 1429 863353
Italian speaking line		+44 1429 520013
Spanish speaking line		+44 1429 520012
Portuguese speaking line		+44 1429 890466



For Asia Pacific Region:

Australia	+61 3 9272 8000
P.R. China (Beijing)	+86 10 65053888
Hong Kong	+65 740-4477
India	+91 (011) 682 6035
Indonesia	+65 740-4477
Japan	+81 3 53461891
Korea	+82 2 3270 0805
Malaysia	+65 740-4477
New Zealand	0800-445-543 (toll free) or (09) 356 6640
Philippines	+65 740-4477
Singapore	+65 740-4477
Taiwan	+886 (02) 717 0055
Thailand	+66 (02) 661-3900 ext 3224

For Latin America:

Argentina

8:30 a 19:30 hrs.

Buenos Aires: 787-8080

Brazil

8:00 a 19:00 hrs.

São Paulo: 011-829-6612

Chile

8:30 a 18:30 hrs.

Chile: 800-360999

Colombia

* Local dealers provide technical assistance



Mexico “HP Contigo”

8:00 a 18:00 hrs.

Mexico: 01-800-4726684

Mexico: 01 800-4720684

Venezuela

8:00 a 18:00 hrs. 800-47-888

Caracas: 207-8488

* Technical Assistance for Other Latin American countries are provided by local dealers.



HP Direct Ordering for Accessories or Supplies:

Call (800) 538-8787 (U.S.) or (800) 387-3154 (Canada).



HP Direct Ordering for Genuine HP Parts:

In the U.S., call (800) 227-8164

HP Service Parts Information Compact Disc:

This powerful, CD-ROM-based parts information tool is designed to give users fast, easy access to parts information such as pricing and recommended stocking lists for a wide range of HP products. To subscribe to this quarterly service in the U.S. or Canada, call (800) 336-5987. In Asia Pacific, call (65) 740-4484. Parts identification and pricing information worldwide can also be accessed via the World Wide Web at www.hp.com/go/partsinfo.

HP Support Assistant Compact Disc:

This support tool offers a comprehensive online information system designed to provide technical and product information on HP products. To subscribe to this quarterly service in the U.S. or Canada, call (800) 457-1762. In Hong Kong, Indonesia, Malaysia, or Singapore, call Mentor Media at (65) 740-4477.

HP Service Information:

To locate authorized HP resellers, call (800) 243-9816 (U.S.) or (800) 387-3867 (Canada).

HP Service Agreements:

Call (800) 835-4747 (U.S.) or (800) 268-1221 (Canada).
Extended Service (800) 446-0522



HP FIRST

HP FIRST fax-on-demand service will deliver detailed troubleshooting information on common software and troubleshooting tips for your HP product. Call from any touch tone phone and request up to three documents per call. These documents will be sent to the fax of your choice. Many of these numbers are local numbers and will not work internationally.



North and Latin America

Outside the U.S. and Canada (404) 329-2009
In the U.S. and Canada (800) 333-1917



Asia/Pacific

Australia	(03) 9272 2627
China	(10) 6505 5280
Hong Kong	2506 2422
India	(11) 682 6031
Indonesia	(21) 352 2044
Japan	(03) 3335 8622
Korea	(02) 769 0543
Malaysia	(03) 298 2478
New Zealand	(09) 356 6642
Philippines	(02) 848 9880
Singapore	275 7251
Thailand	(02) 661 3511
Vietnam	(08) 823 4161

Europe, Middle East and Africa

Austria	0660-8218
Belgium	
Dutch	0800 1 1906
French	0800 1 7043
Denmark	800-10453
European International	+31 20 681 5792
Finland	9800-13134
France	0800-905900
Germany	0130-810061
Hungary	36 1 461-8222
Italy	1678-59020
Netherlands	0800-0222420
Norway	800-11319
Portugal	05 05 313342
Spain	900-993123
Sweden	020-795743
Switzerland	
French	0800-551526
German	0800-551527
United Kingdom	0800-960271



Customer Support Options Worldwide

The service and support chapter of this user's guide contains worldwide sales and service addresses and phone numbers for countries not listed here.



HP Customer Care and Product Repair Assistance for the U.S. and Canada



Refer to the service and support chapter of this user's guide for additional product repair information.



Call (208) 323-2551 Monday through Friday from 6 am to 6 pm (Mountain Time) free of charge during the warranty period. However, your standard long-distance phone charges still apply. Have your system nearby and your serial number ready when calling.

If you know your printer needs repair, call (800) 243-9816 to locate your nearest authorized HP service provider.

Post-warranty telephone assistance is available to answer your product questions. Call (900) 555-1500 (\$2.50* per minute, U.S. only) or call (800) 999-1148 (\$25* per call, Visa or MasterCard, U.S. and Canada) Monday through Friday from 7am to 6 pm (Mountain Time). *Charges begin only when you connect with a support technician. *Prices subject to change.*



European HP Customer Care Center Language and In-country Options Available

Open Monday through Friday 8:30 - 18:00 Central European Time (CET)

HP provides a free telephone support service during the warranty period. By calling a telephone number listed below, you will be connected to a responsive team waiting to help you. If you require support after your warranty has expired, you can receive support for a fee through the same telephone number. The fee is charged on a per-incident basis. When calling HP, have the following information ready: product name and serial number, date of purchase, and description of the problem.

English	Ireland: (353) (1) 662-5525 U.K.: (44) (171) 512-5202 International: (44) (171) 512-5202
Dutch	Belgium: (32) (2) 626-8806 Netherlands: (31) (20) 606-8751
French	France: (33) (01) 43-62-3434 Belgium: (32) (2) 626-8807 Switzerland: (41) (84) 880-1111
German	Germany: (49) (180) 525-8143 Austria: (43) (1) 0660-6386
Norwegian	Norway: (47) 2211-6299
Danish	Denmark: (45) 3929-4099
Finnish	Finland: (358) (9) 0203-47288
Swedish	Sweden: (46) (8) 619-2170
Italian	Italy: (39) (2) 0-264-10350
Spanish	Spain: (34) (90) 232-1123
Portuguese	Portugal: (351) (1) 441-7199






In-country Support Numbers

If you require support after your warranty has expired, additional product repair services, or if your country is not listed below, see “Worldwide Sales and Service Offices” on page 145.

Argentina	787-8080
Australia	(61) (0) 3 8877 8000
Brazil	011-829-6612
Canada	(208) 323-2551
China	(86) (0) 10 6564 5959
Chile	800-360999
Czech Republic	(420) (2) 613 07310
Greece	(30) (1) 689-6411
Hong Kong	800 96 7729
Hungary	(36) (1) 461-8110
India	(91) (0) 11 682 6035
Indonesia	62 (0) 21 350 3408
Korea (Seoul)	(82) (0) 2 3270 0700
Korea outside Seoul	080 999 0700
Japan	(81) (3) 3335-8333
Malaysia	(60) (0) 3 295 2566
Mexico (Mexico City)	01 800 4726684
	01 800 4720684
Mexico (outside Mexico City)	01 800-90529
New Zealand	(64) (0) 9 356 6640
Philippines	(63) (0) 2 867 3551
Poland	(48) (22) 608-7700
Portugal	(351) (1) 301-7330
Russia	(7) (95) 923-5001
Singapore	+65 272 5300
Switzerland	(41) (1) 0800-55-5353
Taiwan	886 (0) 2 717 0055
Thailand	+66 (0) 2 661 4000
Turkey	(90) (1) 224-5925
Vietnam	+848 823 4530



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Printer Basics



Overview



Congratulations on your purchase of an HP LaserJet 4050 series printer. If you have not done so, see the getting started 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

Speed and Throughput

- Instant-on fuser prints the first page in 15 seconds
- Prints letter-size paper 17 pages per minute (ppm) or A4-size paper 16 ppm
- “RIP ONCE” capability with 16 MB or hard disk option



Resolution

- FastRes 1200 for faster printing
- ProRes 1200 for better graphics
- Up to 220 levels of gray for smooth, photo-like images
- HP precision toner for clear, sharp output



Paper Handling

- Handles up to 600 sheets of paper (base) and expandable to handle up to 1100 sheets of paper with accessories
- Prints a wide range of sizes and weights

Language and Fonts

- HP PCL 6, PCL 5e, and PostScript™ Level 2 emulation
- 110 fonts for Microsoft Windows, plus HP FontSmart

Expandable Design

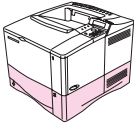
- 500-sheet universal paper tray, 75-envelope power feeder, and duplex printing accessory available
- Flash storage for forms, fonts, and signatures
- Memory can be expanded up to 200 MB
- Two EIO slots for connecting to networks or additional devices
 - HP JetSend enabled



Printer Information

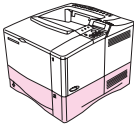
Configurations

This printer is available in four configurations, as described below.



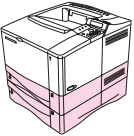
HP LaserJet 4050

The HP LaserJet 4050 comes standard with 8 MB RAM and one 500-sheet tray.



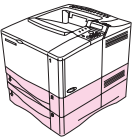
HP LaserJet 4050 N

The HP LaserJet 4050 N comes standard with 16 MB RAM, a HP JetDirect 10/100Base-TX print server card for connecting to a network, an HP Fast InfraRed (FIR Receiver), and one 500-sheet tray.



HP LaserJet 4050 T

The HP LaserJet 4050 T comes standard with 8 MB RAM and two 250-sheet trays.



HP LaserJet 4050 TN

The HP LaserJet 4050 TN comes standard with 16 MB RAM, a HP JetDirect 10/100Base-TX print server card for connecting to a network, an HP Fast InfraRed (FIR Receiver), and two 250-sheet trays.



Printer Parts and Locations

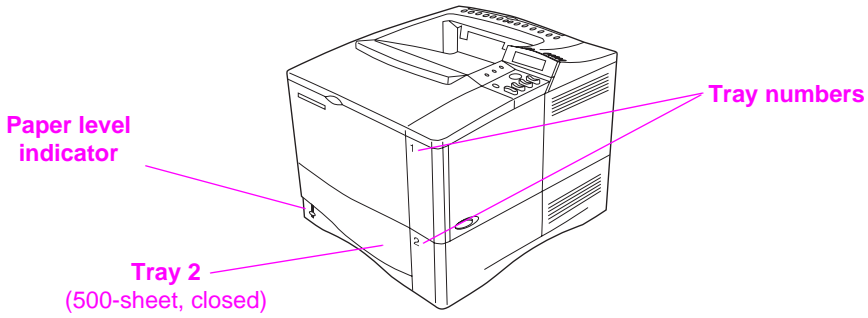
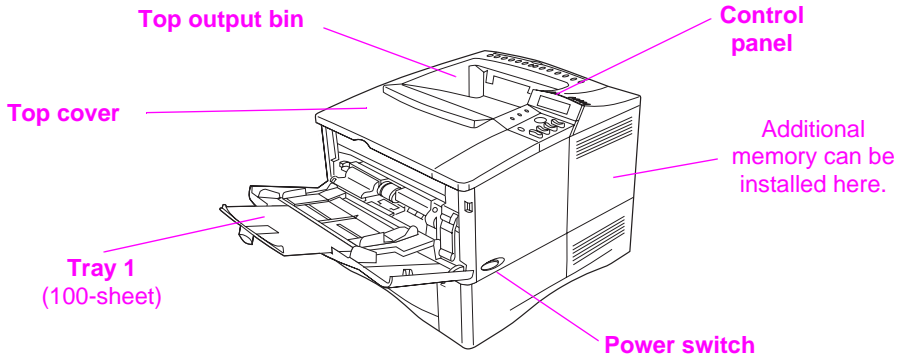


Figure 1 Printer Parts (front view, HP LaserJet 4050/4050 N printer)



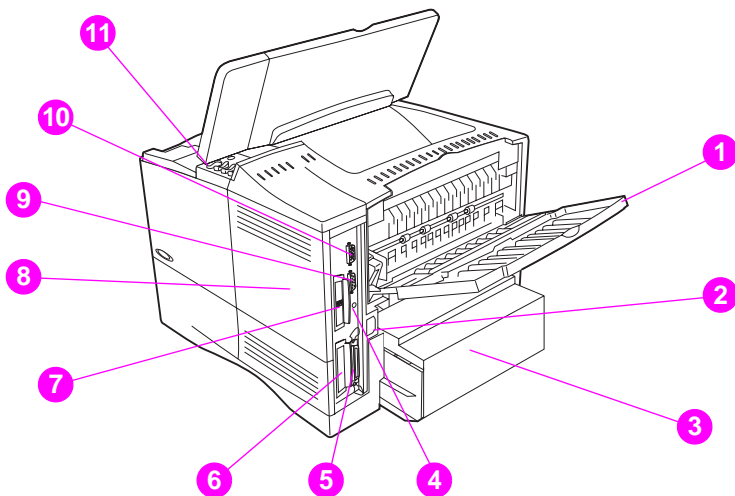


Figure 2 Printer Parts (rear view, HP LaserJet 4050/4050 N printer)

- 1 Rear output bin (straight-through paper path)
- 2 Power connector
- 3 Dust cover
- 4 FIR receiver port
- 5 Parallel interface port
- 6 Network, I/O slot
- 7 10/100Base-TX (RJ-45) port
- 8 Memory (More than one DIMM can be installed.)
- 9 Serial port
- 10 Accessory interface port
- 11 Serial and model numbers (inside cover)



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.

The printer supports two enhanced input/output (EIO) cards. One of these is used in the HP LaserJet 4050 N and 4050 TN for the HP JetDirect 10/100Base-TX print server card. Other accessories and options are available. For ordering information, see page 8.



Suggested Accessories

Use the following accessories to optimize the printer.

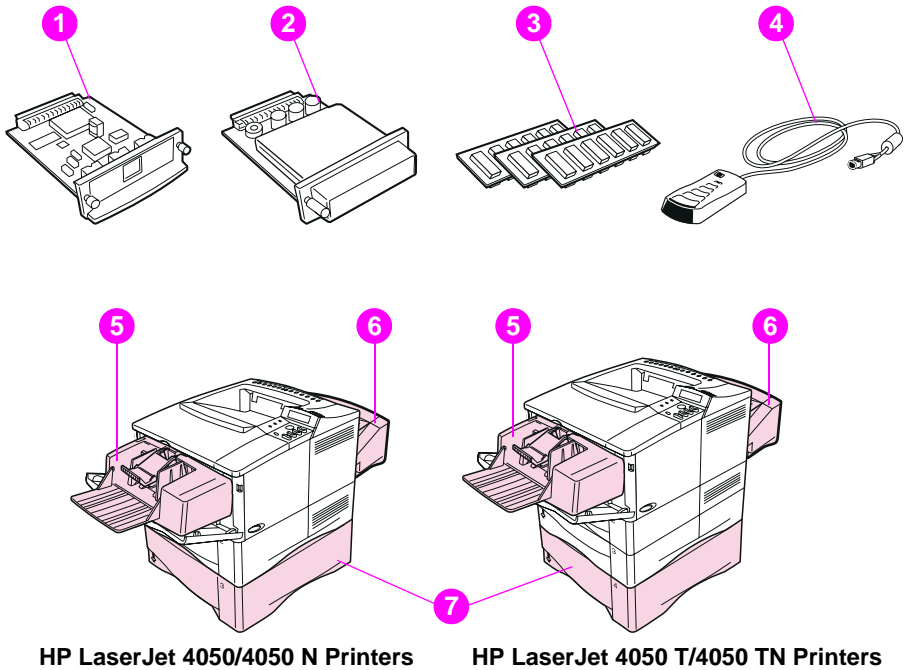


Figure 3

Optional Accessories

- 1 HP JetDirect Print Server (EIO card)
- 2 Hard Disk (EIO card)
- 3 Memory or Flash DIMM
- 4 HP Fast InfraRed Receiver
- 5 Envelope Feeder
- 6 Duplex Printing Accessory (or duplexer, for 2-sided printing)
- 7 Optional 500-Sheet Tray



Ordering Information

Use only accessories specifically designed for this printer. To order an accessory, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)



Ordering Information

	Item	Description or Use	Part Number
Paper Handling	500-Sheet Paper Feeder and Tray	Paper feeder and one 500-sheet tray.	C4124A
	Envelope Feeder	Automatically feeds up to 75 envelopes.	C4122A
	Duplex Printing Accessory (duplexer)	Allows automatic printing on both sides of paper.	C4123A
	250-Sheet Replacement Tray	Replacement paper tray for the HP LaserJet 4050 T/4050 TN printers (Trays 2 and 3).	C4126A
	Universal Optional 500-Sheet Replacement Tray	Replacement paper tray is a 500-sheet tray. (Supports nine paper sizes)	C4125A
	500-Sheet Replacement Tray	Replacement paper tray for the HP LaserJet 4050/4050 N printers (Tray 2). (Supports letter, A4, and legal paper sizes)	C3122A
Printing Supplies	HP Multi-purpose Paper	HP brand paper for a variety of uses (1 box of 10 reams, 500 sheets each, weighing 20 lb). 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, weighing 24 lb). To order a sample, in the U.S. call 1-800-471-4701.	HPJ1124
	Toner Cartridge (6,000 pages)	Replacement HP precision toner cartridge.	C4127A
	Toner Cartridge (10,000 pages)	Replacement HP precision toner cartridge.	C4127X



Ordering Information (Continued)

Item	Description or Use	Part Number	
Memory, Fonts, and Mass Storage	Dual In-line Memory Module (DIMM)	Boosts the ability of the printer to handle large print jobs (maximum 200 MB with HP brand DIMMs):	
	EDO DIMMs	4 MB	C4135A
		8 MB	C4136A
		16 MB	C4137A
	SDRAM DIMMs	4 MB	C4140A
		8 MB	C4141A
		16 MB	C4142A
		32 MB	C4143A
		64 MB	C3913A
	Flash DIMM	Permanent storage for fonts and forms:	
		2 MB 4 MB	C4286A C4287A
	Font DIMM	8 MB Asian MROM: traditional Chinese simplified Chinese	C4292A C4293A
		Hard Disk	Permanent storage for fonts and forms. Also used for making multiple original prints and Job Retention features.
	Dust Cover	Dust cover, Tray 1x500	C4232A
		Dust cover, Tray 2x250	C4233A
Dust cover, optional 500		C4234A	



Ordering Information (Continued)

Item	Description or Use	Part Number	
Cable and Interface Accessories	Parallel Cables	2 Meter IEEE-1284 cable 3 Meter IEEE-1284 cable	C2950A C2951A
	Serial Cables	9-9 pin serial cable (male/female)	C2932A
		9-25 pin serial cable (male/female)	C2933A
	Serial Adapter	25-9 pin adapter (male/female)	C2809A
	Macintosh Computer Serial Cable	For connecting to a Macintosh computer.	92215S
	Macintosh Network Cable Kit	For PhoneNET or LocalTalk connection.	92215N
	Enhanced I/O Cards	HP JetDirect 600N EIO internal print servers:	
		10Base-T Ethernet, single RJ-45 port	J3110A
		Ethernet 10Base-T and 10Base2, LocalTalk networks	J3111A
		Token Ring networks	J3112A
	Fast Ethernet 10/100Base-TX	J3113A	
FIR Receiver	Fast InfraRed Receiver	C4103A	



Ordering Information (Continued)

	Item	Description or Use	Part Number
Documentation	<i>HP LaserJet Printer Family Paper Specification Guide</i>	A guide to using paper and other print media with HP LaserJet printers.	5040-9072
	<i>HP LaserJet 4050, 4050 T, 4050 N, and 4050 TN User Documentation CD-ROM</i>	An additional copy of the user documentation CD-ROM.	C4251-91001
	User's Documentation Bundle, HP LaserJet 4050 and 4050 N Printers	Getting started guide, and the quick reference guide.	C4251-90951 (English)
	User's Documentation Bundle, HP LaserJet 4050 T and 4050 TN	Getting started guide, and the quick reference guide.	C4252-90925 (English)
Maintenance	Printer Maintenance Kit	Contains user-replaceable parts and instructions for routine printer maintenance.	
		110 V printer:	
		new	C4118-67902
		exchange	C4118-69001
	220 V printer:		
	new	C4118-67903	
	exchange	C4118-69002	



Control Panel Layout

The printer's control panel consists of the following:

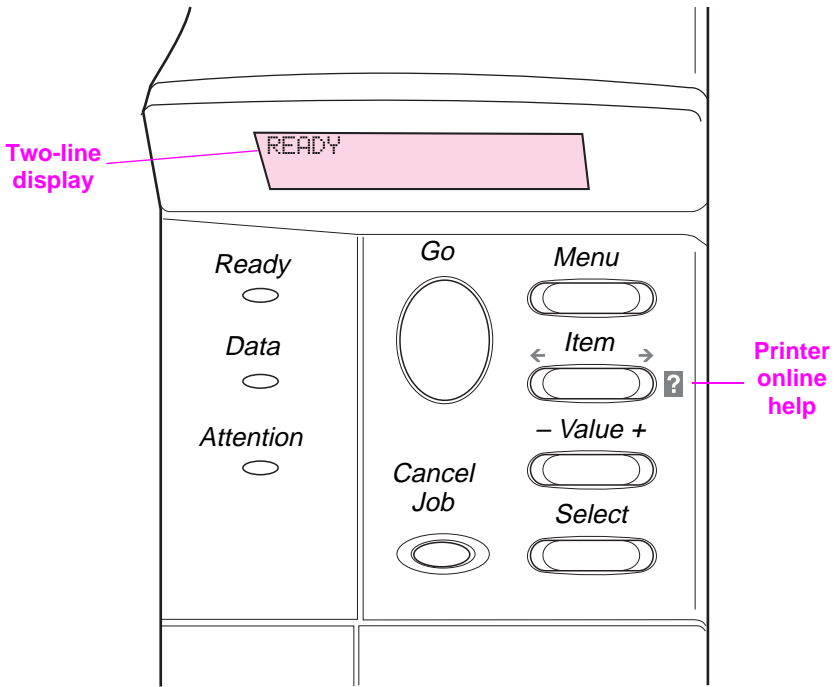


Figure 4 Control Panel Layout

Control Panel Lights

Light	Indication when lit
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 × 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. (Press [Cancel Job] only once.) The time it takes to cancel depends on the size of the print job.
[Menu]	Cycles through the control panel menus. Press the right end of the key to move forward or the left end of the key to move backward.
[Item]	Cycles through the selected menu's items. Press the right end of the key to move forward or the left end of the key 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.



Using the Printer Online Help System

This printer features an online help system on the control panel that provides instructions for resolving most printer errors. Certain control panel error messages alternate with instructions on accessing the online help system.

Whenever a  appears in an error message, or a message alternates with FOR HELP PRESS THE ? KEY, press the **[Item]** key to navigate through a sequence of instructions.

Note

To exit the online help system, press **[Go]**.



Control Panel Menus

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

Press **[Menu]** for access to all control panel menus. When additional trays or other accessories are installed in the printer, new menu items automatically appear.



To Change a Control Panel Setting:

- 1 Press **[Menu]** repeatedly until the desired menu appears.
- 2 Press **[Item]** repeatedly until the desired item appears.
- 3 Press **[- Value +]** repeatedly 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 either not an option for the printer, or you have not enabled the associated higher level option, or your network administrator has locked the function. (The control panel reads ACCESS DENIED MENUS LOCKED.) See your network administrator.



To Print a Control Panel 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]** repeatedly until INFORMATION MENU appears.
- 2 Press **[Item]** repeatedly 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.)



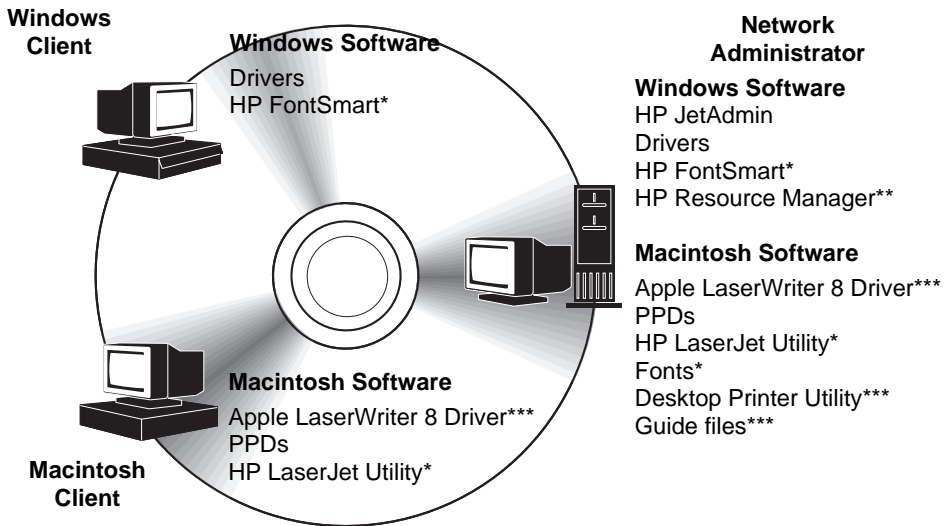
Printer Software

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



Note

Check the ReadMe.txt file provided on the compact disc for late-breaking information.



*These products are not supported in Traditional Chinese, Simplified Chinese, Korean, and Japanese.

**HP Resource Manager is supported only in English, French, Italian, German, Spanish, Dutch, Traditional Chinese, Simplified Chinese, Korean, and Japanese.

***These products are supported by English only.

Figure 5 Printer Software

Note

The online user's guide and a copy of Adobe Acrobat Reader (English version) are on the second of the two compact discs.



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.wri file for more information.

Note

Network Administrators: HP JetAdmin and HP Resource Manager should be installed only on the network administrator's computer. Load all other applicable software on the server and all client computers.

The most recent drivers, additional drivers, and other software are available from the Internet (see the HP Customer Care Service and Support pages at the front of this user's guide). Depending on the configuration of Windows-driven computers, the installation program for the printer software automatically checks the computer for Internet access and can obtain the latest software. If you do not have access to the Internet, see the HP Customer Care Service and Support pages at the front of this user's guide for information on obtaining the most recent software.

Included with the printer is a compact disc containing the HP LaserJet Printing System. On the compact disc are software components and drivers that benefit end users and network administrators. See the ReadMe.wri file for the most current information.

The Printing System includes software designed for end users operating in the following environments:

- Microsoft Windows 3.1x
- Microsoft Windows 9x
- Microsoft Windows NT 4.0
- IBM OS/2 version 2.0 or greater
- Apple Mac OS 7 or greater
- AutoCad versions 12–15

Additional drivers for Windows NT 3.51 are available on the Internet.



