

HP LaserJet IIP *plus* Printer
User's Manual

HP LaserJet IIP *plus* Printer User's Manual



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What You Can Learn From This Manual

This manual introduces you to the HP LaserJet IIP *plus* printer: its features, operation, maintenance, and troubleshooting. This manual provides information for both first-time users of HP LaserJet printers and those already familiar with previous models of HP LaserJet printers.

Make sure you have successfully set up and configured your printer following the instructions in the *HP LaserJet IIP plus Printer Getting Started Guide* before using the features described in this manual.

For First-Time Users

This manual tells you how to operate and maintain the HP LaserJet IIP *plus* printer. You will also learn:

- How to begin using software application packages (such as word processing or spreadsheet programs) to access many of the printer's powerful features.
- How to use fonts and typefaces with your printer.
- How to use the printer control panel to manually select and set printer options.

For Experienced HP LaserJet Users

Read this manual for review and to learn about the HP LaserJet IIP *plus* printer's features. The operation of the control panel keys and indicators is similar to the LaserJet IIP model.

Manual Overview

The following paragraphs outline the information contained in this manual.

Chapter 1 – *Getting Acquainted with Your Printer*, provides an introduction to the printer features, accessory products, and an overview of key printer components.

Chapter 2 – *Using the Printer Control Panel*, describes the function and operation of the keys, indicators, and option menus.

Chapter 3 – *Printing from the Multi-Purpose Tray*, explains the different types of media that are used in the Multi-Purpose (MP) tray, and the different print jobs that utilize the Multi-Purpose tray.

Chapter 4 – *Using the Optional Lower Cassette*, gives instructions on using the Optional Lower Cassette. It also gives examples of special printing options which use the Optional Lower Cassette with the Multi-Purpose tray.

Chapter 5 – *Software and Your Printer*, shows how your software works with your printer.

Chapter 6 – *Using Type and Fonts*, is an overview of scalable typefaces and bitmapped fonts and how they are used by the printer.

Chapter 7 – *Printing With Your Software*, shows how to use your application software to accomplish common printing tasks.

Chapter 8 – *Maintenance and Adjustments* explains how to clean and care for your HP LaserJet IIP *plus* printer.

Chapter 9 – *Solving Printer Problems* explains how to fix occasional problems such as paper jams.

Chapter 10 – *Service and Support*, provides information you should know in the event your HP LaserJet IIP *plus* printer ever needs repair.

Related User Information

The *HP LaserJet IIP plus Printer User's Manual* contains information on using most of the printer's common features. If you need additional copies, order HP part number C2007-90935.

The related document, provided with your printer, contains information on how to install and configure your printer.

Your HP LaserJet IIP *plus* printer comes with:

- *HP LaserJet IIP plus Printer Getting Started Guide* (HP part number C2007-90941): Leads you through the successful set-up and configuration of your printer.

Read it first!

You may order a copy of the following technical manual by calling 0374-441212 in the United Kingdom and (0130) 3322 in Germany. (This manual is available in U.S. English only):

- *The LaserJet IIP Printer Technical Reference Manual* (HP part number 33471-90905): Explains the PCL 4 printer language for experienced users and programmers.

Contents

1. Getting Acquainted with Your Printer	
Introduction	1-1
Key Features	1-1
Operating and Maintenance Features . . .	1-3
Accessories	1-4
HP LaserJet IIP <i>plus</i> printer Parts	1-5
The Multi-Purpose Tray	1-6
Inside Front of the Printer	1-7
Opening the Paper Path Door	1-8
Inside the Paper Path Door	1-9
Back of the Printer	1-10
Guidelines for Buying Paper and Other Print Media	1-11
Upgrading Your Printer with Accessories . .	1-12
2. Using the Printer Control Panel	
Introduction	2-1
When to Use the Control Panel	2-2
Control Panel Layout	2-2
The Control Panel Display	2-3
Printer Messages	2-3
Menu Items	2-3
Processing-Data Icon	2-4
Selection-Made Icon	2-4
The Control Panel Indicators	2-4
On-Line Indicator	2-5
Form Feed Indicator	2-5
The Control Panel Keys	2-5
The ON LINE Key	2-6
The FORM FEED Key	2-6

The ALT Key	2-7
The Test Key	2-7
The Print Fonts Key	2-8
The Continue Key	2-8
The Reset Key	2-9
Printer Reset (07 RESET)	2-9
Printing Menu Reset (09 MENU RESET)	2-9
The MENU Key	2-10
The +/- Key	2-10
The ENTER Key	2-11
Selecting Printing Menu Items	2-11
Example	2-12
MP Size	2-12
Number of Copies To Print	2-13
Font Source and Font Number	2-13
Trays	2-13
TRAYS LC ONLY	2-14
TRAYS BOTH	2-14
TRAYS MP TRAY	2-15
TRAYS LC TRAY	2-15
Job Size	2-15
Printing on Odd-Sized Paper	2-16
Orientation	2-17
Lines of Text	2-18
Manual Feed	2-19
Symbol Sets	2-19
Selecting Configuration Menu Items	2-21
Example	2-21
Auto Continue	2-21
Interface Type and Configuration	2-22
Printer Default Settings	2-22
Priority of Commands	2-23
Factory Default Settings	2-23
User-Selected Default Control Panel	
Settings	2-25
Displaying Messages in Other Languages	2-25
The Self Test Printout	2-27
Understanding the Self Test	2-27

3. Printing from the Multi-Purpose Tray	
Introduction	3-1
About the Multi-Purpose Tray	3-2
Using the Multi-Purpose Tray	3-3
Selecting the Control Panel Menu Items	3-3
Selecting TRAYS	3-4
Selecting MP SIZE	3-4
Selecting JOB SIZE	3-6
Preparing the Multi-Purpose Tray	3-7
Multi-Purpose Tray Extender	3-8
Loading the Multi-Purpose Tray	3-8
Selecting the Output Path	3-11
Printing	3-12
Example - Printing Using Legal-Size Paper	3-12
Changing the TRAYS Setting	3-13
Changing the MP SIZE Setting	3-13
Changing the JOB SIZE Setting	3-14
Output Path Selection	3-14
Manual Feed Printing	3-15
Attended Manual Feed	3-15
Example - Manually Feeding Paper	3-16
Example - Manually Feeding DL Envelopes	3-18
Formatting the Address to Fit on the Envelope	3-18
Set the Control Panel	3-19
Load an Envelope	3-20
4. Using the Optional Lower Cassette	
Introduction	4-1
About the Optional Lower Cassette	4-1
TRAYS - New Control Panel Menu Item	4-2
Using the Optional Lower Cassette	4-3
Selecting the Control Panel Menu Items	4-3
Selecting TRAYS	4-3
Selecting JOB SIZE	4-4
Preparing the Optional Lower Cassette	4-5
Selecting the Output path	4-9
Printing	4-10

MP Priority Feed	4-11
Using MP Priority Feed	4-11
Using Different Input Trays	4-13
Example - Using the Legal Tray	4-13
Setting Up the Control Panel	4-13
Setting Up the Printer	4-14
Example - Using the Envelope Tray	4-18
Loading Envelopes into the Tray	4-19
Installing the Envelope Tray	4-21
Responding to the Control Panel Display	4-21
Selecting the Envelope Tray from the	
Control Panel	4-23
Selecting the Front Output Path	4-24
Printing the Envelope	4-24
5. Software and Your Printer	
Introduction	5-1
How Software Works With the Printer	5-2
What are Printer Commands?	5-2
Software That Uses Drivers	5-3
Driver Availability	5-3
Software That Uses Set-Up Strings	5-4
Software That Uses Embedded Printer	
Commands	5-6
AutoFont Support	5-7
Type Director	5-8
Software Applications	5-8
Automatic Support	5-8
PCL Soft Font Support	5-9
Software Utilities	5-9
PCL Printer Language Mode	5-10
How to Use PCL Printer Commands	5-12
Combining PCL Printer Commands	5-14

6. Using Type and Fonts	
Introduction	6-1
What Are Typefaces?	6-2
What Are Fonts?	6-3
Bitmapped Fonts	6-3
HP LaserJet IIP <i>plus</i> Printer Type Offering .	6-3
Default Font	6-4
Point Size	6-4
Choosing Point Sizes	6-5
Spacing	6-5
Pitch	6-6
Style and Stroke Weight	6-7
Symbol Set	6-7
The Font Rotation Feature	6-9
Typeface and Font Cartridges	6-10
Installing Font Cartridges	6-10
Selecting Default Cartridge Fonts	6-12
Soft Fonts	6-12
Downloading Bitmapped Fonts	6-13
Downloading Fonts Using Type Director .	6-13
Permanent or Temporary Status	6-14
Soft Font Identification Numbers	6-14
Soft Font Hints	6-15
The Font Printout	6-16
Selecting Fonts	6-19
Selection Priority	6-20
Selecting Fonts Using Software Applications .	6-20
Selecting Fonts Using Printer Commands .	6-21
Selecting Fonts Using the Control Panel .	6-23
Example – Selecting Fonts From the	
Control Panel	6-23
Special Application Fonts	6-25
Custom Font Cartridges, Macro Cartridges, and Soft Fonts	6-25