The Printing System also includes software for network administrators using the following network operating systems:

- Novell NetWare 3.x or 4.x
- Microsoft Windows NT 4.0
- AppleTalk (LocalTalk or EtherTalk)

Network administration software for UNIX, IBM OS/2, and other network operating systems is available from the web or through your HP distributor. (See the HP Customer Care Service and Support pages at the front of this user's guide.)

The drivers and software components for end users and administrators using the environments listed above are described in the following sections.



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

Certain printer features are available only from the PCL 6 drivers. 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	PS ¹
Windows 3.1x	✓	✓	✓ ²
Windows 9x	✓	✓	✓
Windows NT 4.0	✓	✓	✓
Macintosh computer			✓

1. PostScript Level 2 emulation is referred to as PS throughout this user's guide.
2. Level 1 emulation only.



Windows

Within the computer installation program, select **Typical Install** to install the PCL 5e/6, and PS drivers and HP FontSmart. 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.



Macintosh

Click **Install** to install the LaserWriter 8 driver (English only), PostScript Printer Description files (PPDs), PDF files (PDFs), online help, HP LaserJet utility, and Desktop Printer utility. Click **Custom** to only install the software you prefer.



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 HP Customer Care Service and Support pages at the front of this user's guide.)

- OS/2 PCL 5e/6 printer driver¹
- OS/2 PS printer driver¹
- NT 3.51 PCL 5e, NT 3.51 PS²

¹The OS/2 drivers are available from IBM and are packaged with OS/2. They are not available for Traditional Chinese, Simplified Chinese, Korean, and Japanese.

²The NT 3.51 PS driver is available for English only.

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 (if you are a network administrator) to install the HP software. (This includes several printer drivers. For more information, see page 20.)

Network Administrators: If the printer is attached to a network through an HP JetDirect EIO card, before you can print, the printer must be configured for that network. To configure the printer for your network, you can select **Custom Install** from the printer installation program or use HP JetAdmin software. (See the *HP JetDirect Print Server Software Installation Guide* or the getting started guide that came with your printer.)

Note

You should use the **Custom Install** option because it allows you to install administration software such as HP JetAdmin and HP Resource Manager.

Use the **Disk Images** option to create a set of disks with the exact software you want the end users to use. This allows you to distribute drivers without distributing administration software to end users.



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 9x	From the File menu, click Print , and then click 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 choose Properties .
Windows NT 4.0	From the File menu, click Print , and then click 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 and choose Document Defaults or Properties .
Windows 3.1x and Windows NT 3.51	From the File menu, click Print , click Printers , and then click Options . (The actual steps can vary; this is the most common method.)	From the Windows control panel, double-click Printers , highlight the printer, and click Setup .



Note

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



Choose the Right Printer 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.
- Use the PS driver for compatibility with PostScript Level 2 needs. Certain features are not available in this driver.
- The printer automatically switches between PS and PCL printer languages.

For the Macintosh, use the Apple LaserWriter 8 Driver, which is a PS driver.

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.



HP FontSmart

Note

HP FontSmart is not supported for Traditional Chinese, Simplified Chinese, Korean, and Japanese.

Access HP FontSmart from the HP LaserJet folder. HP FontSmart is a font management utility (for Windows only) which does the following:

- installs, uninstalls, and deletes fonts
- manages fonts inside a single window by allowing you to drag-and-drop
- provides 145 TrueType™ fonts
- provides an on-screen preview of all the fonts and prints samples of them
- provides web connectivity to HP FontSmart, an online resource for free fonts and HP-specific font information (not available for Windows 3.x)
- provides HP LaserJet printer matching screen fonts



HP Resource Manager

The HP Resource Manager should be installed only on the network administrator's computer. The HP Resource Manager allows you to control hard disk and flash memory features not found in the drivers. Bidirectional communication is required.

Note

HP Resource Manager is not available for the Macintosh.

Use the HP Resource Manager to do the following:

- initialize disk and flash memory
- download, delete, and manage fonts and macros to disk and flash memory across networks
 - PostScript Type 1, PostScript Type 42 (True Type fonts converted to PostScript format), TrueType, and PCL bitmap fonts

Note

To download Type 1 fonts, Adobe Type Manager must be loaded and turned on.

Note

HP Resource Manager is only supported in English, French, Italian, German, Spanish, Dutch, Traditional Chinese, Simplified Chinese, Korean, and Japanese.



HP JetSend Communications Technology



HP JetSend is a technology from Hewlett-Packard that allows devices to communicate with each other simply and directly. HP JetSend is built into your printer, allowing it to receive information from any HP JetSend-enabled sending device anywhere on your network, whether it is in the same office or at a remote location.

When you use the HP Fast InfraRed Receiver accessory, your printer can also receive information from any HP JetSend-enabled infrared device. Examples of HP JetSend sending devices include computers or laptops running HP JetSend software or scanners with HP JetSend built in. HP JetSend uses simple IP addressing between networked devices and cableless communication between infrared devices.

Note

HP JetSend software is not supported for Traditional Chinese, Simplified Chinese, Korean, and Japanese.

To HP JetSend enable your computer or laptop, visit the HP JetSend website (www.jetsend.hp.com/products) for information on HP JetSend software. With the software, you will be able to exchange intra-company documents directly between two or more computers and between any HP JetSend enabled printers, without the problems of incompatible software applications or versions. HP JetSend software will allow your colleagues to create documents on their computers and send copies directly to this printer without any device-specific drivers or configuration difficulties.

You can visit the HP JetSend website to learn which other devices are available to communicate easily and directly with your HP JetSend-enabled printer.



How the JetSend Communications Technology Works

Networked Devices

To use the HP JetSend capability between networked devices, print a configuration page (see page 134) to find your HP JetSend IP address, and give your address to anyone who wants to send information to your printer via HP JetSend.



From a HP JetSend sending device, a person only needs to enter the printer's IP address and press "send."



Infrared Devices

To use HP JetSend infrared capability, line up the infrared sensors between the sending and receiving devices, and choose the "send" option on the sending device.



The devices will automatically negotiate the best possible outcome because they have HP JetSend in them.

Note

HP JetSend software is not available for the Macintosh computer.



Software for Macintosh Computers

Apple LaserWriter 8 Driver

The driver for the Apple LaserWriter 8 comes on the compact disc shipped with the printer.



Note

Apple LaserWriter 8 Driver applies to English only.



PostScript Printer Description Files (PPDs)

PPDs, in combination with the Apple LaserWriter 8 Driver, access the printer features and allow the computer to communicate with the printer. An installation program for the PPDs and other software is provided on the compact disc. Use the Apple LaserWriter 8 Driver that comes with the computer or is installed with the HP printer software compact disc.



HP LaserJet Utility

Note

The HP LaserJet Utility is not supported for Traditional Chinese, Simplified Chinese, Korean, and Japanese.

HP LaserJet Utility allows control of features that are not available in the driver. The illustrated screens make selecting printer features from the Macintosh computer easier than ever. Use the HP LaserJet Utility to do the following:

- Customize the printer's control panel messages.
- Name the printer, assign it to a zone on the network, download files and fonts, and change most of the printer settings.
- Set a password for the printer.
- From the computer, lock out functions on the printer's control panel to prevent unauthorized access. (See the printer software help.)
- Configure and set the printer for IP printing.



Software for Networks

HP JetAdmin

HP JetAdmin software is primarily for users who cannot use HP Web JetAdmin due to the lack of browser access or because none of the supported server platforms exist on their network. HP JetAdmin should be installed only on the network administrator's computer. HP JetAdmin can be accessed by clicking the **Start** button (point to **Settings**, click **Control Panel**, and then click the **HP JetAdmin** icon) in Windows 9x and Windows NT 4.0; or from the HP LaserJet program group folder. Use HP JetAdmin software to do the following:

- Install, configure, and manage printers that are connected to a network with an HP JetDirect print server.
- Manage and troubleshoot network HP printers and print servers.

HP JetAdmin software works on the following network systems:

- Microsoft Windows NT 4.0
- Microsoft Windows 9x
- Microsoft Windows NT 3.51*
- Novell NetWare
- HP-UX*
- Solaris*
- SunOS*
- IBM OS/2*
- Mac OS (via the HP LaserJet Utility)

*The software for these systems is not included on the compact disc with the printer, but is available from the Internet. If you do not have access to the Internet, see the HP Customer Care Service and Support pages at the front of this user's guide to obtain this software.

Note

Network Administrators: If the printer is attached to a network, before you can print, the printer must be configured for that network using HP JetAdmin or similar network software. (See the getting started guide.)



HP Web JetAdmin

HP Web JetAdmin is a browser-based management tool. It can be installed and run on the following systems:

- Microsoft Windows NT
- HP-UX*
- Sun Solaris*

*HP Web JetAdmin is not included on the CD-ROM with the printer, but is available from the Internet at http://www.hp.com/support/net_printing. If you do not have access to the Internet, see the HP Customer Care Service and Support pages at the front of this user's guide to obtain this software.

When installed on a host server, HP Web JetAdmin can be accessed by any client through a supported web browser (such as Microsoft Internet Explorer 3.x and 4.x or Netscape Navigator 3.x and 4.x) by browsing to the HP Web Jet Admin host.

Use HP Web JetAdmin to do the following:

- Install and configure printers that are connected to a network with an HP JetDirect print server. If you install HP Web JetAdmin 5.0 or greater, it will configure Novell NetWare parameters on the HP JetDirect print server and NetWare server.
- Manage and troubleshoot network printers from any location.

Note

See the *HP JetDirect Print Server Software Installation Guide* on your printer documentation CD-ROM or your networking software to configure the printer for your needs.



Printing Tasks



Overview

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

- Selecting the output bin.
- Loading the trays.
- Printing on both sides of paper with the optional duplexer.
- Printing on special paper, such as letterhead and envelopes, (including automatically feeding envelopes with the optional envelope feeder).

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.

(See "Using Features in the Printer Driver" on page 59.)

- Tray 1 can be used in several different ways. See "Customizing Tray 1 Operation" on page 63.
- 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 65.



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.



- 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.



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

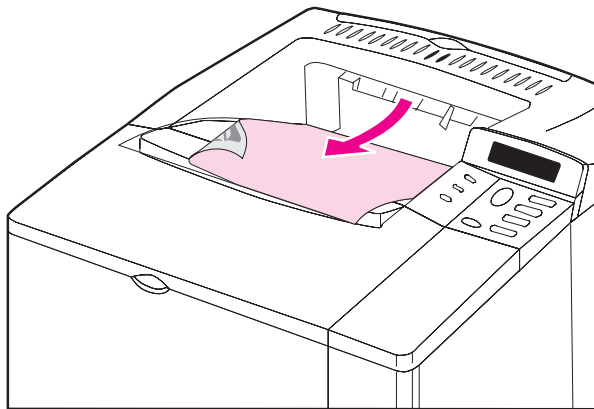


Figure 6 Top Output Bin



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. Pull the bin down, and slide out the extension.



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
- small custom-size paper
- postcards
- paper heavier than 28 lb (105 g/m²)



Note

Opening the rear output bin disables the optional duplexer (if installed) and the top output bin.

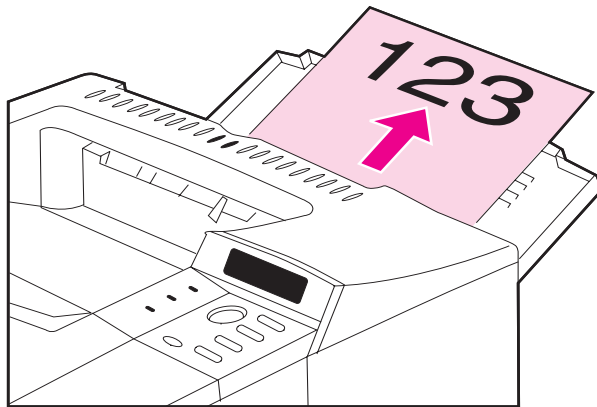
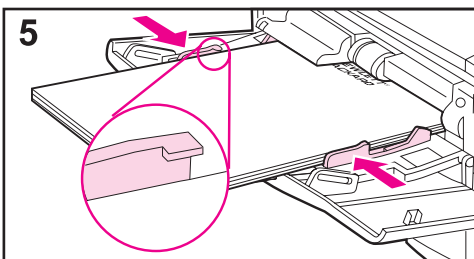
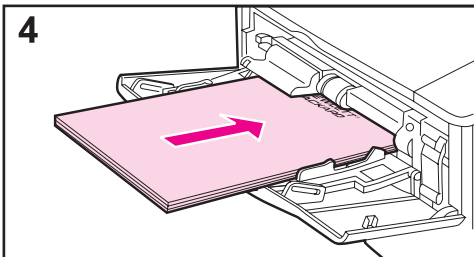
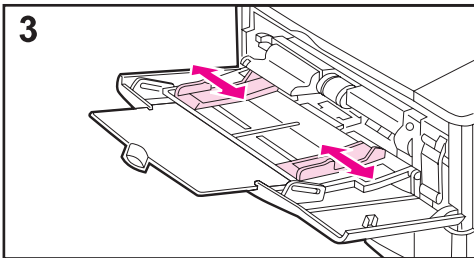
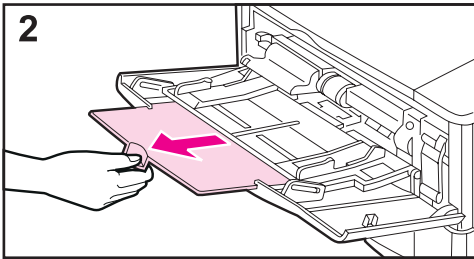
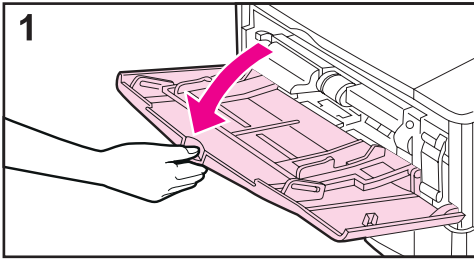


Figure 7 Rear Output Bin



Loading Tray 1



Note

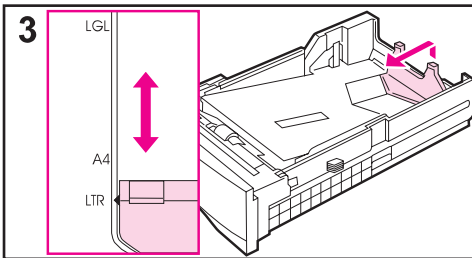
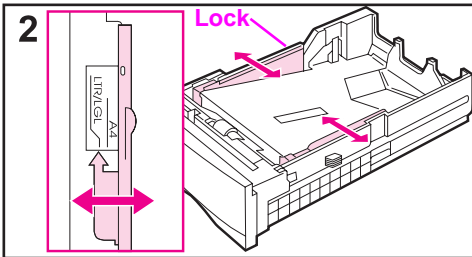
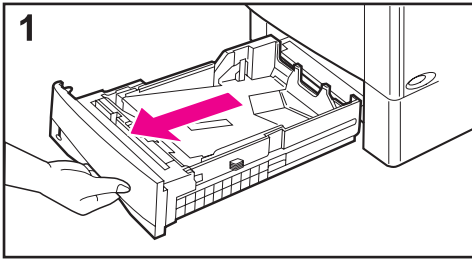
To avoid paper jams, do not load trays while the printer is printing.

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 63. For supported sizes of paper, see page A-3.

- 1 Open Tray 1.
- 2 Pull out the tray extension.
- 3 Set the side guides to the desired width.
- 4 Load Tray 1.
- 5 Paper should fit, without bending, under the tabs on the guides, and below the line as indicated. For correct orientation, see page 46.



Loading Tray 2 (4050/4050 N)



Tray 2 is a 500-sheet tray. The optional 500-sheet tray is adjusted differently (page 39). (Tray 2 and the optional 500-sheet tray can be interchanged in the printer.) Tray 2 adjusts for letter, A4, and legal sizes; these adjustments affect printer performance.

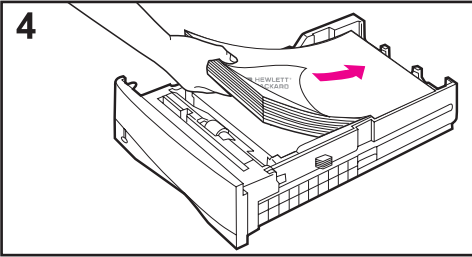
Note

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

- 1 Pull the tray completely out of the printer.
- 2 If the tray is not already set to the desired paper size, snap the left and right guides into place to match the width of the paper. For A4 size paper, slide the lock down to secure the guide.
- 3 Lift the back of the rear paper guide and slide it to the desired paper size until it clicks into place. If the tray is not properly adjusted, the printer might display an error message or paper might jam.

Continued on the next page.

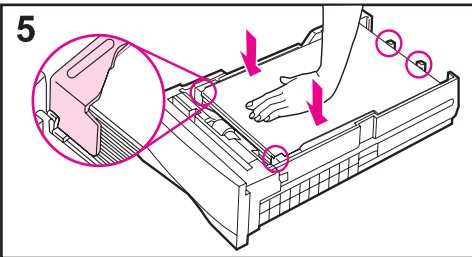




4 Load paper into the tray. For correct orientation, see page 46.



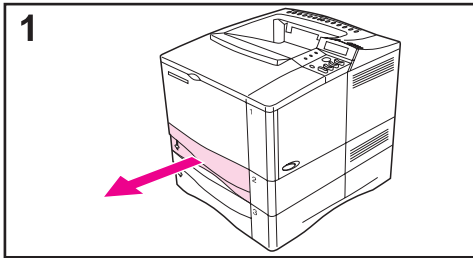
5 Make sure the paper is flat in the tray at all four corners and below the tabs on the guides. Slide the tray back into the printer.



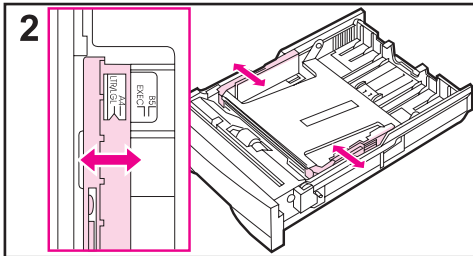
The printer automatically senses the size of paper loaded if the tray is adjusted correctly. To print by type and size of paper, see page 65.



Loading Trays 2 and 3 (4050 T/4050 TN)



Trays 2 and 3 are 250-sheet trays. For supported sizes of paper, see page A-3. Choose A5 and B5 ISO as custom sizes in the printer driver for these trays (page 56).

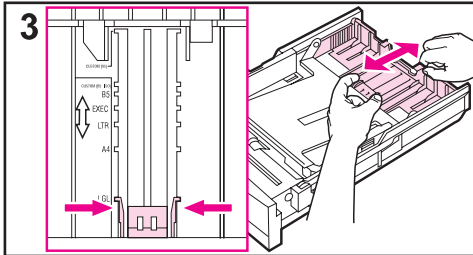


Note

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

1 Pull the tray completely out of the printer.

2 If the tray is not already set to the desired paper size, snap the left and right guides into place to match the width of the paper.

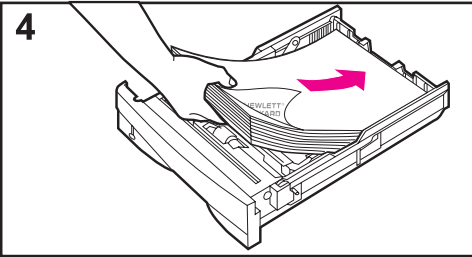


3 Locate the release tabs (indicated by the two arrows).

Squeeze the blue tabs to release them from the slots while sliding the back section of the tray to the desired paper size. Make sure the tabs lock into the correct slots.

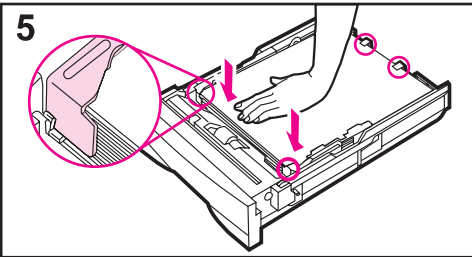
Continued on the next page.





4 Load paper into the tray.

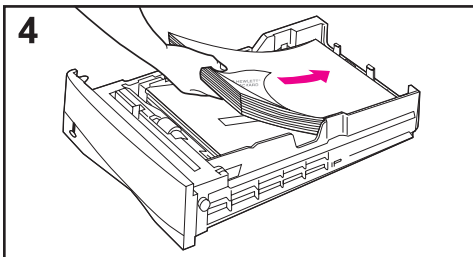
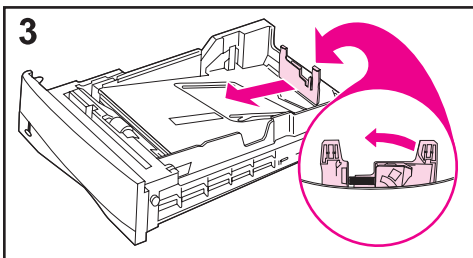
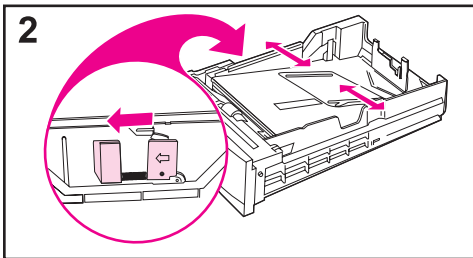
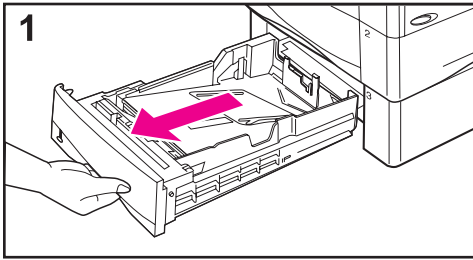
5 Make sure the paper is flat in the tray at all four corners and below the tabs on the guides. Gently slide the tray back into the printer.



The printer senses the size of paper loaded if the tray is adjusted correctly. To print by type and size of paper, see page 65.



Loading the Optional 500-Sheet Tray



The optional 500-sheet tray is Tray 3 for the HP LaserJet 4050/4050 N printers, or Tray 4 for the HP LaserJet 4050 T/4050 TN printers. This tray is adjusted differently than Tray 2 (page 35). Tray 2 and the optional 500-sheet tray can be interchanged in the printer. For supported sizes of paper, see page A-5.

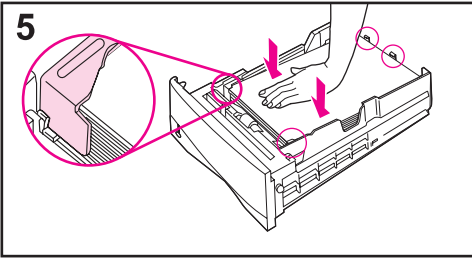
Note

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

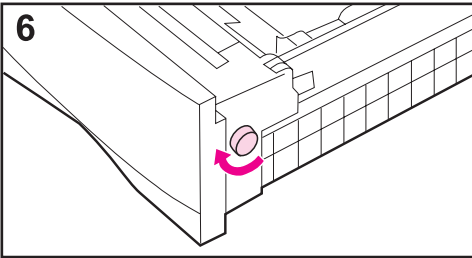
- 1 Pull the tray completely out of the printer.
- 2 If the tray is not set to the desired paper size, squeeze the release on the left guide and adjust the left and right guides to match the width of the paper.
- 3 Squeeze the release on the back of the rear paper guide and slide it to the desired paper size.
- 4 Load paper into the tray.

Continued on the next page.





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

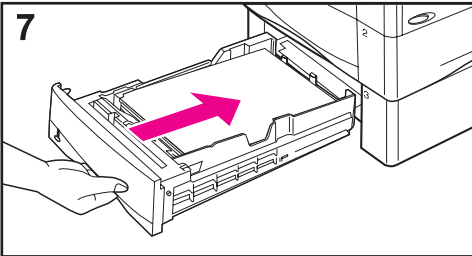


6 Set the dial on the right side of the tray to match the paper size.



Note

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



7 Gently slide the tray into the printer.

To print by type and size of paper, see page 65.



Printing Both Sides of Paper (Optional Duplexer)

The printer can automatically print on both sides of paper with an optional duplex printing accessory (duplexer). This is called duplexing.



Note

See the documentation included with the duplexer for complete installation and setup instructions. Duplexing might require additional memory (page C-1).



The duplexer supports standard sizes from B5 JIS (7.2 by 10 inches or 182 by 257 mm) to legal (8.5 by 14 inches or 216 by 356 mm).

Note

The accessory dust cover cannot be used when the optional duplexer is installed.

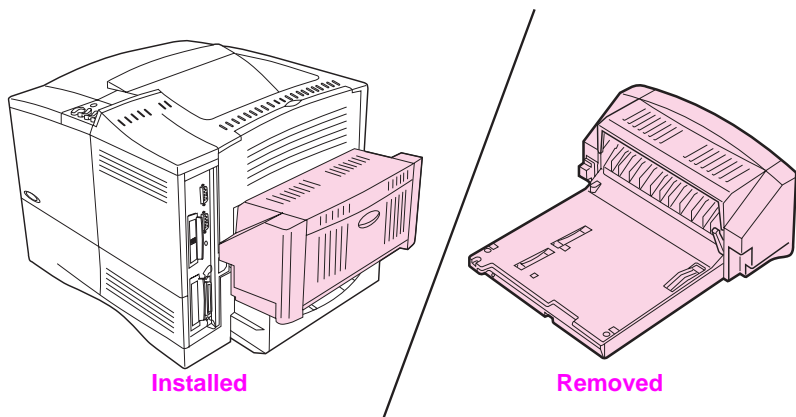


Figure 8 Printer with the Optional Duplexer



Guidelines for Printing Both Sides of Paper

Caution

Do not print on both sides of labels, transparencies, envelopes, or paper heavier than 28 lb (105 g/m²). Damage to the printer and paper jamming might result.

WARNING!

To avoid personal injury and damage to the printer, do not lift the printer with the duplexer installed. Before relocating the printer, separate the duplexer and optional trays from the printer.

- You might need to configure the printer driver to recognize the duplexer. (See the printer software help for details.)
- To print on both sides of paper, make the selection from the software or printer driver. (See the printer software help.)
- If the printer driver does not have this option, change the Duplex setting from the Paper Handling Menu in the printer's control panel to `DUPLEX=ON`. Also in the Paper Handling Menu, set Binding to long edge or short edge. (For more information, see page 44.)
- Close the rear output bin to use the duplexer (page 32). Opening the rear output bin disables the duplexer.



Paper Orientation for Printing Both Sides of Paper

The duplexer prints the second side of paper first, so paper such as letterhead and preprinted paper needs to be oriented as shown in Figure 9.

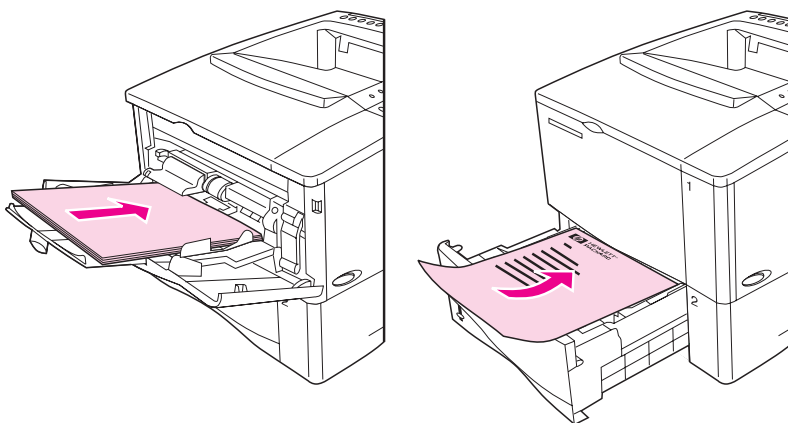


Figure 9 Paper Orientation for Printing Both Sides of Paper

For Tray 1, load the first side facing down and the top toward you. For all other trays, load the first side facing up and the top toward the printer.



Layout Options for Printing Both Sides of Paper

The four print orientation options are shown below. These options can be selected from the printer driver or from the printer's control panel (set **BINDING** from the Paper Handling Menu and **ORIENTATION** from the Printing Menu).

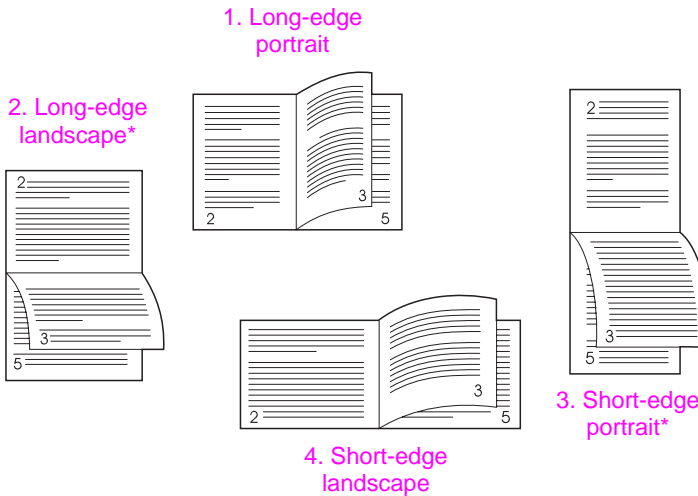


Figure 10 Layout Options for Printing Both Sides of Paper

- | | |
|-------------------------|--|
| 1. Long-edge portrait | This is the default printer setting, and the most common layout used, with every printed image oriented right side up. Facing pages are read from top to bottom on the left page, then from top to bottom on the right page. |
| 2. Long-edge landscape | This layout is often used in accounting, data processing, and spreadsheet applications. Every other printed image is oriented upside-down. Facing pages are read continuously from top to bottom. |
| 3. Short-edge portrait | This layout is often used with clipboards. Every other printed image is oriented upside-down. Facing pages are read continuously from top to bottom. |
| 4. Short-edge landscape | Each printed image is oriented right side up. Facing pages are read from top to bottom on the left page, then from top to bottom on the right page. |

Note

When using Windows drivers, select “Flip Pages Up” to get the binding options designated with (*) above.

Printing Special Paper

Special paper includes letterhead, prepunched (including 3-hole punched), envelopes, labels, transparencies, and custom-size paper.



Printing Letterhead, Prepunched, or Preprinted Paper

When printing letterhead, prepunched, or preprinted paper, it is important to correctly orient the paper. See the “Paper Orientation” section for instructions.



Paper Orientation

For Tray 1, load paper with the side-to-be-printed facing up, and the top, short edge toward the printer.

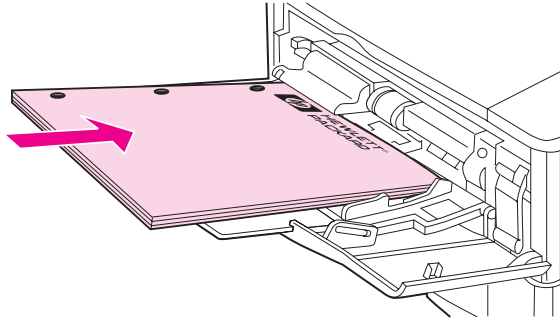


Figure 11 Paper Orientation for Tray 1

For all other trays, load paper with the side-to-be-printed facing down, and the top edge toward you.

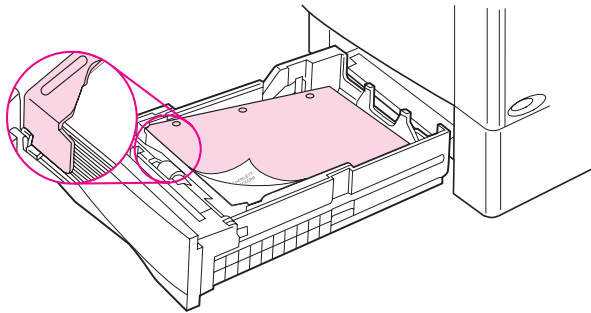


Figure 12 Paper Orientation for All Other Trays



Printing Envelopes

With the optional envelope feeder, the printer will automatically feed up to 75 envelopes. To order an envelope feeder, see page 8. To print with the envelope feeder, see page 49.

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.
- If you have problems printing envelopes, try opening 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

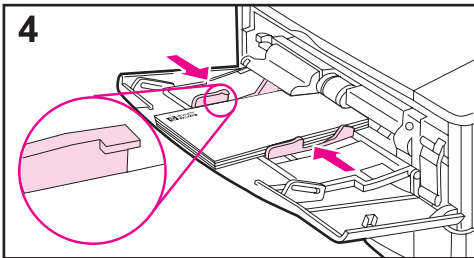
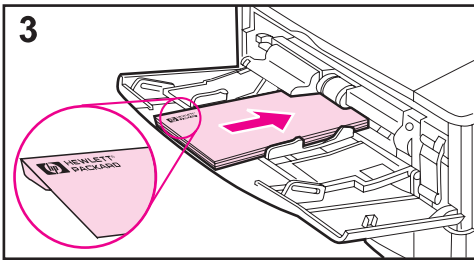
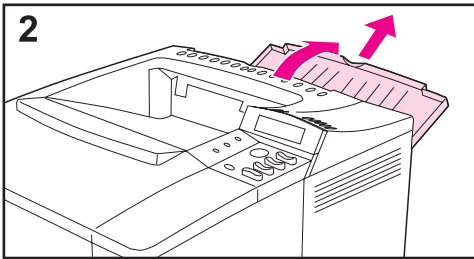
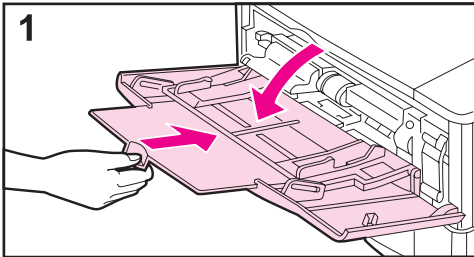
Envelopes with clasps, snaps, windows, coated linings, exposed self-stick adhesives, or other synthetic materials can severely damage the printer.

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-11.)



Loading Envelopes in Tray 1



- 1 Open Tray 1, but do not pull out the extension. (Envelopes feed best without the 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 printer. 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.



Feeding Envelopes Automatically (Optional Envelope Feeder)

With the optional envelope feeder, the printer will automatically feed up to 75 envelopes. To print envelopes without an envelope feeder, see page 47.



Note

See the documentation included with the envelope feeder for complete installation and setup instructions.



You might need to configure the printer driver to recognize the envelope feeder. See the printer software help for details.

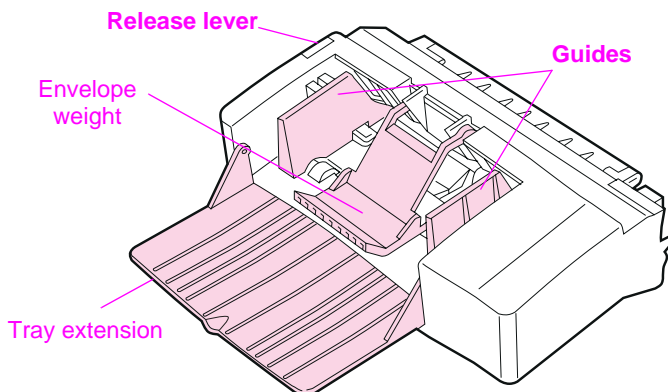


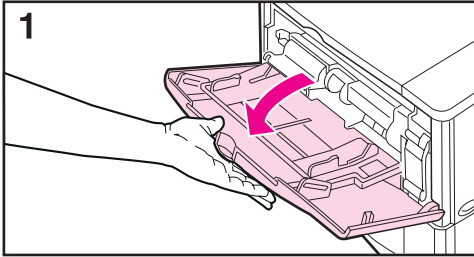
Figure 13 Envelope Feeder Details

Envelope Sizes

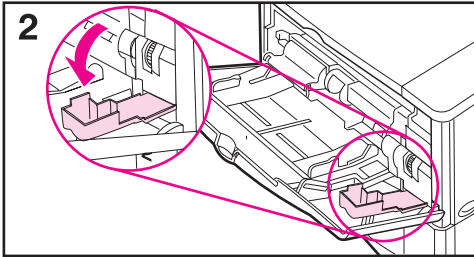
- The envelope feeder supports standard sizes from 3.5 by 6.3 inches (90 by 160 mm) to 7 by 10 inches (178 by 254 mm).
- Other sizes of envelopes should be printed from Tray 1.



Inserting and Removing the Envelope Feeder



1 Open Tray 1.



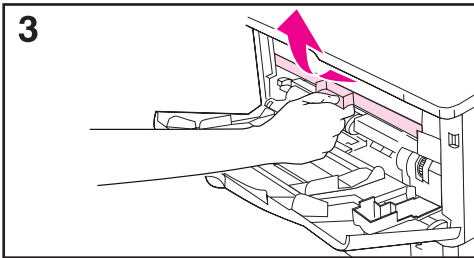
2 Open the access door on the right, front corner of the printer, inside Tray 1.



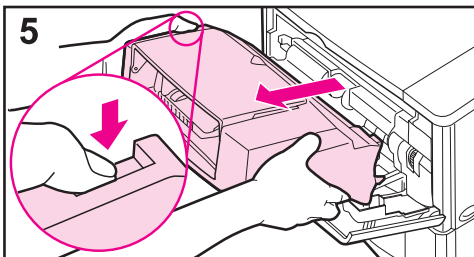
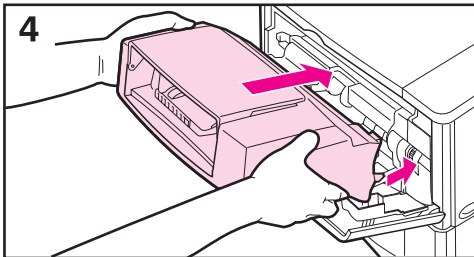
3 Remove the plastic cover from the printer. (Replace the cover when the envelope feeder is not attached.)



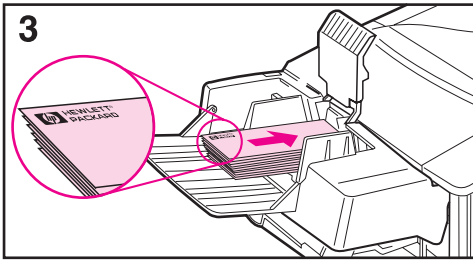
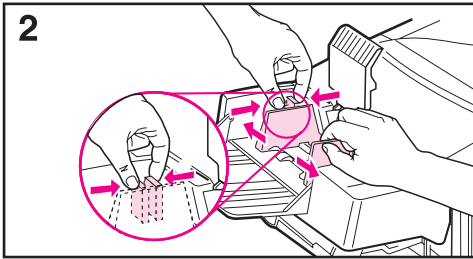
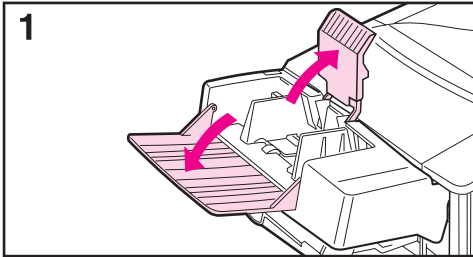
4 Insert the envelope feeder into the printer as far as it will go. (The connector on the top right side of the envelope feeder fits into the plug in the printer.) Pull gently on the envelope feeder to be sure that it is securely in place.



5 To remove the envelope feeder, press the release button on the left and pull the envelope feeder away from the printer.



Loading Envelopes in the Envelope Feeder



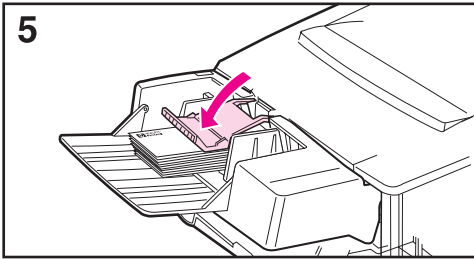
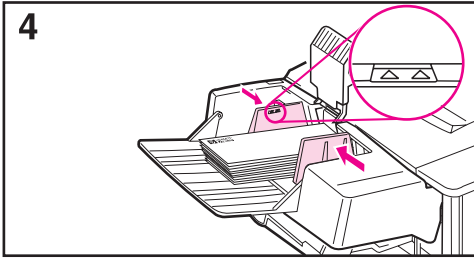
Note

Print only on envelopes approved for use in the printer (page 47 and page A-11).

- 1 Fold down the tray extension. Lift the envelope weight.
- 2 Squeeze the release lever on the left envelope guide and slide the guides apart.
- 3 Load envelopes into the envelope feeder with the side-to-be-printed facing up, and the postage end toward the printer. Push the envelopes into the envelope feeder as far as they will go without forcing them. Push the bottom envelope in slightly farther than the top envelopes. (Stack them as shown.)

Continued on the next page.





4 Adjust the guides to touch the envelopes without bending them. Make sure the envelope feeder is not overfilled.

5 Lower the envelope weight onto the envelopes.

Note

Select the envelope size from the software application (if the setting is available), the printer driver, and the Paper Handling Menu in the printer's control panel (page B-5). To print by type and size of paper, see page 65.



Printing Labels

Use only labels recommended for use in laser printers. Make sure that labels meet the correct specifications (page A-3).

Do:

- Print a stack of 50 labels from Tray 1 or a stack of 50 to 100 labels from other trays.
- Load labels in Tray 1 with the side-to-be-printed facing up, and the top, short edge toward the printer. For orientation in other trays, see Figure 12 on page 46.
- Try opening the rear output bin (page 33) to prevent curl and other problems.

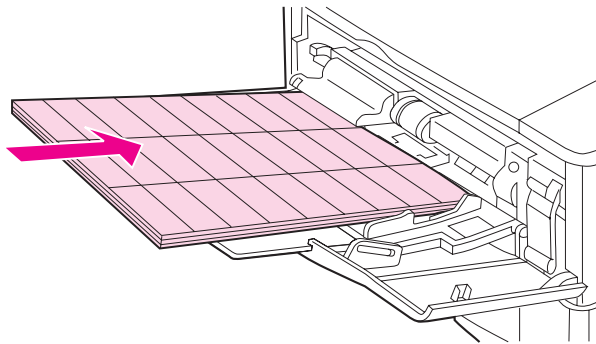


Figure 14 Printing Labels



Do not:

Caution

Failure to follow these instructions can damage the printer.

- Do not load the trays 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.
- Do not print on both sides of labels.



Printing Transparencies

Use only transparencies recommended for use in laser printers. For transparency specifications, see page A-10.

- Load transparencies face up in Tray 1 with the top toward the printer.
- A stack of 50 to 100 transparencies can be printed from other trays. Because transparencies are heavier than paper, do not load the other trays to capacity. For orientation in other trays, see Figure 12 on page 46.
- To prevent transparencies from becoming too hot or sticking together, use the top output bin. Before using the top output bin, be sure the rear output bin is closed (page 32). Remove each transparency from the output bin before printing another.
- Place transparencies on a flat surface to cool after removing them from the printer.

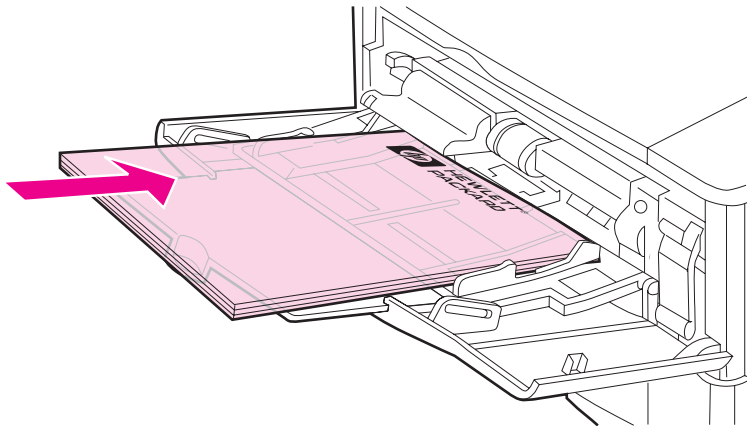


Figure 15 Printing Transparencies



Printing Cards, Custom-Size, and Heavy Paper

Custom-size paper can be printed from Tray 1 or the optional 500-sheet tray. For paper specifications, see page A-2.

Note

Choose A5 and B5 (ISO) as custom sizes in the printer driver for Tray 2 and Tray 3 (HP LaserJet 4050 T/4050 TN printers) and the optional 500-sheet tray. Settings for these sizes are marked in the tray, but custom settings must be selected in the software and from the printer's control panel.



Tray	Minimum Size	Maximum Size
Tray 1	3 by 5 inches (76 by 127 mm)	8.5 by 14 inches (216 by 356 mm)
Optional 500-Sheet Tray	5.8 by 8.2 inches (148 by 210 mm)	8.5 by 14 inches (216 by 356 mm)

The maximum paper weight is 53 lb (199 g/m²) from Tray 1 and 28 lb (105 g/m²) from the 500-sheet tray.

Note

To prevent curl and other problems, heavy paper and very small custom-size paper should be printed from Tray 1 to the rear output bin. Open the rear output bin to use it (page 33).

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.

For paper sizes less than 5 inches (127 mm) feed page in a portrait orientation (short edge first).



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.
- Feed short-edge first.



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, or from the printer's control panel.



Note

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

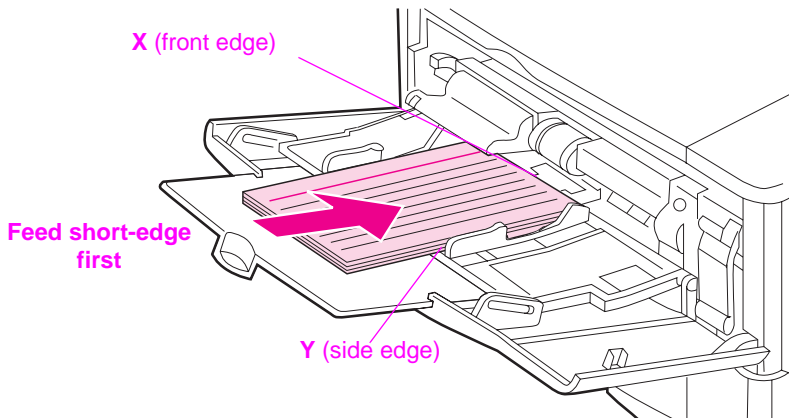


Figure 16 Printing Custom-Size Paper



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 16. X can be 3 to 8.5 inches (76 to 216 mm).
- 4 Set the Y dimension (the side edge of the paper) as shown in Figure 16. Y can be 5 to 14 inches (127 to 356 mm).
- 5 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 63.

If custom paper is loaded in the optional 500-sheet tray, be sure the paper size dial is set to Custom (page 39).

- 6 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).



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 23.



Note

HP PCL 5e, PCL 6, PS, OS/2, UNIX and Macintosh drivers are slightly different. Check the drivers for available options. The PCL6 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.)

Printer Collation

The Printer Collation feature, only available with 16 MB of RAM or a hard disk, allows multiple original prints (mopying) that provides you the following advantages:

- Reduces network traffic
- Faster return to application
- All documents are original

Note

See the application or printer driver help for specific steps.



RIP ONCE

RIP ONCE allows the print job to be processed one time at the printer. The RIP ONCE capability creates an image of the page then saves a compressed image of the page into memory. RIP ONCE is enabled when a minimum of 16 MB of RAM or a hard disk is installed in the printer. Pages are printed by decompressing page images without pausing to process the print job again. The print job will print exactly the same every time because the compressed image is not dependent on any other printer data.



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 5e/ 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 5e/PCL 6 printer driver. See the printer driver help for more information on these features.

Printer Driver Features

Look for **Quick Sets**, **ZoomSmart** (any page size to any page size), and **Booklet Printing** options in the Windows PCL 5e/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.



Different First Page

Follow these instructions for printing a first page that is different from other pages in the print job.

- 1 For Windows, select “Use different paper for first page” in your printer driver. Choose Tray 1 (or Manual Feed) for the first page and one of the other trays for the remaining pages. Place the paper for the first page in Tray 1. (For manual feed, place paper in Tray 1 after the job is sent to the printer and the printer requests paper.) Place the paper with the side-to-be-printed up, the top of the page facing the rear of the printer, and the long edge leading into the printer.

For Macintosh computers, select “First from” and “Remaining from” in the print dialog box.



Note

Where and how you make selections depends on your software application or associated printer driver. (Some options may only be available through the printer driver.)

- 2 Load the paper for the remaining pages of the document into another tray. You may select the first and remaining pages by type of paper. For more information, see “Printing by Type and Size of Paper” on page 65



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.)

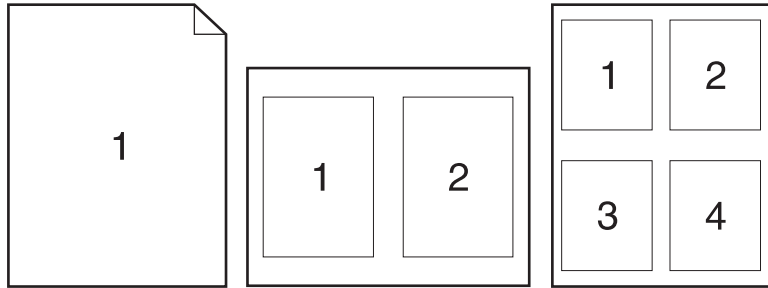


Figure 17 Sample Layout Options (1-up, 2-up, and 4-up)



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 or closed.
- 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 internal trays. Instead of looking for paper in Tray 1 first, the printer pulls paper either starting from the bottom tray upward (from the tray with the highest capacity to the tray with the least capacity), 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 65.



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 34.)
- 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.
- 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 paper 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 57.
 - **Optional envelope feeder:** Set the paper size from the Paper Handling Menu.
 - **Optional 500-sheet tray:** Paper size settings are adjusted when paper is properly loaded into the printer and the paper size dial is set to match the paper size. If custom paper is loaded, set the size of custom paper from the Printing Menu to match the paper loaded in the tray. Set the paper size dial in the tray to Custom. To print custom-size paper, see page 57.
 - **Other trays:** Paper size settings are adjusted when paper is properly loaded into the printer. (See the sections on loading paper, starting on page 35.)



- 4 From the software or printer driver, select the desired type and size of paper.

Note

The type and size settings can also be configured from HP Web JetAdmin and HP JetAdmin software for networked printers. See the printer driver help.



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 63.



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



Supported Types of Paper

The printer supports the following types of paper:

- plain
- letterhead
- prepunched
- bond
- color
- rough
- preprinted
- transparency
- labels
- recycled
- card stock
- user-defined (5 types)



Job Retention Features

To use the job retention features listed below, you must install a hard disk in the printer and properly configure the drivers.



Caution

Make sure to identify your jobs in the printer driver before printing. Using default names may override previous jobs with the same default name or cause the job to be deleted.



Quick Copying a Job



The quick copy feature prints the requested number of copies of a job and stores a copy on the printer's hard disk. Additional copies of the job can be printed later. This feature can be turned off from the driver.

For more information about specifying the number of quick copy jobs that can be stored, see the `QUICK COPY JOBS` control panel item described on page B-18.

Printing Additional Copies of a Quick Copy Job

To print additional copies of a job stored on the printer's hard disk from the control panel:

- 1 Press **[Menu]** repeatedly until `QUICK COPY JOBS MENU` appears.
- 2 Press **[Item]** until the desired user or job name appears.

Note

If you are using a Macintosh computer, the user name appears on the first line of the display and the job name appears on the second line of the display. After you have selected the desired user name using **[Item]**, press **[Value]** until the desired job name appears.

- 3 Press **[Select]** to select the job. `COPIES=1` appears.
- 4 Press **[- Value +]** until the desired number of copies appears.
- 5 Press **[Select]** to print the job.



Deleting a Stored Quick Copy Job

When a user sends a quick copy job, the printer overwrites any previous jobs with the same user and job name. If there is not a quick copy job already stored under the same user and job name and the printer needs additional space, the printer may delete other stored quick copy jobs starting with the oldest job. The default number of quick copy jobs that can be stored is 32. The number of quick copy jobs that can be stored is set from the control panel (see page B-18).



Note

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

A stored quick copy job can also be deleted from the control panel or from HP Web JetAdmin and HP JetAdmin software.

- 1 Press **[Menu]** repeatedly until QUICK COPY JOBS MENU appears.
- 2 Press **[Item]** until the desired user name appears.

Note

If you are using a Macintosh computer, the user name appears on the first line of the display and the job name appears on the second line of the display. After you have selected the desired user name using **[Item]**, press **[Value]** until the desired job name appears.

- 3 Press **[Select]** to select the job. COPIES=1 appears.
- 4 Press **[- Value]** until DELETE appears.
- 5 Press **[Select]** to delete the job.