7. Printing With Your Software	
Introduction	7-1
Supported Fonts	7-1
Installation	7-3
Printer Installation	7-3
Installing Fonts	7-4
Selecting a Printer Port	7-4
Common Tasks	7-5
Selecting Fonts	7-5
Changing Orientation	7-6
Using Supported Paper Sizes	7-7
Formatting Labels	7-8
Manually Feeding Paper	7-8
Dual Bin Printing	7-9
Setting Margins	7-9
Printing Special Characters	7-10
Accessing Special Characters	7-10
Drawing Lines and Boxes	7-11
Sending Code to the Printer	7-12
Common Problems	7-13
Pages Do Not Eject	7-13
Creeping Text	7-13
Incorrect Font	7-14
LC Load Exec, or MP Load Exec	7-15
Printer Not Ready	7-15
Blank or Extra Pages	7-16
ERROR 20	7-17
ERROR 21	7-17
Other Problems	7-17
8. Maintenance and Adjustments	
Introduction	8-1
Ensuring Good Print Quality	8-2
Using Toner Cartridges	8-3
Storing the Toner Cartridge	8-3
Replacing the Toner Cartridge	8-4
Extending the Life of the Toner Cartridge	8-12
Cleaning the Printer	8-13

Generating the Cleaning Paper	8-13
Cleaning the Inside of Your Printer	8-20
Cleaning the Outside of Your Printer	8-22
Adjusting Print Density	8-23

9. Solving Printer Problems

Topics Covered in this Chapter	9-1
Printer Display Messages	9-2
Solving Print Quality Problems	9-11
Problem Solving Checklist	9-18
Preventing Paper Jams	9-23
Clearing Jams	9-25
Paper Pick-Up Area	9-26
Fuser Area	9-28
Pick-Up and Fuser Areas	9-31
Preventing Multiple Feeds	9-32
Troubleshooting Font Problems	9-33
Troubleshooting Manual Feed	9-35
Solving Typical Envelope Problems	9-36
MP LOAD Message	9-36
Multiple Feeds	9-36
Frequent Jamming	9-37
Print Quality	9-37
Blank Envelopes	9-38
Wrong Margins	9-38
Wrinkling	9-38
Commonly Asked Questions	9-39



10. Service and Support

Introduction	10-1
Assistance from Your Organization	10-1
Assistance from Your Local Dealer	10-1
Hardware Repairs	10-2
HP Maintenance Agreements	10-3
On-Site Service Agreements	10-3
Customer Return Service	10-3
Per-Incident Repair Services	10-4
Dealer Sponsored Service Agreements	10-4

Warranty	10-4
One-Year Limited Warranty	10-4
Exclusions	10-5
Warranty Limitations	10-6
Service During the Warranty Period	10-7
Service After the Warranty Period	10-7
Repacking Guidelines for Returning Your Printer	10-8
A. Printer Commands	
Introduction	A-1
B. Symbol Sets	
Symbol Set Tables	B-1
Shaded Areas	B-1
Software Support	B-2
Control Panel Display and PCL Symbol Set Values	B-2
ISO Substitution Table	B-9
Control Codes	B-10
Conversion Table	B-10
C. Printer Specifications	
Location Guidelines	C-1
Physical Dimensions	C-2
Electrical Requirements	C-3
Environmental Specifications	C-3
FCC Regulations	C-4
Safety Information	C-5
Laser Safety	C-5
CDRH Regulations	C-5
Finnish Laser Statement	C-6
German Regulations	C-8
ZZF Declaration Statement	C-8
Ozone Emission	C-9
UL Standards for Ozone	C-9
Employer Responsibilities	C-9
Toner Safety and Care	C-10