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.



To permanently store the job and prevent the printer from deleting it when space is needed for something else, select the Stored Job option in the driver.



Printing the Remaining Copies of a Held Job



The user can print the remaining copies of a job held on the printer's hard disk from the control panel.

- 1 Press **[Menu]** repeatedly until QUICK COPY JOBS MENU appears.
- 2 Press **[Item]** until the desired user name appears.

Note

If you are using a Macintosh computer, the user name appears on the first line of the display and the job name appears on the second line of the display. After you have selected the desired user name using **[Item]**, press **[Value]** until the desired job name appears.

- 3 Press **[Select]** to select the job. COPIES=1 appears.
- 4 Press **[- Value +]** until the desired number of copies appears.
- 5 Press **[Select]** to print the job.



Deleting a Held Job

When a user sends a proof and hold job, the printer automatically deletes that user's previous stored proof and hold job. If there is not a proof and hold job already stored for that job name and the printer needs additional space, the printer may delete other stored proof and hold jobs starting with the oldest one.



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 QUICK COPY JOBS MENU appears.
- 2 Press **[Item]** until the desired user name appears.



Note

If you are using a Macintosh computer, the user name appears on the first line of the display and the job name appears on the second line of the display. After you have selected the desired user name using **[Item]**, press **[Value]** until the desired job name appears.

- 3 Press **[Select]** to select the job. COPIES=1 appears.
- 4 Press **[- Value]** until DELETE appears.
- 5 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.



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 the desired user name appears.

Note

If you are using a Macintosh computer, the user name appears on the first line of the display and the job name appears on the second line of the display. After you have selected the desired user name using **[Item]**, press **[Value]** until the desired job name appears.

- 3 Press **[Select]** PIN:0000 appears.
- 4 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=1 appears.
- 5 Press **[- Value +]** until the desired number of copies appears.
- 6 Press **[Select]** to print the job.



Deleting a Private Job

A private job is automatically deleted from the printer's hard disk after the user releases it for printing, unless the user selects the Stored Job option in the driver.

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 the desired user name appears.

Note

If you are using a Macintosh computer, the user name appears on the first line of the display and the job name appears on the second line of the display. After you have selected the desired user name using **[Item]**, press **[Value]** until the desired job name appears.

- 3 Press **[Select]** to select the job. PIN=0000 appears.
- 4 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=1 appears.
- 5 Press **[- Value]** until DELETE appears.
- 6 Press **[Select]** to delete the job.



Storing a Print Job

The user can download a print job to the printer's hard disk without printing it. The user can then print the job at any time through the printer's control panel. For example, a user may want to download a personnel form, calendar, time sheet, or accounting form that other users can access and print.



To store a print job permanently on the hard disk, select the Stored Job option in the driver when printing the job.



Printing a Stored Job



The user can print a job stored on the printer's hard disk from the control panel.

- 1 Press **[Menu]** repeatedly until PRIVATE/STORED JOBS MENU appears.
- 2 Press **[Item]** until the desired user name appears.

Note

If you are using a Macintosh computer, the user name appears on the first line of the display and the job name appears on the second line of the display. After you have selected the desired user name using **[Item]**, press **[Value]** until the desired job name appears.

- 3 Press **[Select]** to select the job name. COPIES=1 appears.
- 4 Press **[- Value +]** until the desired number of copies appears.
- 5 Press **[Select]** to print the job.



Deleting a Stored Job

Jobs stored on the printer's hard disk can be deleted from the control panel.

- 1 Press **[Menu]** repeatedly until PRIVATE/STORED JOBS MENU appears.
- 2 Press **[Item]** until the desired user name appears.

Note

If you are using a Macintosh computer, the user name appears on the first line of the display and the job name appears on the second line of the display. After you have selected the desired user name using **[Item]**, press **[Value]** until the desired job name appears.

- 3 Press **[Select]** to select the job. COPIES=1 appears.
- 4 Press **[- Value]** until DELETE appears.
- 5 Press **[Select]** to delete the job.



Printing with the Optional HP Fast InfraRed Receiver

The HP Fast InfraRed Receiver enables wireless printing from any IRDA-compliant portable device (such as a laptop computer) to the HP LaserJet 4050, 4050 N, 4050 T, or 4050 TN printer.



The printing connection is maintained by positioning the sending infrared (FIR) port within operating range. Note that the connection can be blocked by objects such as a hand, paper, direct sunlight, or any bright light shining into either FIR port.



Note

For more information, see the user guide that came with the HP Fast InfraRed Receiver.

Setting Up to Print with Windows 9x

Before launching the InfraRed Driver, complete the following steps:

- 1 From the **Printers** folder, select the HP LaserJet 4050, 4050 N, 4050 T, or 4050 DN as your default printer.
- 2 While in the same **Printers** folder, choose **Properties/Details**, and make sure that Virtual Infrared LPT Port is selected.
- 3 Select the file to print.

Printing a Job

- 1 Align your laptop computer (or other portable device equipped with an IRDA-compliant FIR window) within 2 to 3 feet (1 meter) maximum of the HP Fast InfraRed Receiver. The FIR window must be at an angle of +/- 15 degrees to ensure an effective connection for printing.
- 2 Print the job. The status indicator on the HP Fast InfraRed Receiver lights up, and, after a short delay, the printer status panel displays `PROCESSING JOB`.

If the status indicator does not light up, realign the HP Fast InfraRed Receiver with the FIR port on the sending device, resend the print job, and maintain the alignment of all devices. If you have to move the equipment (for example, to add paper), make sure that all devices remain within the range of operation to maintain the connection.



If the connection is interrupted before your print job is complete, the HP Fast InfraRed Receiver status indicator turns off. You have up to 40 seconds to correct the interruption and continue the job. If the connection is resumed within this time, the status indicator lights up again.

Note

The connection is permanently broken if the sending port is moved out of operating range or if anything passing between the ports blocks transmission for more than 40 seconds. (This block could be a hand, paper, or even direct sunlight.) Depending on the size of the job, printing with the HP Fast InfraRed Receiver may be slower than printing with a cable connected directly to the parallel port.

Interrupting and Resuming Printing

The job interrupt and resume feature lets a user temporarily stop the job that is currently printing in order to print another job. When the new job is finished printing, the interrupted job resumes printing.

A user can only interrupt jobs that are printing and collating multiple copies by connecting to the infrared (FIR) port on the printer and sending a job to the printer. The printer stops printing the current job when it reaches the end of the copy it is printing. The printer then prints the job sent over the FIR connection. When the printer is done printing that job, it resumes printing the original job with multiple copies where it left off.



Printer Maintenance



Overview



This chapter explains basic printer maintenance.

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



Managing the Toner Cartridge

HP Policy on Non-HP Toner Cartridges

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

To install a new HP toner cartridge and recycle the used cartridge, follow the instructions included in the toner cartridge box.



Toner Cartridge Storage

Do not remove the toner 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 toner cartridge, do not expose it to light for more than a few minutes.

Toner Cartridge Life Expectancy

The life of the toner cartridge depends on the amount of toner that print jobs require. When printing text at 5% coverage, an HP toner cartridge lasts an average of 10,000 or 6,000 pages, depending on which toner cartridge is installed. (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.)



Checking the Toner Level

The user can find out how much toner is left in the printer cartridge by printing a configuration page (see page 119). The toner level is represented by the HP TonerGauge graphic on the configuration page. It shows approximately how much toner is left in the toner cartridge.



Note

After replacing a toner cartridge this value might become inaccurate if a user fails to select YES when the NEW TONER CARTRIDGE=NO message is displayed on the control panel.



Resetting the HP TonerGauge

After a new toner cartridge is installed, the user must reset the HP TonerGauge from the control panel. When the top cover is closed after installing the new toner cartridge, the NEW TONER CARTRIDGE=NO message is displayed on the control panel for approximately 30 seconds. To reset the HP TonerGauge:

- 1 Press **[- Value +]** until YES appears.
- 2 Press **[Select]** to save the selection.
- 3 Press **[Go]** to exit the menu.

Note

If the NEW TONER CARTRIDGE=NO message is no longer displayed on the control panel when you replace an empty or low toner cartridge, press **[Menu]** repeatedly until CONFIGURATION MENU appears. Press **[Item]** repeatedly until NEW TONER CARTRIDGE=NO appears, then complete steps 1 through 3 above.



Continue Printing When Toner Is Low

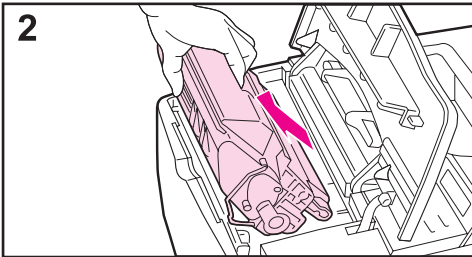
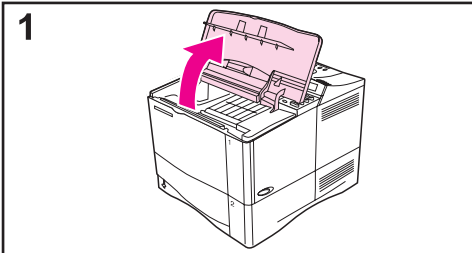
When toner is low, the printer's control panel displays the TONER LOW message.

By default the printer will continue to print when the toner is low. The printer will continue to display TONER LOW until you replace the toner cartridge.

If the you want to stop the printer when toner is low, change TONER LOW from the default of CONTINUE to STOP (see page B-16). When the toner is low, the printer will stop printing and STOP will be displayed. To resume printing, press **[Go]**.



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 toner cartridge.

1 Open the top cover.

2 Remove the toner cartridge from the printer.

WARNING!

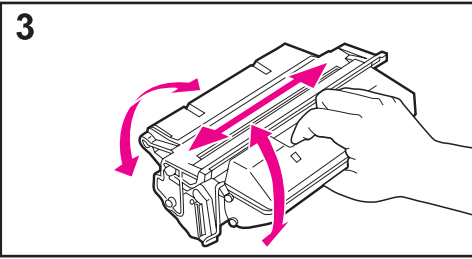
Avoid reaching too far into the printer. The adjacent fusing area might be hot!

Caution

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

Continued on the next page.



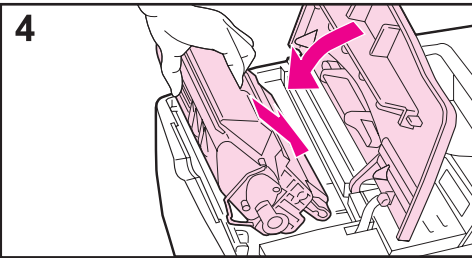


- 3 Rotate the toner cartridge and gently shake it from side to side to redistribute the toner.



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 toner cartridge into the printer and close the top cover.

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

Note

If the message `NEW TONER CARTRIDGE = NO` appears, ignore the message when removing the toner cartridge to redistribute toner.



Cleaning the Printer

To maintain print quality, follow the cleaning procedure (on the following page) every time the toner 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 toner cartridge). Skin oils on the roller can cause print quality problems.

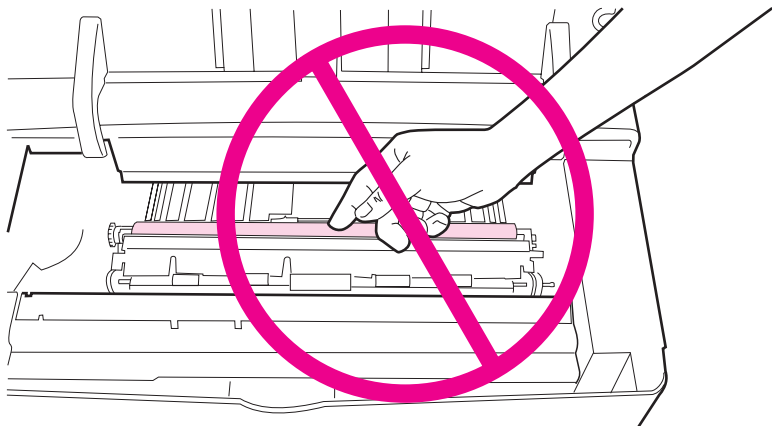
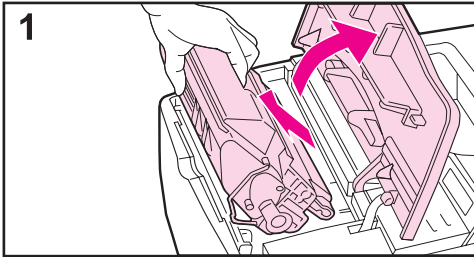


Figure 18 **Location of the Transfer Roller—Do Not Touch!**



Cleaning the Printer



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

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

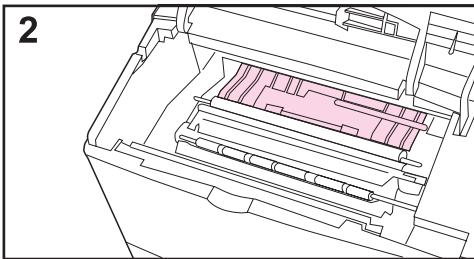


WARNING!

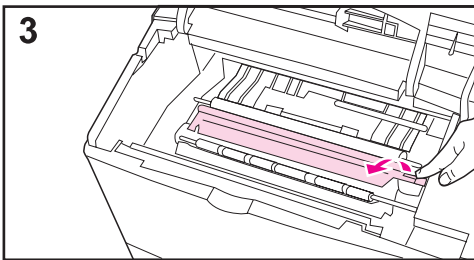
Avoid reaching too far into the printer. The adjacent fusing area might be hot!

Caution

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



- 2 Wipe any dust or dirt off the paper feed guides (shaded areas) with a dry, lint-free cloth.



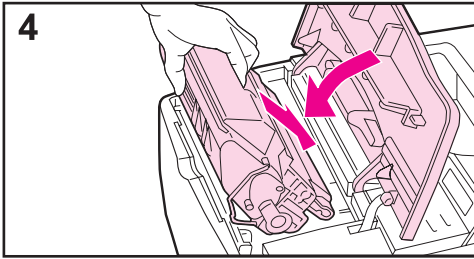
Note

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 handle, lift the paper access plate and wipe off any residue with a dry, lint-free cloth.

Continued on the next page.





4 Replace the toner cartridge, close the top cover, plug in the power cord, and turn the printer on.



Note

If the message NEW TONER CARTRIDGE = NO appears, ignore the message when removing the toner cartridge to clean the printer.



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.

To ensure good print quality with certain types of paper, use the cleaning page every time the toner cartridge is replaced.



Performing Routine Maintenance

Hewlett-Packard recommends that only HP-authorized service technicians service the printer. However, you should replace certain parts when the `PERFORM PRINTER MAINTENANCE` message appears on the printer's control panel display.



The maintenance message will appear every 200,000 pages. To check the number of pages the printer has printed, print a configuration page (see page 134).



To order the printer maintenance kit, see page 9. The kit includes:



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

Note

The printer maintenance kit is a consumable and is not covered under warranty.







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 19, 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 underneath the toner cartridge.

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 102.

Note

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:

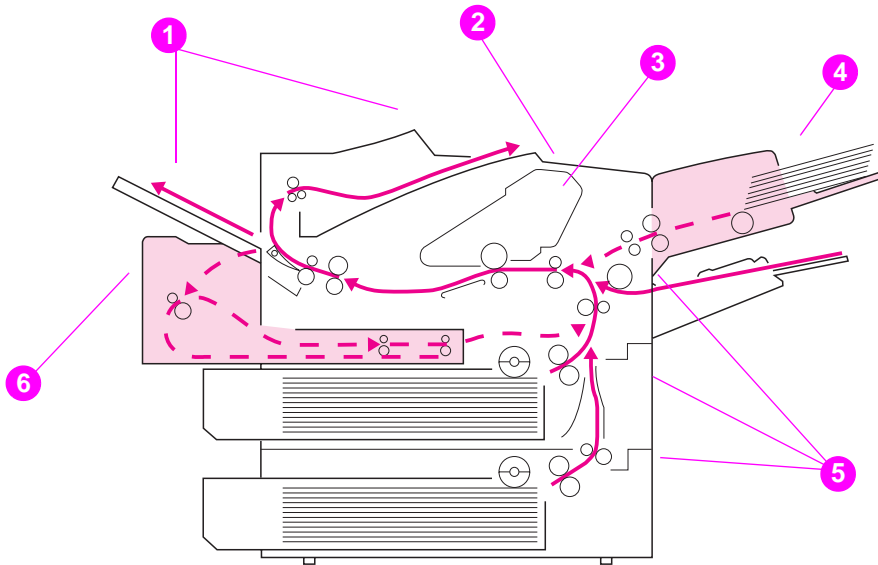


Figure 19 Paper Jam Locations

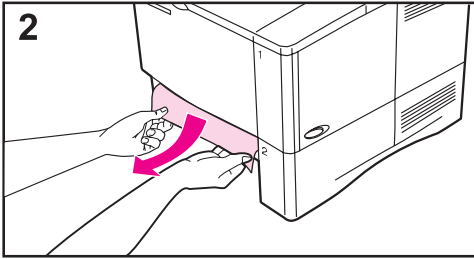
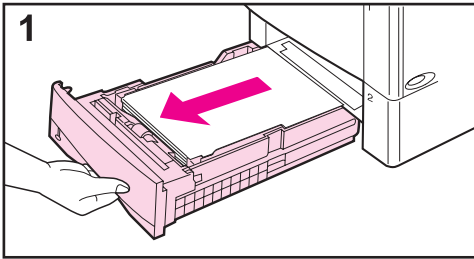
- 1 Output areas (top and rear). Go to page 99.
- 2 Top cover area. Go to page 96.
- 3 Toner cartridge area. Go to page 98.
- 4 Input tray area (optional envelope feeder). Go to page 94.
- 5 Input tray areas. Go to page 92.
- 6 Optional duplexer. Go to page 100.

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. (See the next page for clearing envelope feeder jams.)

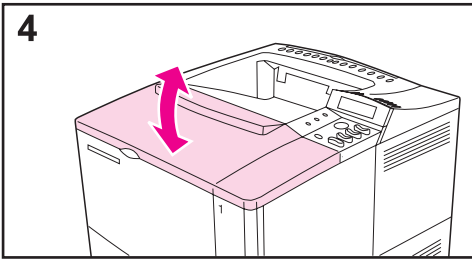
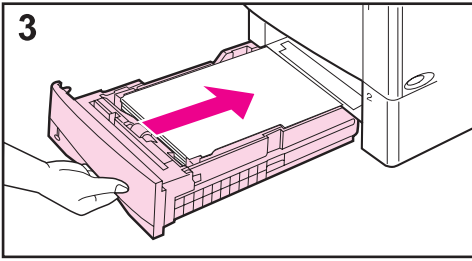
- 1 Slide the tray out of the printer, and remove any damaged paper from the tray.
- 2 If the edge of the paper is visible in the feed area, slowly pull the paper down and out of the printer. (Do not pull the paper straight out, or it will tear.) If the paper is not visible, look in the top cover area (page 96).

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 96).

Continued on the next page.





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.



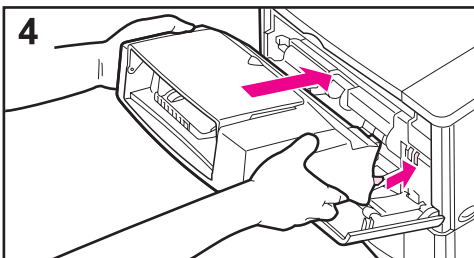
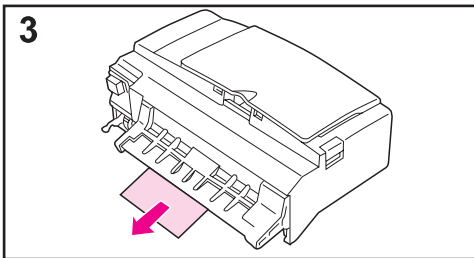
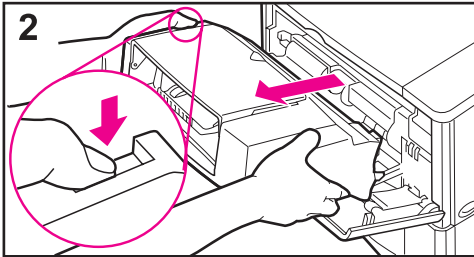
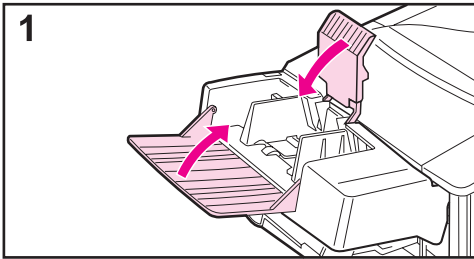
4 Open and close the top cover to clear the paper jam message.



If a paper jam message persists, there is still paper in the printer. Look for paper in another location (page 90).



Clearing Jams from the Optional Envelope Feeder



1 Remove any envelopes loaded in the envelope feeder. Lower the envelope weight and lift the tray extension up to close.

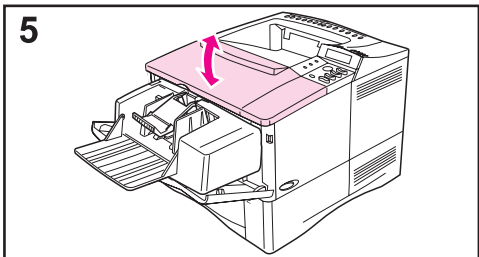
2 Press and hold the release button on the left side of the envelope feeder. Grasp both sides of the envelope feeder and carefully pull it out of the printer.

3 Slowly pull any envelopes out of the envelope feeder and the printer.

4 Insert the envelope feeder into the printer as far as it will go. (There is a hook on the bottom right side of the envelope feeder that fits through the small access door, and a connector on the top right side that fits into the plug.)

Continued on the next page.



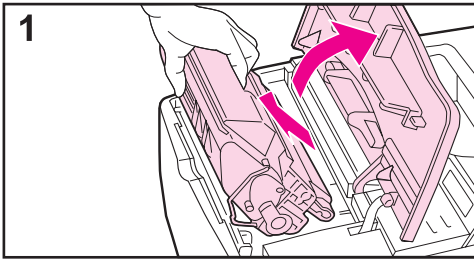


5 Open and close the top cover to clear the paper jam message.

If a paper jam message persists, there is still paper in the printer. Look for paper in another location (page 90).



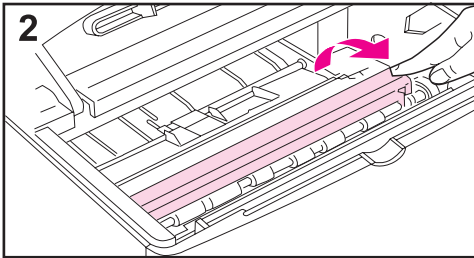
Clearing Jams from the Top Cover Area



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

Caution

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



- 2 Use the green handle to lift the paper access plate.

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

Note

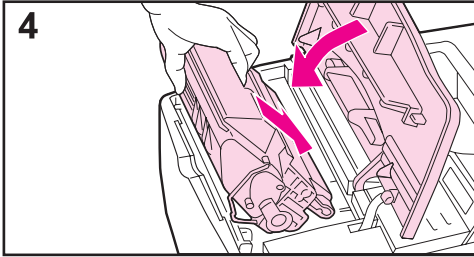
Avoid spilling loose toner. Using a dry, lint-free cloth, clean any loose toner that might have fallen into the printer (page 83).

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.)

Continued on the next page.





4 Replace the toner cartridge, and close the top cover.

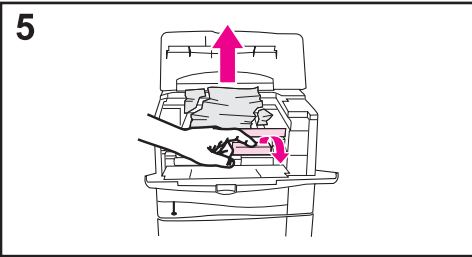
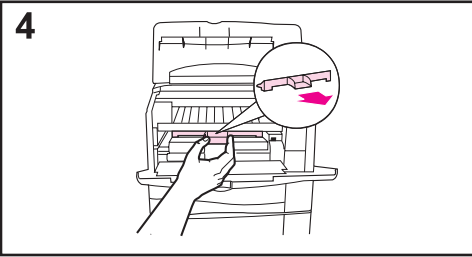
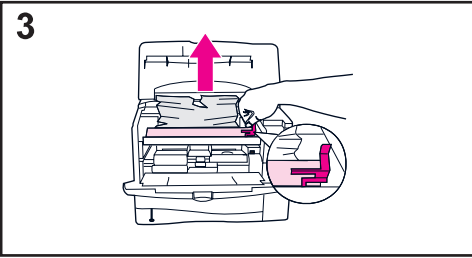
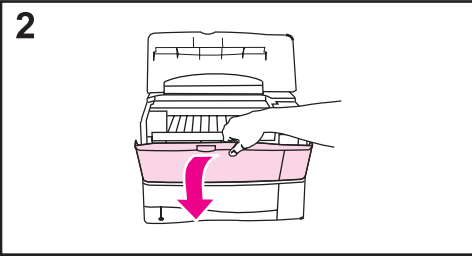
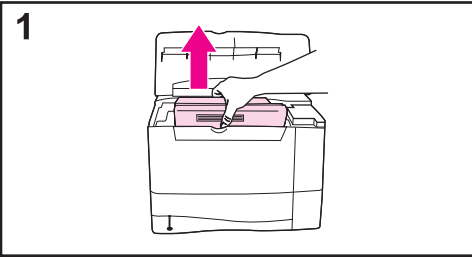
If a paper jam message persists, there is still paper in the printer. Look for paper in another location (page 90).

Note

If the message `NEW TONER CARTRIDGE = NO` appears, ignore the message when removing the toner cartridge to clear jams from the printer.



Clearing Jams from the Toner Cartridge Area



1 If you receive a paper jam message after using all paper jam removal procedures in the user's guide, open the top cover and remove the toner cartridge.

2 Open Tray 1.

3 Use the green handle to lift the paper access plate and remove any jammed paper.

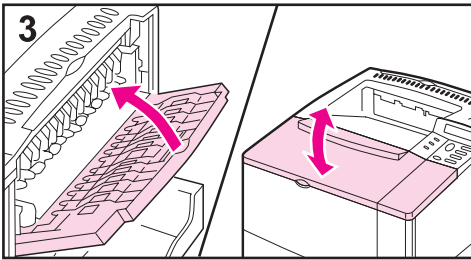
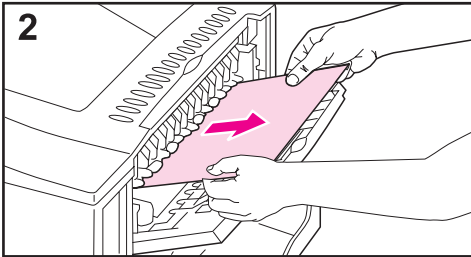
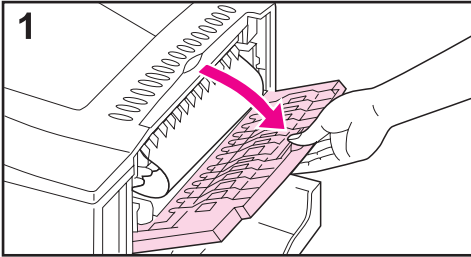
4 Remove the entrance cover to check for additional jammed paper. If paper is present, remove it.

5 Rotate the multipurpose paper guide to check for additional jammed paper. If paper is present, remove it.

Replace the entrance cover and toner cartridge. Close Tray 1 and the top cover.



Clearing Jams from the Output Areas



Note

If most of the paper is still inside the printer, it is best to remove it through the top cover area. Go to page 96.



1 Open the rear output bin.



2 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

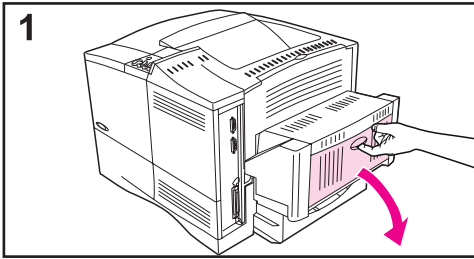
If paper is difficult to remove, try opening the top cover all the way to release pressure on the paper.

3 Close the rear output bin. Open and close the top cover to clear the paper jam message.

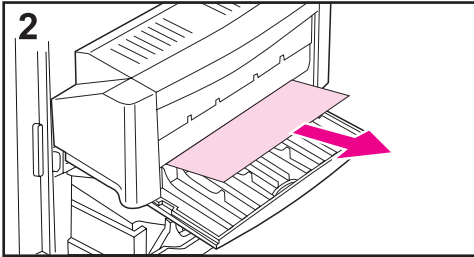
If a paper jam message persists, there is still paper in the printer. Look for paper in another location (page 90).



Clearing Jams from the Optional Duplexer

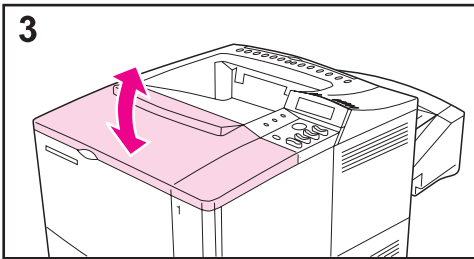


1 Open the duplexer's rear door.

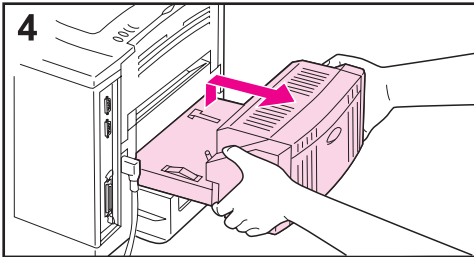


2 Slowly pull any paper out of the duplexer.

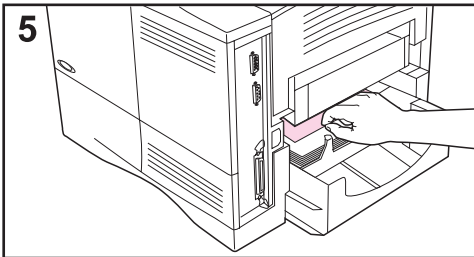
3 Open and close the top cover to clear the paper jam message.



4 If the paper jam message persists, remove the duplexer by lifting it slightly and pulling it out of the printer.

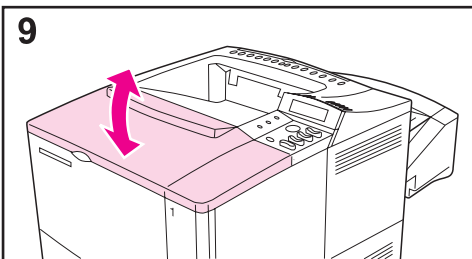
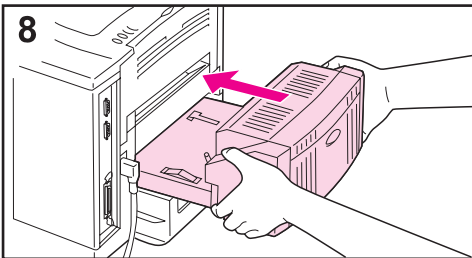
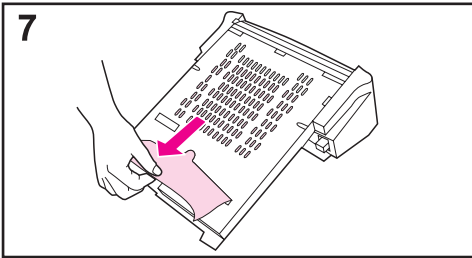
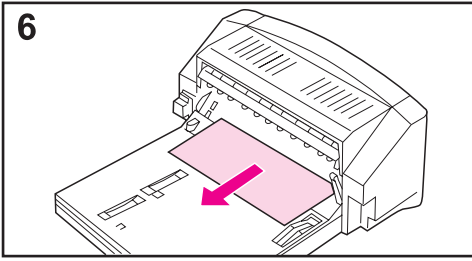


5 From the rear of the printer, remove any paper on top of Tray 2. (You might need to reach inside the printer.)



Continued on the next page.





6 Slowly pull any paper out of the duplexer.

7 Turn the duplexer over and remove any paper.

8 Insert the duplexer into the printer.

9 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 90).



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 91.)
- 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. Make sure paper is under front and back tabs. (See the sections on loading paper, starting on page 34.)
- Check that all trays and paper handling accessories are completely inserted into the printer. (If a 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 32).
- 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 printing from the envelope feeder, make sure it is loaded correctly, pushing the bottom envelope in slightly farther than the top envelopes (page 51).
- If you are printing small sizes (such as index cards), make sure the paper is oriented correctly in the tray (page 57). Make sure to feed the short edge first when loading narrow paper.
- Turn over the stack of paper in the tray. Also try rotating the paper 180°.
- 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-14).
- Avoid using paper that has already been used in a printer or copier. (Do not print on both sides of envelopes, transparencies, or labels.)
- Check that the power supplied to the printer is steady, and meets printer specifications (page A-16).
- Clean the printer (page 83).
- Perform routine printer maintenance (page 87).



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 HP Customer Care Service and Support pages at the front of this user's guide.)



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-16).

Using the Printer Online Help System

This printer features an online help system on the control panel that provides instructions for resolving most printer errors. Certain control panel messages alternate with instructions on accessing the online help system.

Whenever a **[?]** appears in an error message, or the message alternates with `FOR HELP PRESS THE ? KEY`, press the **[Item]** key to navigate through a sequence of instructions.

Note

To exit the online help system, press **[Go]**.



Printer Messages

Message	Explanation or Recommended Action
ACCESS DENIED MENUS LOCKED	The printer control panel function you are trying to access has been locked to prevent unauthorized access. See your network administrator.
BAD DUPLEXER CONNECTION	The duplexer is not connected properly. Re-install the duplexer.
CHECK INPUT DEVICE alternates with PAPER PATH OPEN PLEASE CLOSE IT	The optional input tray cannot feed paper to the printer because a door or paper guide is open. Check the doors and paper guides.
CHECK OUTPUT DEVICE alternates with CLOSE OUTPUT DELIVERY PATH	The optional output device is not properly connected to the printer. A proper connection must be made for printing to continue.
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.
DISK DEVICE FAILURE	The EIO disk had a critical failure and can no longer be used. Remove the EIO disk and replace it with a new one.
DISK 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.
DISK FILE SYSTEM IS FULL	Delete files from the EIO disk and then try again. Use HP Resource Manager to download or delete files and fonts. (See the software help for more information.)
DISK IS WRITE PROTECTED	The EIO disk is protected, and no new files can be written to it. Disable the write protection through HP Resource Manager.



Printer Messages (Continued)

Message	Explanation or Recommended Action
EIO n DISK INITIALIZING	The disk accessory card takes a long time to initialize. The first parameter is the accessory slot number for this disk accessory card.
EIO n DISK NOT FUNCTIONAL	The EIO disk is not working correctly. Remove the EIO disk from the slot indicated. Replace it with a new EIO disk.
EIO n INITIALIZING alternates with DO NOT POWER OFF	Wait for the message to disappear (approximately 5 minutes). If the printer EIO card is operating correctly and communicating with the network, this message disappears after approximately one minute and no action is required. If the EIO card is unable to communicate with the network, this message remains for five minutes and then disappears. In this case the printer is not communicating with the network (even though the message is no longer present). The problem may be a bad EIO card, a bad cable or connection on the network, or a network problem. Contact your network administrator.
EIO n DISK SPINNING UP	The disk accessory is initializing. The first parameter is the accessory slot number for this accessory card.
ENV FEEDER LOAD [TYPE] [SIZE]	Load the requested envelope type and size into the envelope feeder. Make sure the envelope size and type are set correctly from the Paper Handling Menu in the printer's control panel (page B-5). Press [Go] if the desired envelope is already loaded in the feeder. Press [- Value +] to scroll through the available types and sizes. Press [Select] to accept the alternate type or size.
EXTERNAL DEVICE INITIALIZING	When an external paper handling device is connected to the printer, it must initialize after the computer boots or after coming out of PowerSave mode.
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. Use HP Resource Manager to download or delete files and 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. Disable the write protection through HP Resource Manager.



Printer Messages (Continued)

Message	Explanation or Recommended Action
INPUT DEVICE CONDITION xx.yy	An input paper handling device has a condition that needs attention before printing can resume. See the documentation that came with the paper handling device for assistance.
INSTALL TONER CARTRIDGE	The toner cartridge has been removed and must be replaced for printing to continue.
INSTALL TRAY X	The specified tray is not installed and must be inserted and closed for printing to continue.
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.
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, adding a duplexer, 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).
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 Save setting from the printer's control panel (page B-14) 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. The print quality of these pages may not be acceptable. Reduce the complexity of these pages and reprint them. You might want to add more memory to the printer (page C-1).
OFFLINE	Press [Go] to place the printer online.



Printer Messages (Continued)

Message	Explanation or Recommended Action
OUTPUT BIN FULL CLEAR (BIN nnn) nnn = (bin name)	The output bin is full and needs to be emptied.
PERFORM PRINTER MAINTENANCE	To ensure optimum print quality, the printer prompts you to perform routine maintenance every 200,000 pages. To order a Printer Maintenance Kit, see page (page 11). (For more information see page 87.)
RAM DISK DEVICE FAILURE	The RAM disk had a critical failure and can no longer be used. Turn the printer off, and then turn the printer on to clear the message.
RAM DISK 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.
RAM DISK FILE SYSTEM IS FULL	Delete files and then try again, or turn the printer off, and then turn the printer on to delete all files on the device. (Delete files using HP Resource Manager or another software utility. See the software help for more information.) If the message persists, increase the size of the RAM disk. Change the RAM disk size from the Configuration Menu in the printer's control panel (page B-14). HP Resource manager can also be used to increase/decrease the RAM disk size.
TONER LOW	See page 80.
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.
TRAY x LOAD [TYPE] [SIZE] (or similar messages requesting that you load paper)	Load the requested paper into the specified tray (x). (See the sections on loading paper, starting on page 34) Make sure that the trays are correctly adjusted for size. The tray type settings (and size for Tray 1) must be set from the printer's control panel (page 65). Load the requested paper into an indicated tray, or press [Select] to override the message and to print on a loaded paper size. If printing does not continue, press [Go] . 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. Press [Go] to print from the next available tray. Press [- Value +] to scroll through the available types and sizes. Press [Select] to accept the alternate type or size.
UNABLE TO COPY JOB	Memory or file system failures would not allow a mopy job to occur. Only one copy will be produced.



Printer Messages (Continued)

Message	Explanation or Recommended Action
UNSUPPORTED SIZE IN TRAY [YY]	An external paper handling device detected an unsupported paper size. The printer will go offline until the condition is corrected.
USE [TYPE] [SIZE] INSTEAD?	If the requested paper size or type is not available, the printer asks if it should use another paper size or type instead. Press [- Value +] to scroll through the available types and sizes. Press [Select] to accept the alternate type or size.
WAIT FOR PRINTER TO REINITIALIZE	The RAM disk setting has been changed from the printer's control panel. This change will not take effect until the printer reinitializes. If you change the mode of the external device, turn the printer off, turn the printer on and wait for the printer to reinitialize.
WRONG ENVELOPE FEEDER INSTALLED	The envelope feeder you are trying to install will not work for this printer. To order an envelope feeder for the printer, see page 8. Make sure the envelope feeder is installed correctly (page 50).
XX.YY PRINTER ERROR PRESS GO TO CONTINUE	A printer error has occurred that can be cleared by pressing [Go] in the printer's control panel.
13.x PAPER JAM [LOCATION]	Remove jammed paper from the specified location (page 90). Open and close the top cover to clear the message. Open the top cover. Remove toner cartridge and clear all paper from underneath the toner cartridge area. Caution Ensure all jammed paper is removed before opening and closing the top cover. Open and close the top cover to clear the message. 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 HP Customer Care Service and Support pages at the front of this user's guide.)
20 INSUFFICIENT MEMORY alternates with PRESS GO TO CONTINUE	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. Press [Go] to print the transferred data (some data might be lost), then simplify the print job or install additional memory (page C-1).



Printer Messages (Continued)

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. (See page B-14.) Do not leave PAGE PROTECT=ON; it might degrade performance.</p> <p>If this message appears often, simplify the print job.</p>
22 EIO × BUFFER OVERFLOW alternates with PRESS GO TO CONTINUE	<p>Too much data was sent to the EIO card in the specified slot (×). An improper communications protocol may be in use.</p> <p>Press [Go] to clear the message. (Data will be lost.)</p> <p>Check the host configuration. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)</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 10). (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 20).</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 HP Customer Care Service and Support pages at the front of this user's guide.)</p>
40 EIO × BAD TRANSMISSION alternates with PRESS GO TO CONTINUE	<p>The connection has been broken between the printer and the EIO card in the specified slot. (Data loss might occur in this situation.)</p> <p>Press [Go] to clear the error message and continue printing.</p>



Printer Messages (Continued)

Message	Explanation or Recommended Action
41.3 UNEXPECTED PAPER SIZE alternates with EXPECTED [TYPE]	<p>The paper size you are trying to print is not the same as the control panel setting.</p> <p>Reload the tray with the correct paper size.</p> <p>Make sure that the control panel setting is correctly adjusted for size. (The printer will continue trying to print the job until size settings are correct.)</p> <p>If you are printing from the optional 500-sheet paper tray, check the paper size indication knob located on the right front side of the tray and set it to the correct paper size.</p> <p>Ensure all multiple paper feeds are cleared from paper tray areas.</p> <p>After performing the actions above, press [Go]. The page containing the error will automatically be reprinted if jam recovery is enabled. (Or, you might want to press [Cancel Job] to clear the job from the printer's memory.) See pages 34-40 for information on loading paper.</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 if jam recovery is enabled.</p> <p>If the error does not clear, turn the printer off, then turn the printer on.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)</p>
50.x FUSER ERROR	<p>An internal error has occurred. Turn the printer off, and then turn the printer on.</p> <p>The message might clear and then reappear when the next print job is sent. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)</p>
51.x or 52.x PRINTER ERROR alternates with CYCLE POWER TO CONTINUE	<p>A temporary printing error occurred.</p> <p>Turn the printer off, then turn the printer on.</p> <p>If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)</p>



Printer Messages (Continued)

Message	Explanation or Recommended Action
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> <p>x = DIMM type 0 = ROM 1 = RAM</p> <p>y = Device location 0 = Internal memory (ROM or RAM) 1 to 3 = DIMM slots 1, 2, or 3</p> <p>zz = Error number</p> <p>You might need to replace the specified DIMM. Turn the printer off, and then replace the DIMM that caused the error. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)</p>
55.xx PRINTER ERROR alternates with PRESS GO TO CONTINUE	<p>A temporary printing error occurred. Press [Go]. The page containing the error will automatically be reprinted if jam recovery is enabled. If the error does not clear, turn the printer off, then turn the printer on. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)</p>
56.x PRINTER ERROR alternates with CYCLE POWER TO CONTINUE	<p>A temporary printing error occurred. Turn the printer off, then turn the printer on. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)</p>
57.x PRINTER ERROR alternates with CYCLE POWER TO CONTINUE	<p>A temporary printing error occurred. Turn the printer off, then turn the printer on. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)</p>
58.x PRINTER ERROR alternates with CYCLE POWER TO CONTINUE	<p>A temporary printing error occurred. Turn the printer off, then turn the printer on. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)</p>



Printer Messages (Continued)

Message	Explanation or Recommended Action
59.x PRINTER ERROR alternates with CYCLE POWER TO CONTINUE	A temporary printing error occurred. Turn the printer off, then turn the printer on. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)
62.x PRINTER ERROR	There is a problem with the printer's memory. The x value refers to the location of the problem: 0 = Internal memory 1 to 3 = DIMM slots 1, 2, or 3 You might need to replace the specified DIMM. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)
64 PRINTER ERROR	A temporary printing error occurred. Turn the printer off, and then turn the printer on. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)
66.xy.zz INPUT DEVICE FAILURE alternates with CHECK CABLES AND CYCLE POWER	An error occurred in an external paper handling device. Turn the printer off, and then turn the printer on. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)
66.00.xx Service ERROR alternates with CHECK CABLES AND CYCLE POWER	An error occurred in an external paper handling device. Turn the printer off. Disconnect the cables to all external paper handling devices, and then reconnect them. Turn the printer on. If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)
68 NVRAM ERROR CHECK SETTINGS	An error occurred in the printer's nonvolatile memory (NVRAM) and one or more printer settings has been reset to its factory default. Print a configuration page and check the printer settings to determine which values have changed (page 134). If this message persists, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)



Printer Messages (Continued)

Message	Explanation or Recommended Action
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 134).</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 HP Customer Care Service and Support pages at the front of this user's guide.)</p>
69.x PRINTER ERROR alternates with CYCLE POWER TO CONTINUE	<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 HP Customer Care Service and Support pages at the front of this user's guide.)</p>
79.xxxxx PRINTER ERROR	<p>The printer detected an error. The numbers (xxxxx) 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 (xxxxx) and contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)</p>
8x.yyyy	<p>The EIO accessory in slot x has encountered a critical error as specified by yyyy.</p> <p>X Description</p> <ul style="list-style-type: none">1 EIO slot 1 - The printer detected an error with the EIO accessory.2 EIO slot 2 - The printer detected an error with the EIO accessory.6 EIO slot 1 - The EIO accessory detected an error. The EIO accessory may be defective.7 EIO slot 2 - The EIO accessory detected an error. The EIO accessory may be defective. <p>Turn the printer off, and then turn the printer on.</p> <p>Reseat the EIO accessory.</p> <p>If the error persists, contact an HP-authorized service or support provider or replace the EIO accessory.</p>



Mopy Disk Error Messages

The following table lists the disk error numbers reported on either the Printer Collation or Job Storage Disk Error page, which is printed when an error exists. Use the HP Resource Manager for management of the disk (see page 25).



Mopy Disk Error Messages

Disk Error Number	Error Description	Solution
1	Disk volume not present – it may be uninitialized.	<ul style="list-style-type: none">• Hard disk: Initialize the hard disk. If problem persists, replace the hard drive.• RAM disk: Power cycle the printer.
3	A file or directory asked for could not be found.	<ul style="list-style-type: none">• Possible data corruption, delete the job the error occurred with.
5	Invalid # of bytes given in a read/write request.	<ul style="list-style-type: none">• Possible data corruption, delete the job the error occurred with.
6	Attempt to create a file or directory that already exists.	<ul style="list-style-type: none">• The user has sent a username that is the same as an existing directory. Change the username in the driver and resend the job.
15	Bad Disk	<ul style="list-style-type: none">• Hard disk: Initialize the hard disk. If problem persists, replace the hard drive.
16	No volume label	<ul style="list-style-type: none">• Hard disk: Initialize the hard disk. If problem persists, replace the hard drive.
23	Bad seek request – the resulting offset would be negative.	<ul style="list-style-type: none">• Possible data corruption, delete the job the error occurred with.
24	Unexpected internal error	<ul style="list-style-type: none">• Possible data corruption, delete the job the error occurred with.• Disk media problem – initialize the hard disk or reboot to reinit the RAM disk.• If the problem persists on a hard drive, replace the hard drive.
55	Bad file system	<ul style="list-style-type: none">• Possible data corruption, delete the job the error occurred with.• Disk media problem – initialize the hard disk or reboot to reinit the RAM disk.• If the problem persists on a hard drive, replace the hard drive.
56	Hardware failure	<ul style="list-style-type: none">• Replace the hard drive.



Mopy Disk Error Messages (Continued)

Disk Error Number	Error Description	Solution
59	The maximum number of directories has been reached	<p>There is a maximum number of directories that can be put on a disk. Stored jobs are stored in directories created for each user. To solve this problem:</p> <ul style="list-style-type: none">• Delete all jobs stored for a user. The firmware will automatically delete the directory for a user with no stored jobs.• Delete other directories on the disk.
70	Disk Error	<ul style="list-style-type: none">• Contact your HP Service and Support Representative.



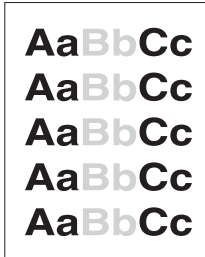
Correcting Output Quality Problems

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

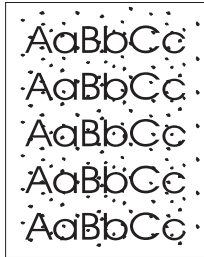


Note

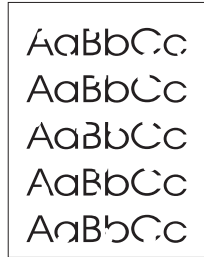
The examples below depict letter-size paper that has passed through the printer short-edge first.



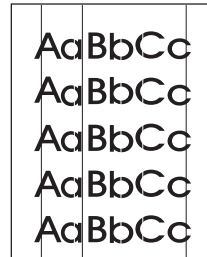
Light Print or Fade



Toner Specks
(front or back)



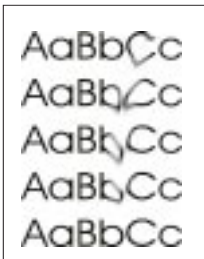
Dropouts



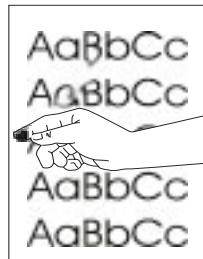
Lines



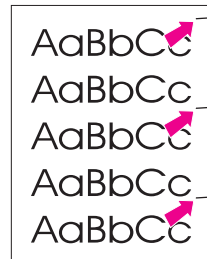
Gray Background



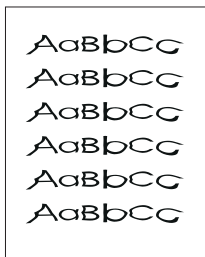
Toner Smear



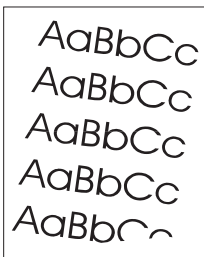
Loose Toner



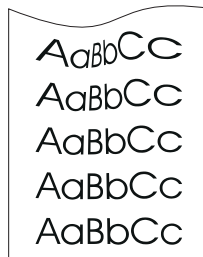
Repeating
Defects



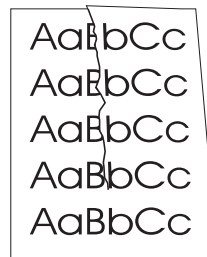
Misformed
Characters



Page Skew



Curl or Wave



Wrinkles or
Creases



Figure 20 Examples of Output Quality Problems

Light Printer 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 83) or use the printer's cleaning page (page 86).
✓												3. Make sure EconoMode is off in the software and in the control panel (page B-9).
										✓	✓	4. Turn over the stack of paper in the tray. Also try rotating the paper 180°.
✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	5. Check the paper (or other print media) type and quality (pages A-2 through A-14).
✓		✓		✓						✓	✓	6. Check the printer's environment (page A-16).
									✓		✓	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 34.)
										✓	✓	8. Print to a different output bin (page 32).
✓		✓		✓								9. Adjust the toner density setting (page B-9).
		✓				✓						10. Change the fuser mode setting to High (page B-6) or choose rough paper type from the printer driver (page 65).
✓												11. Redistribute the toner in the toner cartridge (page 81).
✓		✓	✓	✓	✓		✓	✓				12. Install a new HP toner cartridge. (See instructions with the toner cartridge.)
	✓						✓					13. To alternate small and standard paper, from the Configuration Menu set <small>SMALL PAPER SPEED=SLOW</small> .
✓	✓	✓	✓	✓			✓					14. Order and install the Printer Maintenance Kit (page 11 and page 87).
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15. After trying all the steps suggested above, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)



Determining Printer Problems

Troubleshooting Flowchart

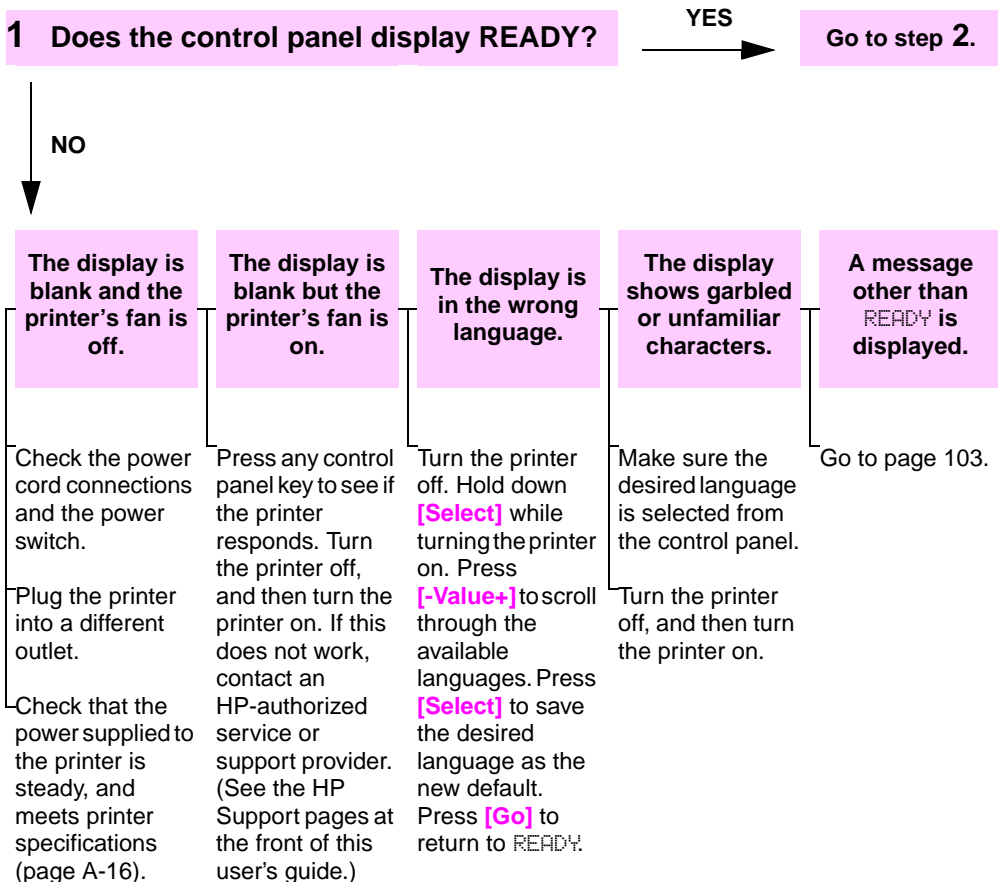
If the printer is not responding properly, use the flowchart to determine the problem. If the printer does not pass a step, follow the corresponding troubleshooting suggestions.