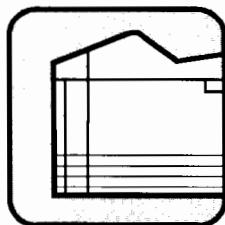
Toner Cartridge Recycling Program	C-10
D. Configuration	
Introduction	D-1
Parallel Interface	D-1
E. Selecting Paper and Other Print Media	
Introduction	E-1
Paper and Pre-printed Forms	E-2
Colored Paper with Heat Resistant Pigments	E-2
Heavy Paper Stock	E-2
Forms Pre-printed with Heat-Resistant Ink	E-2
Papers to Avoid	E-3
Adhesive Labels	E-3
Label Construction	E-3
Overhead Transparencies	E-4
Use the Front Output Path	E-4
Ordering Transparency Film	E-4
Envelopes	E-4
Business Envelopes	E-5
Double Side Seam Envelopes	E-5
Envelopes with Adhesive Strips	E-5
Sizes	E-5
Envelopes to Avoid	E-5
F. Memory Board Installation	
General	F-1
Protect Yourself and the Board	F-2
Install The Board	F-3
In Case Of Difficulty	F-11
Memory Board Removal	F-12

Index

Contents-10

Getting Acquainted with Your Printer

Introduction



This chapter will give you an overview of the features of the HP LaserJet IIP *plus* printer. It will also introduce you to the major components of your printer as well as the optional accessories that are available.

Key Features

The HP LaserJet IIP *plus* printer, Model C2007AB, offers the advantage of a compact printer design featuring:

- Faster processor for quickest-ever first page out.
- 70-sheet paper input.
- PCL 4 Printer Language, including commands for software compatibility with other HP LaserJet printer models.
- Auto-rotation for fonts. Print images rotate automatically as the page orientation is changed, eliminating the need for separate landscape fonts.
- Internal symbol set support.

- Fourteen internal bitmapped fonts (Figure 1-1).

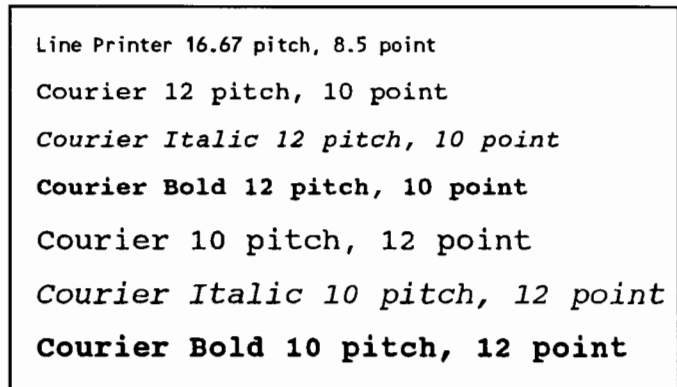


Figure 1-1.
Sample HP LaserJet IIP_{plus} Printer Internal Fonts

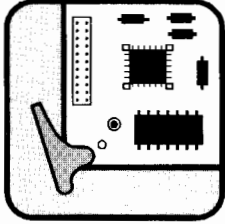
- Printer messages displayed in your choice of five languages: English, French, German, Italian, and Spanish.
- One font-cartridge slot which accommodates all HP LaserJet family compatible bitmapped font cartridges. The slot also accommodates HP personality cartridges such as the PostScript™ and Epson FX/IBM Proprinter cartridge as well as the HP PCL5 cartridge.
- 512K of base RAM memory and two memory slots to hold additional memory upgrades. The printer prints text and half-page graphics at 300 dpi with the standard base memory, and full-page graphics at 150 dpi. When at least 1 megabyte of additional memory is installed, full-page graphics will print at 300 dpi.
- Centronics parallel printer interface.

1-2 Getting Acquainted with Your Printer

Operating and Maintenance Features

- Quiet and fast: The HP LaserJet IIP *plus* printer quietly prints high-quality output up to 4 pages per minute. (Actual print speed depends on data complexity and software data handling efficiency.)
- Sophisticated paper handling. The HP LaserJet IIP *plus* printer comes with the HP LaserJet IIP *plus* printer Multi-Purpose (MP) paper tray, Hewlett-Packard's most flexible paper tray, designed to hold up to:
 - 70 sheets of letter, A4, legal, or executive paper.
 - 5 envelopes.
 - 18 sheets of labels.
 - 25 transparencies.
- A correct-order face-down output path, and a reverse-order face-up output path to provide maximum paper handling flexibility.
- Supports a wide range of paper and other print media sizes and types, including envelopes, labels, and overhead transparencies.
- Easy-to-use control panel for default print job and configuration selections.
- Simple maintenance procedures to maintain high-quality output.
- A toner cartridge that is easy to replace.