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 HP Customer Care Service and Support pages at the front of this user's guide.)



Note

Macintosh users: For more troubleshooting information, see page 124.



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 134).



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 34.)

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 toner cartridge. (See the getting started guide or the instructions that came with the toner cartridge.)

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

A message other than READY or PRINTING CONFIGURATION is displayed.

Go to page 103.



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.

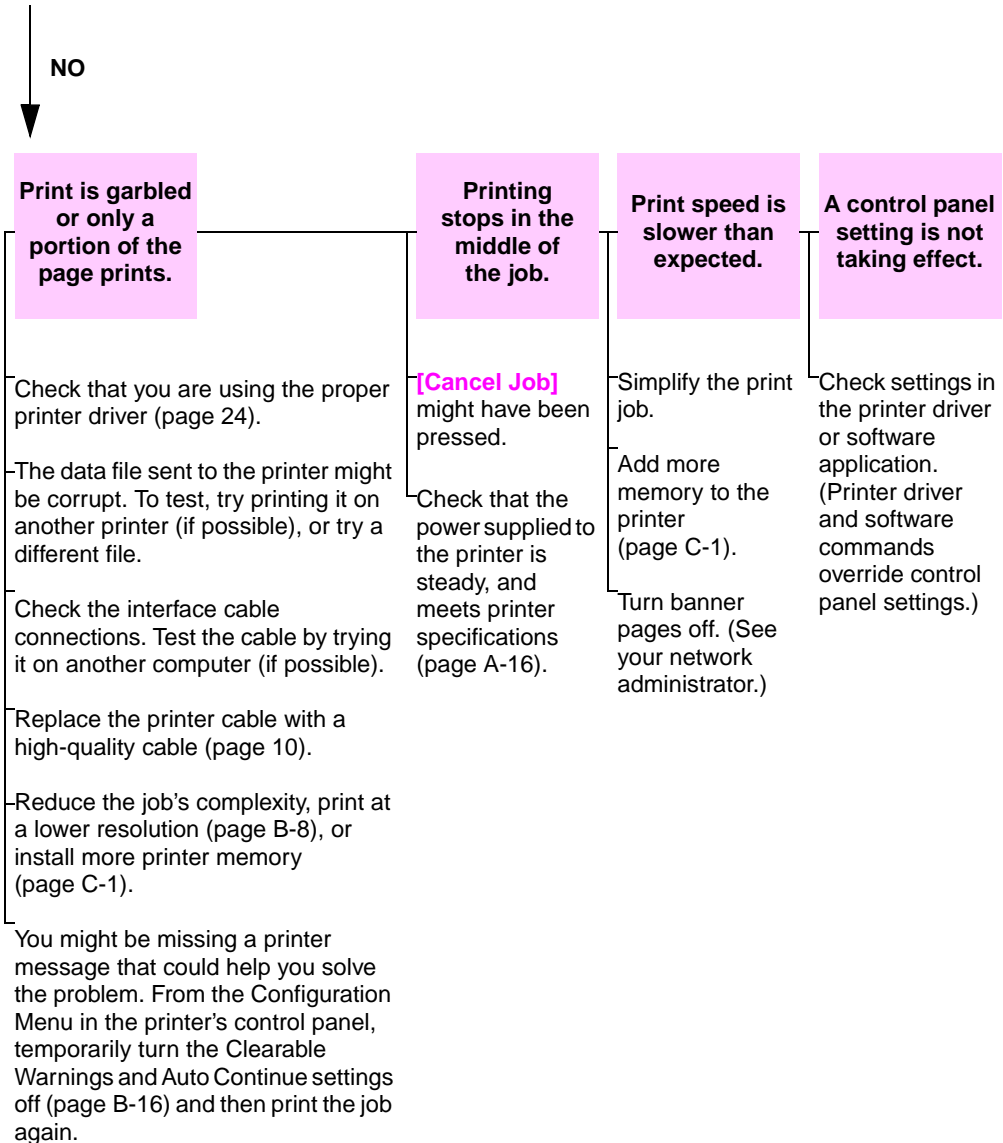
A PS error page or list of commands prints.

- If the job will not print, and a message is displayed on the control panel, see page 103
- From the computer, check to see if the printer has been paused.
- If the printer is on a network, check that you are printing to the correct printer. To verify that it is not a network problem, connect the computer directly to the printer with a parallel cable, change the port to LPT1, and try to print.
- 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).
- If you are using a parallel connection, make sure the cable is IEEE-1284 compliant.
- If the printer is on a network, print a configuration page (page 134) and verify in the Protocol Information that the server name and the node name match the names in the printer driver.
- 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 24).
- Reinstall the printer driver. (See the getting started 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.)
- If printing with the PS driver, from the Printing Menu in the printer's control panel, set `PRINT PS ERRORS=ON`, then print the job again. If an error page prints, see the instructions in the next column.
- From the Configuration Menu in the printer's control panel, make sure that `PERSONALITY=AUTO` (page B-14).
- 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-16) and then print the job again.

- The printer might have received a nonstandard PS code. From the Configuration Menu in the printer's control panel, set `PERSONALITY` to `PS` for this print job only. After the job has printed, return the setting to `AUTO` (page B-14).
- Make sure the print job is a PS job, and that you are using the PS driver.
- The printer might have received PS code when it is set to PCL. From the Configuration Menu, set `PERSONALITY` to `AUTO` (page B-14).



4 Does the job print as expected? (Continued on the following page.)



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 24).
- Check the software settings. (See the software help.)
- Try a different font.
- Downloaded resources might have been lost. You might need to download them again.

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 34.)
- 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 57.
- If pages are wrinkled or curled, or if the image is skewed on the page, see page 116.

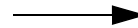
There are print quality problems.

- Adjust the print resolution (page B-8).
- Check that REt is on (page B-8).
- Go to page 116.



5 Does the printer select the proper trays, output locations, and paper handling accessories?

YES



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



NO

The printer pulls from the wrong tray.

Make sure paper trays are correctly configured for paper size and type (page 65). Print a configuration page to see current tray settings (page 134).

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 63). 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 63.

An optional accessory is not working properly.

Print a configuration page to verify that the accessory is installed properly and is functional (page 134).

Configure the printer driver for the installed accessories (see the software help).

Turn the printer off, and then turn the printer on.

Verify that you are using the correct optional accessory for the printer.

If the optional duplexer will not duplex, check that the rear output bin is closed.

If the optional duplexer will not duplex, you might need to install more memory (page C-1).

A message other than READY is displayed.

Go to page 103.



Troubleshooting Flowchart for Macintosh Users

1 Can you print from a software application? YES → Go to step 2.

NO

Print a short document from a software application.

The Macintosh computer is not communicating with the printer.

- Make sure the printer's control panel displays **READY** (page 118).
- Make sure the correct printer driver is selected in the left half of the Chooser. Then make sure that the desired printer name is selected (highlighted) on the right half of the Chooser. There will be an icon next to the printer name after the driver has been set up and configured with the PPD.
- If the printer resides on a network with multiple zones, make sure the correct zone is selected in the AppleTalk Zones box in the Chooser.
- Make sure the correct printer has been chosen in the Chooser by printing a configuration page (page 134). Make sure the name of the printer displayed on the configuration page matches the printer in the Chooser.
- Make sure AppleTalk is active. (Select this in the Chooser or in the AppleTalk control panel, whichever is applicable for your OS version.)
- Make sure the computer and printer are on the same network. From Control Panels in the Apple menu, select the Network (or the AppleTalk) control panel and then choose the correct network (for example, LocalTalk or EtherTalk).

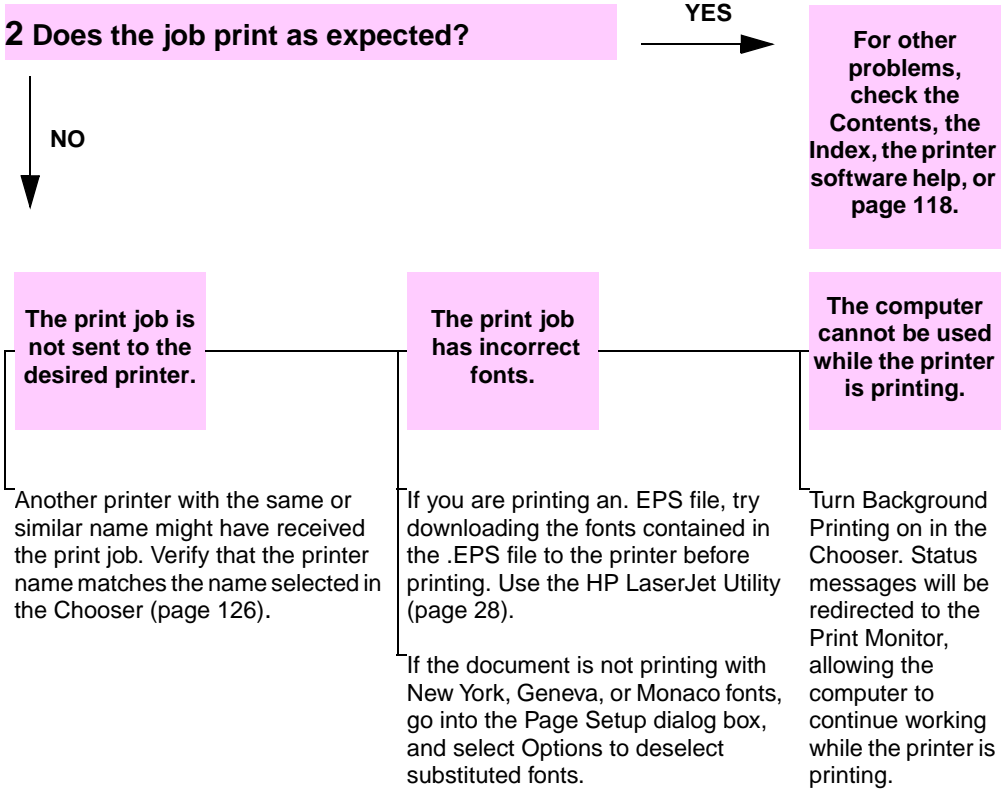
Auto Setup did not automatically set up the printer.

- Set up the printer manually by selecting Configure.
- Reinstall the printer software. (See the getting started guide.)
- Select an alternate PPD (page 126).
- The PPD might have been renamed. If so, select the renamed PPD (page 126).
- A network queue might be present.

The printer driver icon does not appear in the Chooser.

- Make sure the Apple LaserWriter 8 Chooser extension resides in the Extensions folder.
- LaserWriter 8 available in English only.**
- If it is not present anywhere on your system, reinstall the HP printer software or call HP Customer Care.





Selecting an Alternate PPD

- 1 Open the **Chooser** from the **Apple** menu.
- 2 Click the **LaserWriter 8** icon.
- 3 If you are on a network with multiple zones, select the zone in the **AppleTalk Zones** box where the printer is located.
- 4 Click the printer name you want to use in the **Select a PostScript Printer** box. (Double-clicking will immediately generate the next few steps.)
- 5 Click **Setup...** (This button might read **Create** for first-time setup.)
- 6 Click **Select PPD...**
- 7 Find the desired PPD in the list and click **Select**. If the desired PPD is not listed, choose one of the following options:
 - Select a PPD for a printer with similar features.
 - Select a PPD from another folder.
 - Select the generic PPD by clicking **Use Generic**. The generic PPD allows you to print, but limits your access to printer features.
- 8 In the **Setup** dialog box, click **Select**, and then click **OK** to return to the **Chooser**.



Note

If you manually select a PPD, an icon might not appear next to the selected printer in the **Select a PostScript Printer** box. In the **Chooser**, click **Setup**, click **Printer Info**, and then click **Update Info** to bring up the icon.

- 9 Close the **Chooser**.

Renaming the Printer

If you are going to rename the printer, do this before selecting the printer in the **Chooser**. If you rename the printer after selecting it in the **Chooser**, you will have to go back into the **Chooser** and reselect it.

Use the **Set Printer Name** feature in the **HP LaserJet Utility** to rename the printer.



Troubleshooting the Printer Hard Disk



Troubleshooting the Printer Hard Disk

Item	Explanation
Printer does not recognize the hard disk.	Turn the printer off and verify that the hard disk is inserted correctly and is securely fastened. Print a configuration page to confirm that the hard disk has been recognized.
Disk is not initialized. DISK x NOT INITIALIZED	Use the Windows-based HP Resource Manager or the Macintosh-based HP LaserJet Utility to initialize the disk.
Disk failure. EIO x DISK NOT FUNCTIONING	Turn the printer off and make sure that the EIO disk is inserted correctly and securely fastened. If the control panel message continues to be displayed, the disk drive needs to be replaced.
Disk is write protected. DISK IS WRITE PROTECTED	Fonts and forms cannot be stored on the disk when the disk is write protected. Use the Windows-based HP LaserJet Resource Manager or the Macintosh-based HP LaserJet Utility to remove the write protection from the disk.
Attempted to use a disk-resident font, but the printer substituted a different font.	If you are using PCL, print the PCL Font Page, and verify that the font is on the disk. If you are using PS, print the PS Font Page and make sure that the font is on the disk. If the font is not on the disk, use the HP Resource Manager or the Macintosh-based HP LaserJet Utility to download the font.



PS Troubleshooting

PS Troubleshooting



Item	Explanation
A text listing of PS commands prints instead of your PS printing job.	The control panel <code>PERSONALITY=AUTO</code> setting may have been confused by a nonstandard PS code. Check the <code>PERSONALITY</code> setting to see if it is set to <code>PS</code> or <code>PCL</code> . If it is set to <code>PCL</code> , set it to <code>PERSONALITY=AUTO</code> . If it is set to <code>AUTO</code> , set it to <code>PS</code> for this print job only. When the job has printed, return the setting to <code>AUTO</code> .
The job prints in Courier (the printer's default font) instead of the font you requested.	<p>The requested typeface is not available in the printer or is not present on the disk. Use a font download utility to download the desired font.</p> <p>Fonts downloaded to memory are lost when the printer is turned off. They are also lost if Resource Saving is not used and a personality switch is performed to print a PCL job. Disk fonts are not affected by PCL jobs or by turning the printer off.</p> <p>Print a PS Font Page to verify that the font is available. If a disk font appears to be missing, it may be because a software utility was used to delete the font, because the disk was re-initialized, or because the disk drive is not installed correctly. Print a configuration page to verify that the disk drive is installed and functioning correctly.</p> <p>Print a Disk Directory to help identify available fonts.</p>
A page prints with clipped margins.	If the page margins are clipped, you may have to print the page at 300-dpi resolution or install more memory. Also try turning off Resource Saving and I/O Buffering.
A page fails to print.	Set <code>PRINT PS ERRORS=ON</code> , and then send the job again to print a PS error page. If this does not identify the problem, try turning off Resource Saving and I/O Buffering or installing more memory. (See page 136 for more information about PS printing.)
A PS error page prints.	<p>Make sure the print job is a PS job.</p> <p>Check to see whether your software expected you to send a setup or PS header file to the printer.</p> <p>Check the printer setup in your software application to make sure that the printer is selected.</p> <p>Check cable connections to ensure that they are secure.</p> <p>Reduce the complexity of the graphic.</p> <p>Add available memory by turning on Resource Saving.</p>



Troubleshooting HP Fast InfraRed Receiver Problems



Troubleshooting HP Fast InfraRed Receiver Problems

Item	Explanation
FIR port status indicator does not light up.	<p>Make sure that the printer is in READY mode and that the FIR port you are printing from is IRDA-compliant and within the range of operation described in the user guide for the HP Fast InfraRed Receiver.</p> <p>Make sure that the HP Fast InfraRed Receiver is properly connected to the printer.</p> <p>Print a configuration page (see page 134). Make sure that "FIR POD (IRDA Compliant)" is printed under Installed Personalities and Options.</p>
Connection cannot be established or seems to take longer than usual.	<p>Use a device that is IRDA-compliant; look for an IRDA symbol on the device or see the computer's user guide for IRDA specifications.</p> <p>Make sure that the operating system on your computer includes an FIR driver and your application uses an HP LaserJet 4050, 4050 N, 4050 N, 4050 TN, or compatible driver. (Note that complex pages take longer to print.)</p> <p>Position the HP Fast InfraRed Receiver within the range of operation described in the user guide for the HP Fast InfraRed Receiver. Make sure that no object is blocking the connection. (This object could be a hand, paper, books, or even bright light.)</p> <p>Make sure that the two FIR ports are clean (free from dirt and grease).</p> <p>Bright light of any kind (sunlight, incandescent light, fluorescent light, or light from an infrared remote control, such as those used for TVs and VCRs) shining directly into one of the FIR ports might cause interference. Make sure that no bright light is shining directly into either FIR port.</p> <p>Position the portable device closer to the FIR port on the printer.</p>
The printer prints only part of a page or document.	<p>The connection has been broken during transmission. If you move the portable device during transmission, the connection can be broken. IRDA-compliant devices are designed to recover from temporary connection interruptions. You have up to 40 seconds to re-establish the connection (depending on the portable device being used).</p>



Troubleshooting HP Fast InfraRed Receiver Problems (Continued)

Item	Explanation
The print job has been properly sent, but the printer will not print.	If the connection is broken before the entire print job has been transmitted to the printer (printing has not yet started), the printer may not print any of the job. Press [Cancel Job] to clear the printer's memory. Then, reposition the portable device within the range of operation described in the user guide for the HP Fast InfraRed Receiver, and print the job again.
The FIR status indicator turns off during transmission.	The connection might have been broken. Press [Cancel Job] to clear the printer's memory. Then, reposition the portable device within the range of operation described in the user guide for the HP Fast InfraRed Receiver, and print the job again.
PS print job will not print.	Check the configuration in the PostScript Tab of Windows: check that Protocol is set to AppleTalk and Binary Data is not selected.



Communicating with an Optional HP JetDirect Print Server

If the printer contains an optional HP JetDirect print server, and you cannot communicate with the printer over the network, verify the operation of the print server. Check the HP JetDirect configuration page. (To print a configuration page, see page 134.) If the message, “I/O CARD READY” does not appear on the HP JetDirect configuration page, see the troubleshooting section of the *HP JetDirect Print Server Software Installation Guide*.



HP JetDirect 10/100TX print server

If the printer contains an optional HP JetDirect 10/100TX print server, check to see that the print server was able to link to the network:

Check the link-speed indicators (10 or 100) on the print server. If both are off, the print server failed to link to the network.

Check the HP JetDirect configuration page. The message “LOSS OF CARRIER ERROR” indicates that the print server failed to link to the network.



If the print server failed to link, verify that all cables are correctly connected. If all cables are correctly connected and the print server still fails to link, follow the steps below to reconfigure the print server:

- 1 Turn off the printer and remove the HP JetDirect 10/100TX print server.
- 2 Use jumpers P1, P2, and P3 to manually configure the print server for either 10 or 100 Mbps (megabits per second) link speed, and Full- or Half-duplex operation according to the table below:

Print Server Operation	Jumper P1	Jumper P2	Jumper P3
Autonegotiation Enabled	AUTO	—	—
100 Half-duplex	(not AUTO)	100	H
100 Full-duplex	(not AUTO)	100	(not H)
10 Half-duplex	(not AUTO)	(not 100)	H
10 Full-duplex	(not AUTO)	(not 100)	(not H)

- 3 Reinstall the print server.
- 4 Verify that the configuration of the connecting network device (such as a 10/100TX network switch) matches. For example, to set the print server for 100TX Full-duplex operation, the port on the network switch must also be set for 100TX Full-duplex operation.
- 5 Turn the printer off and back on and check the print server operation. If the print server fails to link, contact a local HP-authorized dealer or service representative.



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 or PS Font List

For a complete list of the printer's information pages, see the Information Menu in the printer's control panel (page B-4).

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 15.



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), paper trays, and printer languages.



Note

If an HP JetDirect print server card is installed (HP LaserJet 4050 N/4050 TN printers), an HP JetDirect configuration page will print out as well.



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 21 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.



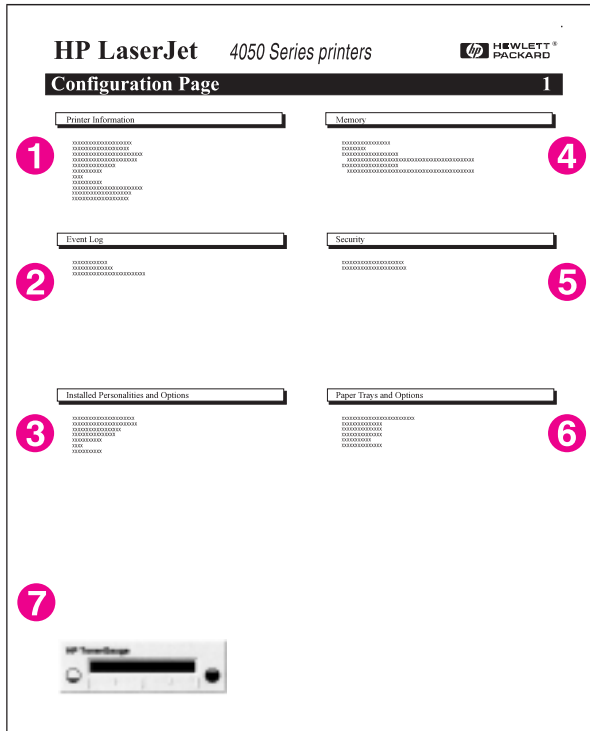


Figure 21 Sample Configuration Page

- 1 **Printer Information** Lists the serial number, HP JetSend IP addresses, 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.
- 3 **Installed Personalities and Options** Lists all printer languages that are installed (such as PCL and PS) and lists options that are installed in each DIMM slot and EIO slot.
- 4 **Memory** Lists printer memory, PCL Driver Work Space (DWS), and I/O buffering and resource saving information.
- 5 **Security** Lists the status of the printer's control panel lock, control panel password, and disk drive.
- 6 **Paper Trays and Options** Lists the size settings for all trays and lists optional paper handling accessories that are installed.
- 7 **HP TonerGauge** Shows the amount of toner available in the toner cartridge.



PCL or PS 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 an optional hard disk or flash DIMM.)

To print a PCL or PS font list:

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

The PS font list shows the PS fonts installed, and gives a sample of those fonts. 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 and point size of the font.
- **Escape Sequence** (a PCL 5e 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-5.

- **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.





Service and Support



Warranty Information

For warranty information, see page 139. You can also locate the printer's warranty on the World Wide Web. (See the HP Customer Care Service and Support pages at the front of this user's guide.)



Service During and After the Warranty Period

- If printer hardware fails during the warranty period, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)
- If printer hardware fails after the warranty period, and you have an HP Maintenance Agreement or HP Support Pack, request service as specified in the agreement.
- If you do not have an HP Maintenance Agreement or HP Support Pack, contact an HP-authorized service or support provider. (See the HP Customer Care Service and Support pages at the front of this user's guide.)

If you are shipping equipment to be serviced, use the repacking guidelines on the following page.

Note

See the front of this user's guide for HP Customer Care Service and Support offerings.



Guidelines for Repacking the Printer

- Remove and retain any DIMMs (dual in-line memory modules) installed in the printer (page C-3).
- Remove and retain any optional accessories installed in the printer (such as the duplexer or hard disk).
- Remove and retain the toner cartridge.

Caution

To prevent damage to the toner cartridge, store the cartridge in its original packing material, or store it so that it is not exposed to light.

- Use the original shipping container and packing material, if possible. (Shipping damage as a result of inadequate packing is the customer's responsibility.) If you have already disposed of the printer's packing material, contact a local mailing service for information on repacking the printer.
- If possible, include print samples and 50-100 sheets of paper or any other media that is not printing correctly.
- Include a completed copy of the Service Information Form (page 142).
- HP recommends insuring the equipment for shipment.



Hewlett-Packard Limited Warranty Statement

HP PRODUCT

HP LaserJet 4050, 4050 N,
4050 T, 4050 TN

DURATION OF WARRANTY

1 year, return to HP or
Authorized Dealer



1. HP warrants to you, the end-user customer, that HP hardware, accessories and supplies will be free from defects in materials and workmanship after the date of purchase, for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or equivalent in performance to new.
2. HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified above, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software which does not execute its programming instructions due to such defects.
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Limited Warranty for Toner Cartridge Life

Note

The warranty below applies to the toner cartridge that came with this printer.



This warranty supersedes all previous warranties (7/19/96).

HP toner cartridges are warranted to be free from defects in materials and workmanship until the HP toner is depleted. The warranty covers any defects or malfunctions in a new Hewlett-Packard toner cartridge.



How long does the coverage last?

The coverage lasts until the HP toner is depleted, at which time the warranty expires.