Accessories



Some accessories available for the HP LaserJet IIP *plus* printer are:

- **Memory:** Up to 4 megabytes of additional memory, in 1 or 2 megabyte increments may be added for a total of 4.5 megabytes.
- **Optional Lower Cassette and base.** This changes your printer into a dual-bin machine and increases the printer's total paper input capacity from 70 to 320 sheets.
- **Type Director utility:**
 - Installs accessory type and soft fonts.
 - Provides enhanced screen font resolution.
 - Features sophisticated type and font management.

To order these options or any of the accessory products for your HP LaserJet IIP *plus* printer, contact your local authorized Hewlett-Packard dealer.

HP LaserJet IIP *plus* printer Parts

The following illustrations identify important parts of the printer that will be referred to later in this manual.

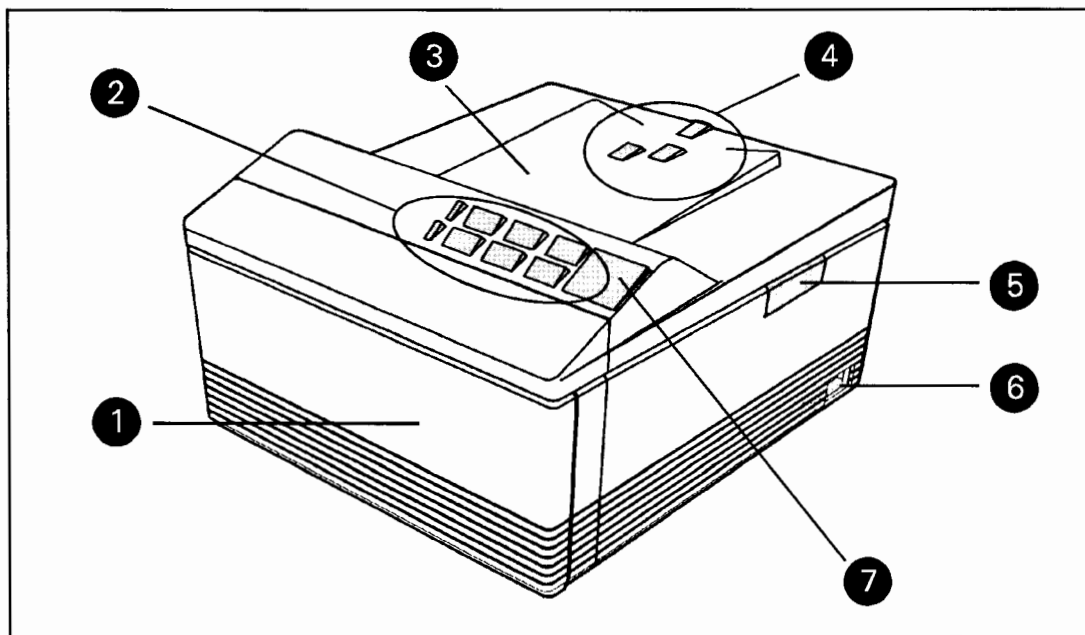


Figure 1-2. Top and Right Side of the Printer

- | | |
|---------------------------------|------------------------|
| 1. Multi-Purpose (MP) Tray door | 5. Font cartridge slot |
| 2. Control panel | 6. Power switch |
| 3. Top output tray | 7. Display |
| 4. Paper stops | |

The Multi-Purpose Tray

Open the Multi-Purpose (MP) tray by pulling down on the left and right sides of the Multi-Purpose tray door, as shown in figure 1-3.