How do I know when the HP toner is running out?

The **TONER LOW** message on the printer's control panel display provides the first indication that toner is low. (Toner will likely run out in the next 100-300 sheets of paper.)

What will HP do?

HP will, at HP's option, either replace products which prove to be defective or refund the purchase price. If possible, please attach a print-out sample illustrating what the defective cartridge is printing.

What does this warranty not cover?

The warranty does not cover cartridges which have been refilled, are emptied, are abused, are misused, or are tampered with in any way.

How do I return the faulty cartridge?

In the event the cartridge proves to be defective, complete the Service Information Form (page 142) and attach a print sample illustrating the defect. Return the form and cartridge to the place of purchase, where the cartridge will be replaced.

How does State, Province or Country Law apply?

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state, province to province, or country to country. This limited warranty is the sole warranty on the HP toner cartridge and supersedes any other warranty relating to this product.

IN NO EVENT SHALL HEWLETT-PACKARD COMPANY BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, INDIRECT, PUNITIVE, OR EXEMPLARY DAMAGES OR LOST PROFITS FROM ANY BREACH OF THIS WARRANTY OR OTHERWISE.



Service Information Form

WHO IS RETURNING THE EQUIPMENT?		Date: _____
Person to contact:		Phone: () _____
Alternate contact:		Phone: () _____
Return shipping address:	Special shipping instructions:	
WHAT IS BEING SENT?		
Model name:	Model number:	Serial number:
Please attach any relevant print-outs when returning equipment. DO NOT ship accessories that are not required to complete the repair (manuals, cleaning supplies, etc.).		
WHAT NEEDS TO BE DONE? (Attach a separate sheet if necessary.)		
1. Describe the conditions of the failure. (What was the failure? What were you doing when the failure occurred? What software were you running? Is the failure repeatable?)		
2. If the failure is intermittent, how much time elapses between failures?		
3. Is the unit connected to any of the following? (Give manufacturer and model number.)		
Personal computer:	Modem:	Network:
4. Additional comments:		
HOW WILL YOU PAY FOR THE REPAIR?		
<input type="checkbox"/> Under warranty	Purchase/received date: _____ (Enclose proof of purchase or receiving document with original received date.)	
<input type="checkbox"/> Maintenance contract number:	_____	
<input type="checkbox"/> Purchase order number:	_____	
Except for contract and warranty service, a purchase order number and/or authorized signature must accompany any request for service. If standard repair prices do not apply, a minimum purchase order is required. Standard repair prices may be obtained by contacting an HP-authorized Repair Center.		
Authorized signature: _____	Phone: _____	
Billing address:	Special billing instructions:	



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Worldwide Sales and Service Offices

Note

Before calling an HP Sales and Service office, be sure to contact the appropriate Customer Care Center number listed in the “HP Customer Care Service and Support” section. Products should not be returned to these offices. Product return information is also available through the appropriate HP Customer Care Center in “HP Customer Care Service and Support” on page viii.



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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, 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 Paper Specification Guide*. (To order the guide, see page 11.) 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.



Supported Sizes and Weights of Paper

Supported Sizes and Weights of Paper, Tray 1

Tray 1	Dimensions*	Weight	Capacity**
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	8.5 by 14 in (216 by 356 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

* The printer supports a wide range of paper sizes. Check the printer software for supported sizes. To print custom-size paper, see page 56.

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

*** Sizes smaller than 5 inches (127 mm) should be fed short edge first (portrait).



Supported Sizes and Weights of Paper, Tray 2 (HP LaserJet 4050 T/4050 TN)

Trays 2 and 3 (HP LaserJet 4050 T/ 4050 TN)	Dimensions*	Weight	Capacity**
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 50-100 transparencies
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 (ISO) (custom***)	6.9 by 9.9 in (176 by 250 mm)		
B5 (JIS)	7.2 by 10 in (182 by 257 mm)		
A5 (custom***)	5.8 by 8.2 in (148 by 210 mm)		

* The printer supports a wide range of paper sizes. Check the printer software for supported sizes.

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

*** To print custom-size paper, see page 56.



Supported Sizes and Weights of Paper, Tray 2 (HP LaserJet 4050 /4050 N)

Tray 2 (HP LaserJet 4050/4050 N)	Dimensions*	Weight	Capacity**
Letter	8.5 by 11 in (216 by 279 mm)	16 to 28 lb (60 to 105 g/m ²)	500 sheets of 20 lb (75 g/m ²) paper 50-100 transparencies
A4	8.3 by 11.7 in (210 by 297 mm)		
Legal	8.5 by 14 in (216 by 356 mm)		

* The printer supports a wide range of paper sizes. Check the printer software for supported sizes.

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



Supported Sizes and Weights of Paper, Optional 500-Sheet Tray

Optional 500-Sheet Tray	Dimensions*	Weight	Capacity**
Letter	8.5 by 11 in (216 by 279 mm)	16 to 28 lb (60 to 105 g/m ²)	500 sheets of 20 lb (75 g/m ²) paper 50-100 transparencies
A4	8.3 by 11.7 in (210 by 297 mm)		
Executive	7.3 by 10.5 in (191 by 267 mm)		
Executive (JIS) (custom***)	8.5 by 13 in (216 by 330 mm)		
16K (custom***)	7.75 by 10.75 in (197 by 273 mm)		
Legal	8.5 by 14 in (216 by 356 mm)		
B5 (ISO) (custom***)	6.9 by 9.9 in (176 by 250 mm)		
B5 (JIS)	7.2 by 10 in (182 by 257 mm)		
A5 (custom***)	5.8 by 8.2 in (148 by 210 mm)		
Custom***	5.8 by 8.2 in to 8.5 by 14 in (148 by 210 mm to 216 by 356 mm)		

* The printer supports a wide range of paper sizes. Check the printer software for supported sizes.

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

*** To print custom-size paper, see page 56.



Supported Sizes and Weights of Paper, Optional Envelope Feeder

Optional Envelope Feeder	Dimensions*	Weight	Capacity**
Minimum Size	3.5 by 6.3 in (90 by 160 mm)	20 to 28 lb (75 to 105 g/m ²)	75 envelopes
Maximum Size	7 by 10 in (178 by 254 mm)		

* The printer supports a wide range of paper sizes. Check the printer software for supported sizes.

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



Supported Sizes and Weights of Paper, Optional Duplex Printing Accessory (duplexer)

Optional Duplex Printing Accessory (duplexer)	Dimensions	Weight	Capacity
Letter	8.5 by 11 in (216 by 279 mm)	16 to 28 lb (60 to 105 g/m ²)	not applicable
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)		



Supported Types of Paper

The printer supports the following types of paper:

- plain
- letterhead
- prepunched
- bond
- color
- rough
- preprinted
- transparency
- labels
- recycled
- card stock
- user-defined (5 types)



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.
Jamming, damage to printer.	Cutouts or perforations.	Do not use paper with cutouts or perforations.
Problems with feeding.	Ragged edges.	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.

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).

Avoid using paper that has already been used in a printer or copier. (Do not print on both sides of envelopes, transparencies, or labels.)



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* 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

* 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 53.

Transparencies

Transparencies used in the printer must be able to withstand 400° F (205° C), the printer's maximum temperature. 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 55.



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).
- **Sizes in the optional envelope feeder:** From 3.5 by 6.3 inches (90 by 160 millimeters) to 7 by 10 inches (178 by 254 millimeters).



If you do not have an optional envelope feeder, always print envelopes from Tray 1 (page 47). To print envelopes with the optional envelope feeder, see page 49. If envelopes wrinkle, try opening 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.

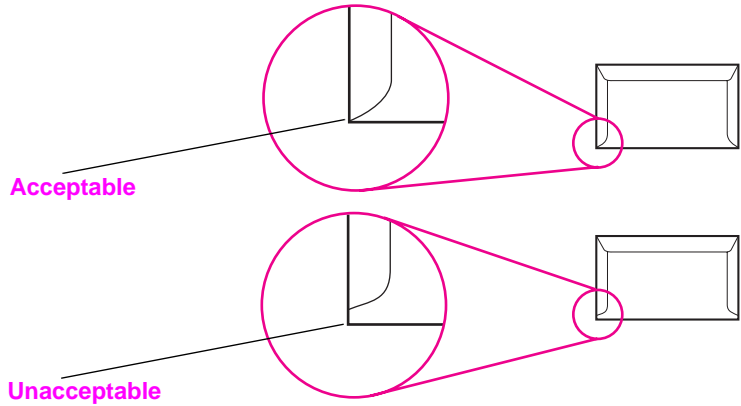


Figure A-1 Envelopes with Double-Side-Seams

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: 8.5 by 14 inches (216 by 356 millimeters)



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

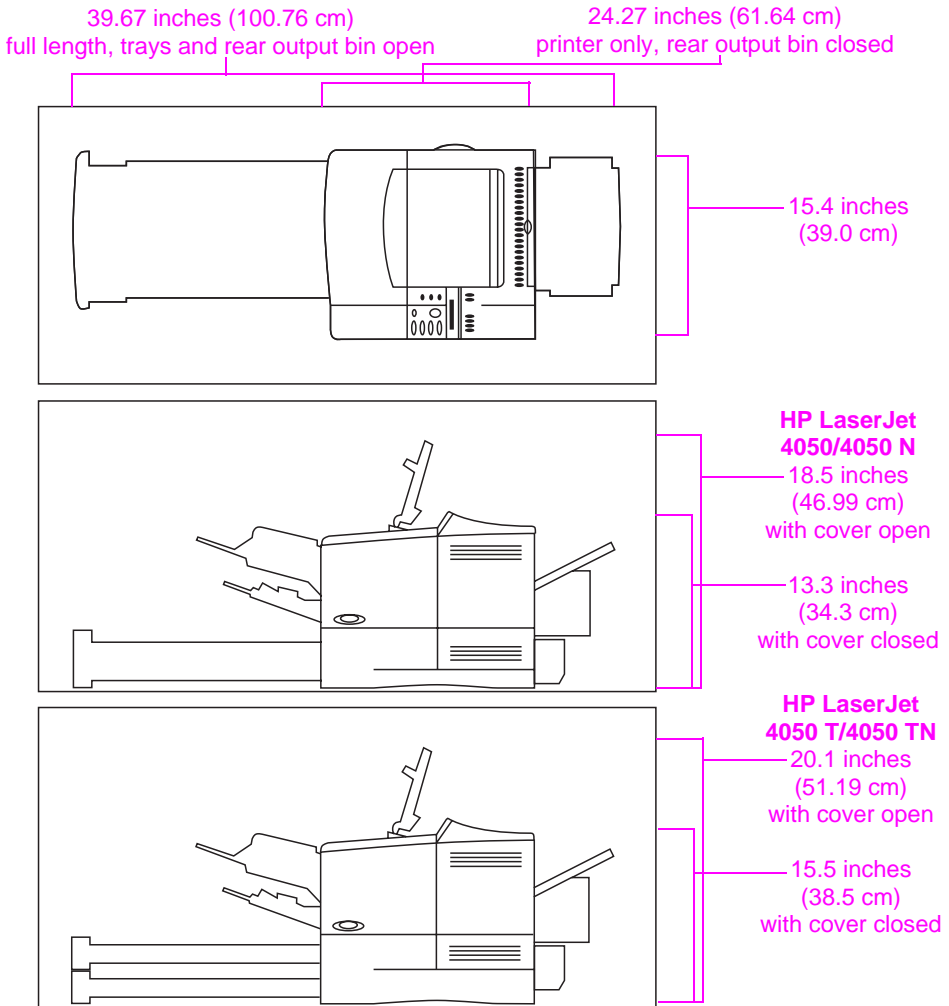


Figure A-2 Printer Dimensions

Printer Weight (without toner cartridge)

- HP LaserJet 4050/4050 N printers: 39.27 lb (17.85 kg)
- HP LaserJet 4050 T/4050 TN printers: 45.66 lb (20.71 kg)



Environmental Specifications

Electrical Specifications

Printer State	Power Consumption (average, in watts)
Printing	330
Standby	22
PowerSave (default activation time 30 minutes)	20
Off	0



Minimum Recommended Circuit Capacity

100-127 Volt	8 amps
220-240 Volt	4 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*

Printing, 17 pages per minute (ppm)	$L_{wad} = 6.6$ bels (A)
Printing, 8 ppm	$L_{wad} = 6.2$ bels (A)
PowerSave	$L_{wad} = 0$ bels (A)

* 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 17 ppm, letter size paper. Up to 16 ppm, A4 size paper.
Expandable Memory	Up to 200 MB total, combining standard and accessory memory DIMMs.



Serial Cable Specifications

Serial communication is simply the transmission of data one bit at a time. With just one bit to transmit at a time, data can be transferred with a simple electrical circuit consisting of only two wires. In this fashion, an eight-bit byte is transmitted one bit at a time and the individual bits are reassembled into the original byte on the receiving end. Bit transmission occurs from the least significant bit to the most significant bit.



Serial Cable Specifications

Specification	Description
Data Terminal Equipment (DTE)	Transmit on pin 2 and receive on pin 3. A printer is typically a DTE device.
Data Communications Equipment (DCE)	Transmit on pin 3 and receive on pin 2. A modem is typically a DCE device.
Asynchronous Communication	Asynchronous communication or start/stop transmission is the concept of enclosing a character with a start and stop bit. The RS-232 specification defines the standards for asynchronous serial communication.
Parity	Parity is a method of error checking at the bit level.
HP LaserJet Serial Data Format	Transmission is asynchronous, with one start bit, eight data bits and one stop bit. Parity is not used. HP LaserJet printers are DTE devices.
Serial Interface Protocol (handshaking)	Handshaking is the method by which the flow of data between two devices is controlled. The two methods of flow control that are used by HP LaserJet printers are software flow control, in which one device controls another by the content of the data, and hardware flow control, in which one device can control another by changing the voltage on a wire.
Software Flow Control (software handshaking)	Xon/Xoff is a data stream handshake protocol that sends Xon (DC1; 11 Hex) to the computer from the printer's transmit data pin when the printer is able to accept data and sends Xoff (DC3; 13 Hex) when the printer is not ready for data.



Serial Cable Specifications (Continued)

Specification	Description
Hardware Flow Control (hardware handshaking)	By definition, hardware handshaking is performed when two programs manipulate RS-232 control pins-DTR, DSR, RTS, and CTS to achieve a hardware-based form of flow control. In DTR/DSR handshaking, the sender asserts DTR (Data Terminal Ready) before sending the first character in a stream of data and waits for DSR (Data Set Ready) to be asserted in return. RTS/CTS handshaking is similar, but uses the Request To Send and Clear To Send pins rather than Data Terminal Ready. In either case, the sender delays transmitting data until the receiver is ready.



Hewlett-Packard offers the following serial cables and adapter for use with the printer:

HP Part Number	Description
C2932A	9 to 9-pin M/F RS-232 Serial Cable, 3m
C2933A	9 to 25-pin M/F RS-232 Serial Cable, 3m
C2809A	9 to 25-pin M/F Serial Cable Adapter

With the C2809A serial cable adapter installed on the printer, you can connect a 25-pin cable connector to the printer. The adapter pin connections are shown below.

25 to 9 Pin Adapter (C2809A)

Standard DB-25 (female adapter end)	Printer DB-9 (male adapter end)
2- Transmit Data	2- Transmit Data
3- Receive Data	3- Receive Data
6- Data Set Ready	4- Data Set Ready
7- Signal Ground	5- Signal Ground
20- Data Terminal Ready	6- Data Terminal Ready



DB-9 Serial Cable Pin Outs (C2932A)

Computer DB-9	Printer DB-9 (male cable end)
2- Receive Data	2- Transmit Data
3- Transmit Data	3- Receive Data
4- Data Terminal Ready	4- Data Set Ready
5- Ground	5- Ground
6- Data Set Ready	6- Data Terminal Ready
8- Clear to Send	8- Data Terminal Ready



DB-25 Serial Cable Pin Outs (C2933A)

Computer DB-25	Printer DB-9 (male cable end)
3- Receive Data	2- Transmit Data
2- Transmit Data	3- Receive Data
20- Data Terminal Ready	4- Data Set Ready
7- Ground	5- Ground
6- Data Set Ready	6- Data Terminal Ready
5- Clear to Send	8- Data Terminal Ready

Note

The pin outs for the computer end are typical pin numbers. The actual pin numbers for your computer may be different. Check the documentation for your computer to verify the proper pin outs.

Pins not shown are not used by the printer.



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 23.



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 16). This appendix lists all the items and **possible** values for the printer. (Default values are listed in the "Item" column.)

Additional menu items can appear in the control panel, depending on the options currently installed in the printer.



Quick Copy Jobs Menu

This menu provides a list of the quick copy jobs stored on the printer's hard disk. The user can print or delete these jobs from the control panel. See "Job Retention Features" on page 67 and "Proofing and Holding a Job" on page 69 for more information about using this menu.



Note

If there are no quick copy jobs stored on the printer's hard disk, this menu is not displayed on the control panel.

Quick Copy Jobs Menu

Item	Value	Explanation
[JOBNAME]		The name of the person who owns the quick copy job.
COPIES=1	1 to 999 DELETE	The number of additional 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 hard disk.



Private/Stored Jobs Menu

This menu provides a list of the private and stored jobs on the printer's hard disk. The user can print or delete these jobs from the control panel. See "Printing a Private Job" on page 71 and "Storing a Print Job" on page 73 for more information about using this menu.



Note

If there are no private or stored jobs on the printer's hard disk, this menu is not displayed on the control panel.



Private/Stored Jobs Menu

Item	Value	Explanation
[JOBNAME]		The name of the job stored on the printer's hard disk.
PIN:0000		To print the job, the user must enter the Personal Identification Number (PIN) assigned to the job in the driver.
COPIES=1	1 to 999 DELETE	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 hard disk.



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 133.
PRINT CONFIGURATION	The configuration page shows the printer's current configuration. If an HP JetDirect print server card is installed (HP LaserJet 4050 N/4050 TN printers), a JetDirect configuration page will print out as well. For more information, see page 134.
PRINT PCL FONT LIST	The PCL font list shows all the PCL fonts currently available to the printer. For more information, see page 136.
PRINT PS FONT LIST	The PS font list shows all the PS fonts currently available to the printer. For more information, see page 136.
PRINT FILE DIRECTORY	This item appears only when a mass storage device (such as an optional flash DIMM or hard disk) containing a recognized file system is installed in the printer. The file directory shows information for all installed mass storage devices. 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, duplexer (if available), and number of copies.
PRINT USAGE PAGE	The usage page shows the quantity of pages printed, as well as the paper source used. It also reflects the number of one-sided versus two-sided pages. Note This item will only show in the information menu if the hard disk is installed in the printer. This item will generate a page containing information that can be used for accounting purposes.



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 65.



Some items in this menu (such as duplex and manual feed) 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 59.



Paper Handling Menu

Item	Values	Explanation
ENVELOPE FEEDER SIZE=COM10	For supported paper sizes, see page A-3.	This item appears only when the optional envelope feeder is installed. Set the value to correspond with the envelope size currently loaded in the envelope feeder.
ENVELOPE FEEDER TYPE=PLAIN	For supported paper types, see page 66.	This item appears only when the optional envelope feeder is installed. Set the value to correspond with the envelope type currently loaded in the envelope feeder.
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 63.
TRAY 1 SIZE= LETTER	For supported paper sizes, see page A-3.	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 66.	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 66.	Set the value to correspond with the paper type currently loaded in Tray 2.



Paper Handling Menu (Continued)

Item	Values	Explanation
TRAY 3 TYPE= PLAIN	For supported paper types, see page 66.	Set the value to correspond with the paper type currently loaded in Tray 3.
TRAY 4 TYPE= PLAIN	For supported paper types, see page 66.	This item appears only when a fourth paper tray is installed (available only on the HP LaserJet 4050 T/4050 TN printers). Set the value to correspond with the paper type currently loaded in Tray 4.
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 64.
DUPLEX=OFF	OFF ON	This item appears only when an optional duplexer is installed. Set the value to ON to print on both sides (duplex) or OFF to print on one side (simplex) of a sheet of paper. For more information, see page 41.
BINDING= LONG EDGE	LONG EDGE SHORT EDGE	This item appears only when an optional duplexer is installed and the duplex option is on. Choose the binding edge when duplexing (printing on both sides of paper). For more information, see page 41.
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-4).



Paper Handling Menu (Continued)

Item	Values	Explanation
[TYPE]= NORMAL	NORMAL LOW HIGH	<p>This item appears only when CONFIGURE FUSER MODE MENU=YES. Most paper types are set to NORMAL by default.</p> <p>The exception is as follows:</p> <p>ROUGH=HIGH</p> <p>TRANSPARENCY=LOW</p> <p>(HIGH and LOW settings are only available with A4, letter, and legal sizes.)</p> <p>For a complete list of supported paper types, see page 66.</p>



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 59.



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 full speed (17 ppm). 300 dpi (dots per inch) 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 full speed (17 ppm). FASTRES 1200: Produces optimum print quality (comparable to 1200 dpi) at the printer's maximum speed (17 ppm, letter/16 ppm, A4). PRORES 1200: Produces optimum print quality (true 1200 dpi) at half the printer's maximum speed. 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. REt does not affect print quality when the print resolution is set to ProRes 1200. All other 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 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 toner cartridge.)</p> <p>Note 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 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 fuser assembly).</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 86.</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 59.



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= LETTER (110V printers) or PAPER= A4 (220V printers) and ENVELOPE= COM10 (110V printers) or ENVELOPE= DL (220V printers)	For supported paper sizes, see page A-3.	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).



Printing Menu (Continued)

Item	Values	Explanation
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.
X DIMENSION= 8.50 INCHES (110V printers) or 216 MILLIMETERS (220V printers)	For supported paper sizes, see page A-3	This item appears only when CONFIGURE CUSTOM PAPER=YES. Select the dimension to be fed into the printer (short edge).
Y DIMENSION= 14.00 INCHES (110V printers) or 356 MILLIMETERS (220V printers)	For supported paper sizes, see page A-3	This item appears only when CONFIGURE CUSTOM PAPER=YES. Select the other dimension (long edge).
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.
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.)
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. Note It is best to set the font source from the printer driver or software application. (Driver and software settings override control panel settings.)



Printing Menu (Continued)

Item	Values	Explanation
PCL FONT NUMBER= 0	0 to 999	<p>The printer assigns a number to each font and lists them on the PCL Font List (page 136). The font number appears in the Font # column of the printout.</p> <p>Note It is best to set the font number from the printer driver or software application. (Driver and software settings override control panel settings.)</p>
PCL FONT PITCH= 10.00	0.44 to 99.99	<p>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.</p> <p>Note It is best to set the font pitch from the printer driver or software application. (Driver and software settings override control panel settings.)</p>
PCL FONT POINT SIZE=12.00	4.00 to 999.75	<p>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.</p> <p>Note It is best to set the font point from the printer driver or software application. (Driver and software settings override control panel settings.)</p>
PCL SYMBOL SET= PC-8	PC-8 many others	<p>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.</p> <p>Note It is best to set the symbol set from the printer driver or software application. (Driver and software settings override control panel settings.)</p>



Printing Menu (Continued)

Item	Values	Explanation
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.
PRINT PS ERRORS= OFF	OFF ON	Select ON to print the PS error page when PS errors occur.



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 PS	<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 <code>AUTO</code>). 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-6.</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-6.</p>
PS 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 PS resources. Printer default is the minimum amount of memory needed to perform resource saving for PS. 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-6.</p>



Configuration Menu (Continued)

Item	Values	Explanation
PAGE PROTECT= AUTO	AUTO ON	<p>This item appears only after a 21 PAGE TOO COMPLEX, PRESS GO TO CONTINUE message displays (page 108).</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>
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>
SMALL PAPER SPEED=NORMAL	NORMAL SLOW	<p>Select SLOW when alternately printing envelopes or small paper and standard paper sizes.</p> <p>Be sure to return the speed to NORMAL when finished.</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. If the printer is on a network, you will probably want to turn AUTO CONTINUE to ON.</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 toner 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 78.</p>



Configuration Menu (Continued)

Item	Values	Explanation
RAM DISK=OFF	OFF ON AUTO	<p>Determine how the RAM disk is configured. This item appears only if there is no optional hard disk installed and the printer has at least 16MB 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 If the setting is changed from OFF to ON or from OFF to AUTO, the printer will automatically reinitialize when it becomes idle.</p>
RAM DISK SIZE=xxxK	0K and up (This value depends on the amount of installed memory.)	<p>Determine the size of the RAM disk. This item appears if RAM DISK=ON or AUTO.</p> <p>Press [-Value+] to change settings by increments of 100.</p> <p>Note This setting cannot be changed if RAM DISK=AUTO. Changing this value will cause the printer to reinitialize when it becomes idle.</p>
JAM RECOVERY= AUTO	AUTO ON OFF	<p>Determine how the printer behaves when a paper jam occurs.</p> <p>AUTO: The printer automatically selects the best mode for printer jam recovery (usually ON). This is the default setting.</p> <p>ON: The printer automatically reprints pages after a paper jam is cleared.</p> <p>OFF: The printer does not reprint pages following a paper jam. Printing performance might be increased with this setting.</p>
MAINTENANCE MESSAGE=OFF	OFF	<p>This item appears only after the PERFORM PRINTER MAINTENANCE message displays.</p> <p>OFF: The PERFORM PRINTER MAINTENANCE message will be cleared and will not be displayed again until the next maintenance is due.</p> <p>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.</p> <p>For more information, see page 87. To order the Printer Maintenance Kit, see page 11.</p>



Configuration Menu (Continued)

Item	Values	Explanation
SMALL PAPER SPEED=NORMAL	NORMAL SLOW	Select SLOW when alternately printing envelopes or small paper and standard paper sizes. Be sure to return the speed to NORMAL when finished.
NEW TONER CARTRIDGE=NO	YES NO	This item allows the user to tell the printer that a new toner cartridge has been installed. Setting this item to YES will reset the HP TonerGauge to full.
QUICK COPY JOBS=32	1 to 50	Specifies the number of quick copy jobs that can be stored on the printer's hard disk.
JOB HELD TIMEOUT=OFF	OFF 1 HOUR 4 HOURS 1 DAY 1 WEEK	Sets the amount of time that held jobs are kept before being automatically deleted from the queue.
CONFIGURE PRORES 1200=NO*	YES NO	This item allows the user to tell the printer whether or not to use Pro Res, which provides 1200 dpi. If YES is selected, another menu entry appears giving the user the option of NORMAL or HALF speed.



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 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 <code>I/O BUFFER SIZE</code> menu item does not appear.</p> <p>ON: The <code>I/O BUFFER SIZE</code> 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 <code>I/O BUFFER SIZE</code> item does not appear.</p> <p>When the I/O buffer setting is changed, any downloaded resources (such as fonts or macros) will need to be downloaded again, unless they are stored on an optional hard disk or flash DIMM.</p> <p>For more information, see page C-7.</p>
I/O BUFFER SIZE= 100K	10K and up	<p>This item appears only when <code>I/O BUFFER=ON</code>. 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.)



EIO Menu (4050 N/4050 TN)

EIO (enhanced input/output) Menus depend on the particular accessory product installed in an EIO slot of the printer. If the printer contains an HP JetDirect print server EIO card, you can configure basic networking parameters using the EIO Menu. These and other parameters can also be configured through HP JetAdmin and HP Web JetAdmin.



EIO Menu

Item	Values	Explanation
CFG NETWORK=NO	NO	NO: The JetDirect Menu is not accessible.
	YES	YES: The JetDirect Menu appears.
IPX/SPX=ON	ON	Select whether the IPX/SPX protocol stack (in Novell NetWare networks, for example) is enabled (on) or disabled (off).
	OFF	
DLC/LLC=ON	ON	Select whether the DLC/LLC protocol stack is enabled (on) or disabled (off).
	OFF	
TCP/IP=ON	ON	Select whether the TCP/IP protocol stack is enabled (on) or disabled (off).
	OFF	
ETALK=ON	ON	Select whether the Apple EtherTalk protocol stack is enabled (on) or disabled (off).
	OFF	
CFG IPX/SPX=NO	NO	NO: The IPX/SPX Menu is not accessible.
	YES	YES: The IPX/SPX Menu appears. In the IPX/SPX Menu, you can specify the frame type parameter used on your network. The default is AUTO, to automatically set and limit the frame type to the one detected. For Ethernet cards, frame type selections include EN_8023, EN_LII, EN_8022, EN_SNAP. For Token Ring cards, frame type selections include TR_8022, TR_SNAP. In the IPX/SPX Menu for Token Ring cards, you can also specify NetWare Source Routing parameters, which include SRC_RT=AUTO (default), OFF, SINGLE R, or ALL RT.



EIO Menu (Continued)

Item	Values	Explanation
CFG TCP/IP=NO	NO YES	<p>NO: The TCP/IP Menu is not accessible.</p> <p>YES: The TCP/IP Menu appears. In the TCP/IP Menu, you can specify <code>BOOTP=YES</code> for TCP/IP parameters to be automatically loaded from a bootp or DHCP server when the printer is turned on. If you specify <code>BOOTP=NO</code>, you can manually set selected TCP/IP parameters from the control panel. You can manually set each byte of the IP address (IP), Subnet Mask (SM), Syslog Server (LG), and Default Gateway (GW).</p> <p>If the Syslog Server IP address is left blank, the printer will still work. Also, you can manually set the Timeout time period.</p>
CFG ETALK=NO	NO YES	<p>NO: The EtherTalk Menu is not accessible.</p> <p>YES: The EtherTalk Menu appears. In the EtherTalk Menu you can set the AppleTalk phase parameter (<code>ETALK PHASE=1</code> or <code>2</code>) for your network.</p>



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.
- You are using both the serial and parallel I/O ports, and one of the ports is having problems.

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

Note

Job Retention features will be deleted if you do not have the hard disk accessory.



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. 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. Resetting memory during a print job can result in data loss.
RESET ACTIVE I/O CHANNEL	This item performs a simple reset and clears the input and output buffers (for the active I/Os only). Resetting memory during a print job can result in data loss.
RESET ALL I/O CHANNELS	This item performs a simple reset and clears the input and output buffers for all I/Os.





Printer Memory and Expansion



Overview



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

- More printer memory. DIMMs are available in 4, 8, 16, 32, and 64 MB, for a maximum of 200 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 or PS documents, print with the optional duplexer, use many downloaded fonts, or print at ProRes 1200.



The printer has two enhanced input/output (EIO) slots for expanding the printer's capabilities with:

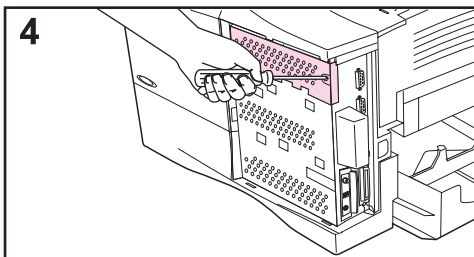
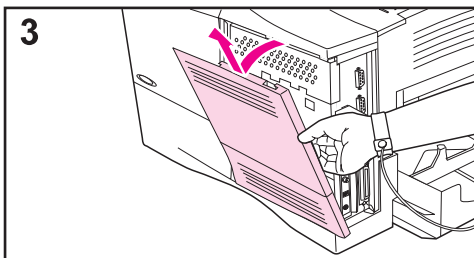
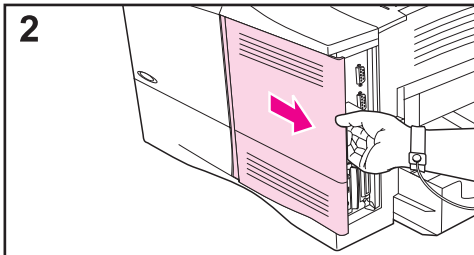
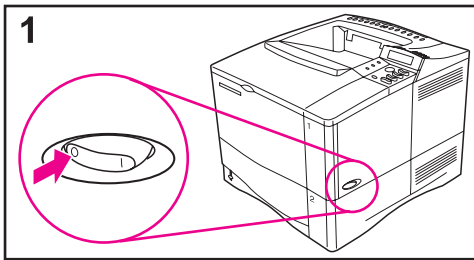
- A network card.
- A mass storage device, such as a hard disk.

For ordering information, see page 9.

To find out how much memory is installed in the printer, or to find out what is installed in the EIO slots, print a configuration page (page 134).



Installing Memory



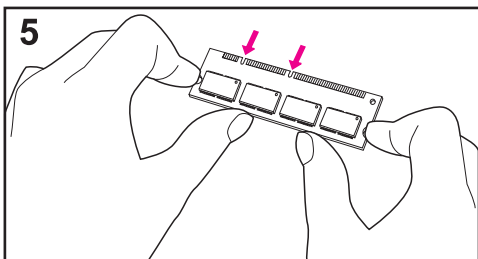
Caution

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.

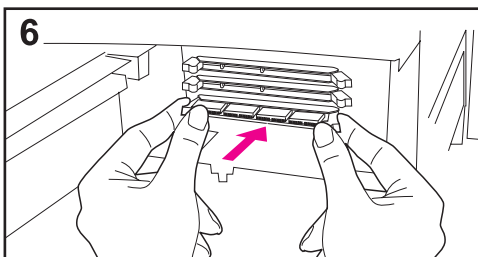
If you have not already done so, print a configuration page to find out how much memory is installed in the printer before adding more memory (page 134).

- 1 Turn the printer off. Rotate the printer for access to its right side. Unplug the power cord and disconnect any cables.
- 2 Grasp the cover (as illustrated) and pull it firmly toward the rear of the printer until it stops.
- 3 Remove the cover from the printer.
- 4 Loosen the captive screw holding the DIMM access door with a Phillips #2 screwdriver. Open the door.

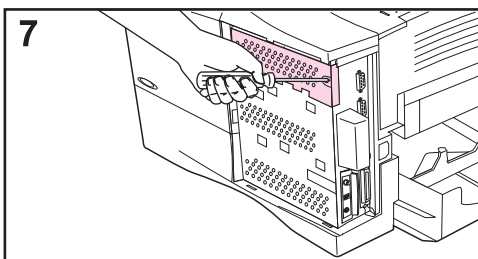




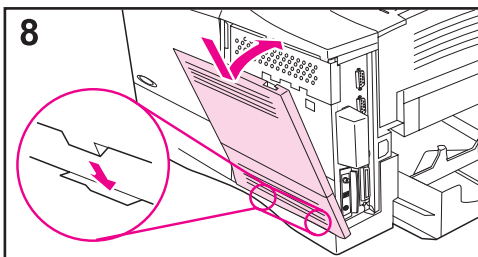
5 Remove the DIMM from the antistatic package. Hold the DIMM with fingers against the side edges and thumbs against the back edge. Align the notches on the DIMM with the DIMM slot. (Check that the locks on each side of the DIMM slot are open, or outward.)



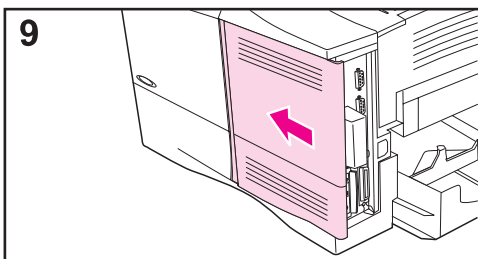
6 Press the DIMM straight into the slot (press firmly). Make sure the locks on each side of the DIMM snap inward into place. (To remove a DIMM, the locks must be released.)



7 Close the DIMM access door and tighten the screw.



8 Set the bottom of the cover onto the printer. Make sure the bottom tabs on the cover fit into the corresponding slots in the printer. Rotate the cover up towards the printer.



9 Slide the cover toward the front of the printer until it clicks into place. Reattach any interface cables and the power cord, then turn the printer on and test the DIMM. (Go to page C-5.)



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 103).
- 2 Print a new configuration page (page 134).
- 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 an optional hard disk or 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 each for PCL and PS.

To determine how much memory to allocate to a language:

- 1 From the Configuration Menu, set `RESOURCE SAVE=ON` (page B-15). 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 either `PCL MEMORY` or `PS 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 134). 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` or `PS 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 an optional hard disk or 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-19).
- 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 an optional hard disk or flash DIMM.



Installing EIO Cards/Mass Storage

Turn off the printer before installing the EIO card or mass storage device.

See Figure C-1 for orientation and location of the EIO card or optional mass storage device, such as a hard disk.

Use HP Resource Manager to manage fonts on a mass storage device (page 25). For more information, see the printer software help.

HP is constantly introducing new software tools for use with your printer and accessories. These tools are available from the Internet free of charge. See page viii for how to visit the HP website for more information.

After you have installed a new device, print a configuration page.

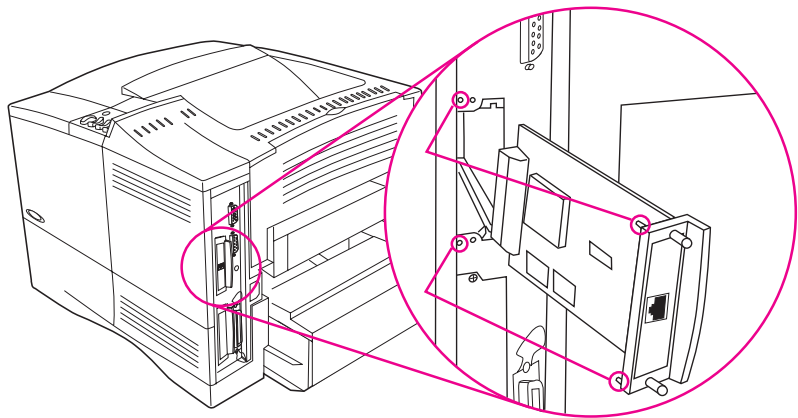


Figure C-1 **Installing EIO Cards or Mass Storage Devices**



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 5e

PCL 5e 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 5e command structure.

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 5e language and enter HP-GL/2 mode, which can be done by sending the printer PCL 5e code. Some software applications switch languages through their drivers.

PJL

HP's Printer Job Language (PJL) provides control above PCL 5e 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-6). For a complete listing and explanation of how to use PCL 5e, HP-GL/2, and PJL commands, download the *PCL 5e /PJL Technical Reference Documentation Package* (page 11).

To receive more information about printer commands via fax, call HP FIRST (Fax Information Retrieval Service Technology) and request an index for HP LaserJet printers. (See the HP Customer Care Service and Support pages at the front of this user's guide.)



Understanding PCL 5e 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 5e printer commands.

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

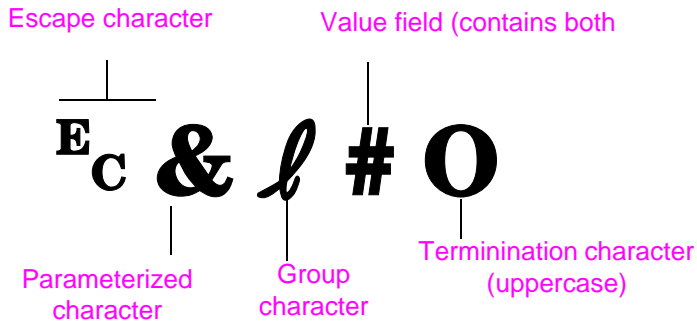


Figure D-1 Printer Command Elements

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
```



Entering Escape Characters

Printer commands always begin with the escape character (E_C).

The following table shows how the escape character can be entered from various DOS software applications.



DOS Software Application	Entry	What Appears
Lotus 1-2-3 and Symphony	Type 027	027
Microsoft Word for DOS	Hold down Alt and type 027 on the numeric keypad	←
WordPerfect for DOS	Type <27>	<27>
MS-DOS Edit	Hold down Ctrl-P, and press Esc	←
MS-DOS Edlin	Hold down Ctrl-V, and press [^[
dBase	?? CHR(27)+ "command"	?? CHR(27)+ " "



Selecting PCL 5e Fonts

PCL 5e printer commands for selecting fonts can be found on the PCL 5e Font List (page 136). A sample section is shown below. Notice the two variable boxes for symbol set and point size.



Univers Medium Scale <esc>(<esc>(s1p v0s0b4148T | 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-8.



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 5e Printer Commands

Common PCL 5e Printer Commands

	Function	Command	Options (#)
Job Control Commands	Reset	<code>E_CE</code>	n/a
	Number of Copies	<code>E_C&l#X</code>	1 to 999
	2-sided/1-sided printing	<code>E_C&l#S</code>	0 = Simplex (1-sided) printing 1 = Duplex (2-sided) with long edge binding 2 = Duplex (2-sided) with short edge binding
Page Control Commands	Paper Source	<code>E_C&l#H</code>	0 = prints or ejects current page 1 = Tray 2 2 = manual feed, paper 3 = manual feed, envelope 4 = Tray 1 5 = Tray 3 6 = Envelope Feeder 7 = auto select 8 = Tray 4 20-69 = external trays.
	Paper size	<code>E_C&l#A</code>	1 = Executive 2 = Letter 3 = Legal 25 = A5 26 = A4 45 = B5-JIS 80 = Monarch 81 = Commercial 10 90 = DL 91 = International C5 100 = B5 101 = Custom
	Paper Type	<code>E_C&n#</code>	5WdBond = Bond 6WdPlain = Plain 6WdColor = Color 7WdLabels = Labels 9WdRecycled = Recycled 11WdLetterhead = Letterhead 10WdCardstock = Cardstock 11WdPrepunched = Prepunched 11WdPreprinted = Preprinted 13WdTransparency = Transparency #WdCustompapertype = Custom ¹
	Orientation	<code>E_C&l#O</code>	0 = Portrait 1 = Landscape 2 = Reverse Portrait 3 = Reverse Landscape



Common PCL 5e 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
Cursor Positioning	Vertical Position (Rows)	$E_C \& a \# R$	# = row number
	Vertical Position (Dots)	$E_C \ast p \# Y$	# = dot number (300 dots = 1 inch)
	Vertical Position (Decipoints)	$E_C \& a \# V$	# = decipoint number (720 decipoints = 1 inch)
	Horizontal Position (Columns)	$E_C \& a \# C$	# = column number
	Horizontal Position (Dots)	$E_C \ast p \# X$	# = dot number (300 dots = 1 inch)
	Horizontal Position (Decipoints)	$E_C \& a \# H$	# = decipoint number (720 decipoints = 1 inch)
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 5e Mode	$E_C \% \# A$	0 = Use previous PCL 5e 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 5e cursor position



Common PCL 5e Printer Commands (Continued)

Function	Command	Options (#)
Symbol Sets	$E_C(\#)$	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	$E_C(\#P)$	0 = fixed 1 = proportional
Primary Pitch	$E_C(\#H)$	# = characters/inch
Set Pitch Mode ²	$E_C\&k\#S$	0 = 10 4 = 12 (elite) 2 = 16.5 - 16.7 (compressed)
Primary Height	$E_C(\#V)$	# = points
Primary Style	$E_C(\#S)$	0 = upright (solid) 1 = italic 4 = condensed 5 = condensed italic
Primary Stroke Wt.	$E_C(\#B)$	0 = medium (book or text) 1 = semi bold 3 = bold 4 = extra bold
Typeface	$E_C(\#T)$	Print a PCL 5e font list to view the command for each internal font (page 136).



Font Selection

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

²The preferred method is to use the primary pitch command.





Regulatory Information



FCC Regulations



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If this equipment is not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase separation between equipment and receiver.
- Connect equipment to an outlet on a circuit different from that to which the receiver is located.
- Consult your dealer or an experienced radio/TV technician.

Note

Any changes or modifications to the printer that are not expressly approved by HP could void the user's authority to operate this equipment.

Use of a shielded interface cable is required to comply with the Class B limits of Part 15 of FCC rules.



Environmental Product Stewardship

Protecting the Environment

Hewlett-Packard Company is committed to providing quality products in an environmentally-sound manner. The HP LaserJet printer has been designed with several attributes to minimize impacts on the environment.



This HP LaserJet printer eliminates:

- Ozone production

The printer uses charging rollers in the electrophotographic process and therefore generates no appreciable ozone gas (O₃).

This HP LaserJet printer design reduces:

- Energy consumption

Energy usage drops significantly while in low-power (PowerSave) mode. Not only does this save natural resources, but it also saves money without affecting the high performance of this printer. This product qualifies for ENERGY STAR.

ENERGY STAR is a voluntary program established to encourage the development of energy-efficient office products.



ENERGY STAR is a U.S. registered service mark of the U.S. EPA. As an ENERGY STAR partner, Hewlett-Packard Company has determined that this product meets ENERGY STAR Guidelines for energy efficiency.



- Toner consumption

EconoMode uses significantly less toner, which might extend the life of the toner cartridge.

- Paper use

Depending on the type of software program in use, you can request that a number of pages of your document to be printed on one sheet of paper. This N-up printing practice and the printer's automatic duplexing feature, which provides two-sided printing, can reduce paper usage and the resulting demands on natural resources.



The design of this HP LaserJet printer facilitates the recycling of:



- Plastics

Plastic housing parts have markings according to international standards that enhance the ability to identify plastics for recycling purposes at the end of the printer's life.

- HP LaserJet printing supplies

In many countries, this product's printing supplies (e.g., toner cartridge, drum, fuser) can be returned to HP through the HP Planet Partners Printing Supplies Environmental Program. An easy-to-use and free takeback program is available in over 20 countries. Multi-lingual program information and instructions are included in every new HP LaserJet Toner Cartridge and Consumables package.

- HP Planet Partners Printing Supplies Environmental Program Information

Since 1990, the HP LaserJet Toner Cartridge Recycling Program has collected more than 25 million used LaserJet toner cartridges that otherwise may have been discarded in the world's landfills. The HP LaserJet toner cartridges and consumables are collected and bulk-shipped to our resource recovery partners who disassemble the cartridge. After a thorough quality inspection, minor, nonprinting process critical parts such as nuts, screws and clips are reclaimed for use in new cartridges. Remaining materials are separated and converted into raw materials for use by other industries to make a variety of useful products.



US Returns

For a more environmentally responsible return of used cartridges and consumables, HP encourages the use of bulk returns. Simply bundle two or more cartridges together and use single, pre-paid, and pre-addressed UPS label that is supplied in the package. For more information in the U.S., call 1-800-340-2445 or visit the HP LaserJet Supplies website at <http://www.ljsupplies.com/planetpartners>



Non-U.S. customers should call the local HP Sales and Service Office or visit the following websites for further information regarding availability of the HP Planet Partners LaserJet Toner Cartridge and Consumables Recycling Program.



Asia/Pacific Region

<http://www.asiapacific.hp.com/planp1>



Europe

http://www.hp.com/pays/eur_supplies/english/planetpartners

- Paper

This printer is suited for the use of recycled papers when the paper meets the guidelines outlined in the *HP LaserJet Printer Family Paper Specification Guide*. See page 11 for *HP LaserJet Printer Family Paper Specification Guide* ordering information. This printer is suitable for the use of recycled paper according to DIN 19309.



To ensure longevity of your HP LaserJet printer, HP provides the following:

- Extended warranty

HP SupportPack provides coverage for the HP hardware product and all HP-supplied internal components. The hardware maintenance covers a three-year period from date of the HP product purchase. The customer must purchase HP SupportPack within 90 days of the HP product purchase. Information on HP SupportPack is available in a fax format by calling HP FIRST (fax-on-demand service). The document number is 9036. See the HP Customer Care Service and Support pages at the front of this user's guide for appropriate HP FIRST phone numbers and information.



- Spare parts and consumables availability

Spare parts and consumable supplies for this product will be made available for at least 5 years after production has stopped.

Material Safety Data Sheets

The Toner Cartridge/Drum material safety data sheet (MSDS) can be obtained by contacting the HP LaserJet website at: <http://www.ljsupplies.com/planetpartners/datasheets.html>.

If you do not have access to the Internet, call the U.S. HP FIRST (fax-on-demand service) at (800) 231-9300. Use Index number 7 for a listing of the Toner Cartridge/Drum Material/Chemical Safety Data Sheets. Non-U.S. customers should refer to the front of this manual for appropriate HP FIRST phone numbers and information.



Declaration of Conformity

according to ISO/IEC Guide 22 and EN45014

Manufacturer's Name: Hewlett-Packard Company
Manufacturer's Address: 11311 Chinden Boulevard
Boise, Idaho 83714-1021, USA

declares that the product

Product Name: HP LaserJet 4050, 4050 T, 4050 N, 4050 TN
Model Numbers: C4251A, C4252A, C4253A, C4254A
Product Options: ALL

conforms to the following Product Specifications:

Safety: IEC 950:1991+A1+A2+A3+A4 / EN 60950:1992+A1+A2+A3+A4+A11
IEC 825-1:1993 / EN 60825-1:1994 Class 1 (Laser/LED)

EMC: CISPR 22:1993+A1 / EN 55022:1994 Class B ¹⁾
EN 50082-1:1992

IEC 801-2:1991 / prEN 55024-2:1992 -	4 kV CD, 8 kV AD
IEC 801-3:1984 / prEN 55024-3:1991 -	4 V/m
IEC 801-4:1988 / prEN 55024-4:1992 -	0.5 kV Signal Lines 1.0 kV Power Lines

IEC 1000-3-2:1995 / EN61000-3-2:1995
IEC 1000-3-3:1994 / EN61000-3.3:1995
FCC Title 47 CFR, Part 15 Class B ²⁾ / ICES-003, Issue 2 / VCCI-2 ¹⁾
AS / NZS 3548:1992 / CISPR 22:1993 Class B ¹⁾

Supplementary Information:

The product herewith complies with the requirements of the following Directives and carries the CE-marking accordingly:

- the EMC Directive 89/336/EEC
- the Low Voltage Directive 73/23/EEC

1. The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.
2. This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

January 15, 1997

For Compliance Information ONLY, contact:

Australia Contact: Product Regulations Manager, Hewlett-Packard Australia Ltd.,
31-41 Joseph Street, Blackburn, Victoria 3130, Australia

European Contact: Your Local Hewlett-Packard Sales and Service Office or
Hewlett-Packard GmbH, Department HQ-TRE / Standards
Europe, Herrenberger Straße 130, D-71034 Böblingen (FAX:
+49-7031-14-3143)

USA Contact: Product Regulations Manager, Hewlett-Packard Company, PO
Box 15 Mail Stop 160, Boise, ID 83707-0015 (Phone:
208-396-6000)



Safety Statements

Laser Safety Statement

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration has implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States. The printer is certified as a "Class 1" laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside the printer is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.



WARNING!

Using controls, making adjustments, or performing procedures other than those specified in this user's guide may result in exposure to hazardous radiation.

Canadian DOC Regulations

Complies with Canadian EMC Class B requirements.

«Conforme à la classe B des normes canadiennes de compatibilité électromagnétiques. «CEM».»

VCCI Statement (Japan)

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

取り扱い説明書に従って正しい取り扱いをして下さい。



Laser Statement for Finland

Luokan 1 laserlaite

Klass 1 Laser Apparat

HP LaserJet 4050, 4050 T, 4050 N, 4050 TN laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalisissa käytössä kirjoittimen suojakoteloitointi estää lasersäteen pääsyn laitteen ulkopuolelle. Laitteen turvallisuusluokka on määritetty standardin EN 60825-1 (1994) mukaisesti.



Varoitus!

Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

Varning!

Om apparaten används på annat sätt än i bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

HUOLTO

HP LaserJet 4050, 4050 T, 4050 N, 4050 TN -kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkilö. Tällaiseksi huoltotoimenpiteeksi ei katsota väriainekasetin vaihtamista, paperiradan puhdistusta tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehtäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suorittaa ilman erikoistyökaluja.

Varo!

Mikäli kirjoittimen suojakotelo avataan, olet alttiina näkymättömälle lasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.

Varning!

Om laserprinterns skyddshölje öppnas då apparaten är i funktion, utsätts användaren för osynlig laserstrålning. Betrakta ej strålen.

Tiedot laitteessa käytettävän laserdiodin säteilyominaisuuksista:

Aallonpituus 775-795 nm
Teho 5 mW
Luokan 3B laser



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.
bidirectional communication	Bidirectional communication enables the printer to respond to data inquiries from your computer and report back information such as what accessories are connected to the printer.
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.
duplex printing accessory (also called “duplexer”)	An optional accessory used for automatically printing on both sides of a sheet of paper.
enhanced input/output (EIO)	Printer accessory slots used for transferring data between the computer and printer. Modular I/O (MIO) accessories for older printers and the newer EIO technology are not compatible.
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.)
Mopier	An HP LaserJet printer equipped to deliver multiple original prints (or generate copies of a print job).
PCL 5e/6	HP’s printer control language.
PostScript Emulation	See <i>PS</i> .
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.
PS	PostScript Level 2 Emulation (or Level 1 Emulation for Windows 3.1x). A printer language provided with the printer.
RIP ONCE	The ability to create an image of a page and then save the compressed image in memory.
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 user's 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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