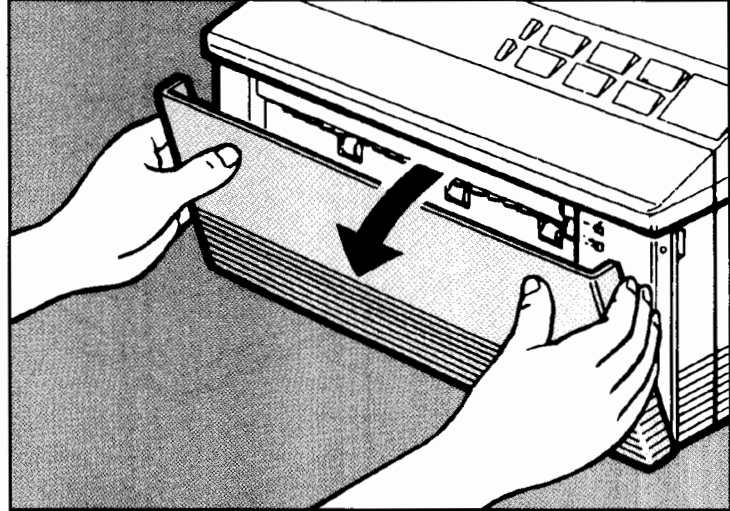


Figure 1-3. Opening Multi-Purpose Tray Door

Inside Front of the Printer

Once you pull down the Multi-Purpose tray door on the front of the printer, the following parts are visible.

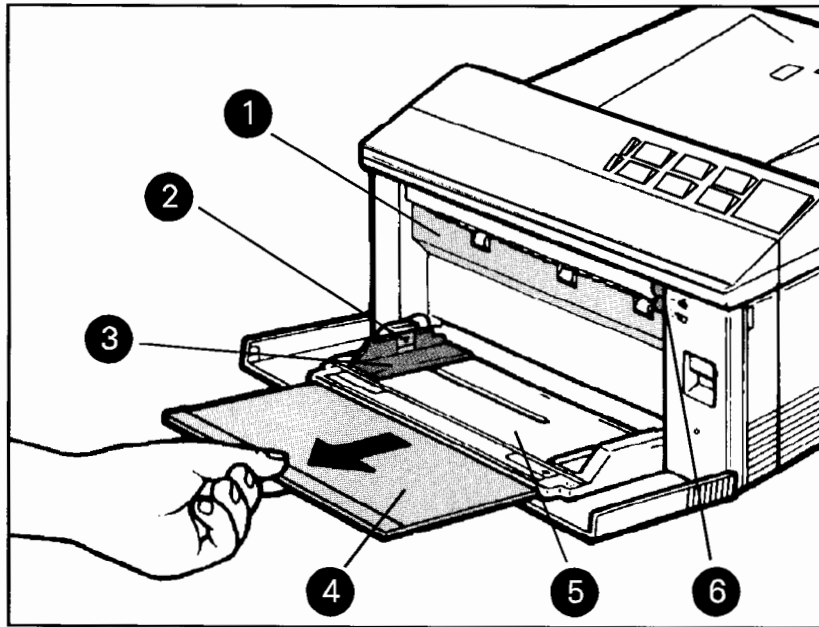


Figure 1-4. Inside Multi-Purpose Tray Door

- 1. External fuser access door
- 2. Paper fill arrow
- 3. Media width adjuster
- 4. Multi-Purpose tray extender
- 5. Multi-Purpose tray
- 6. Output path selector button

Opening the Paper Path Door

1. Open the paper path door by pushing upward on the paper path door release button ①. It is located on the right front side of the printer when the Multi-Purpose tray door is open.
2. Pull down on the paper path door ②.

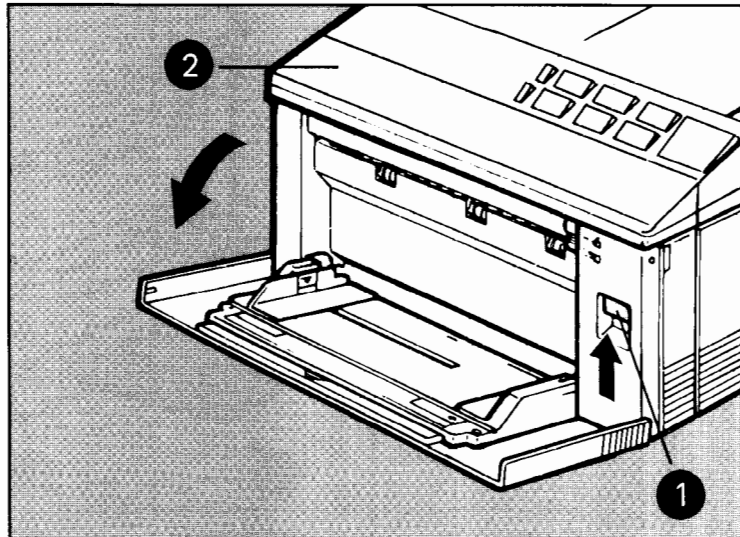


Figure 1-5. Open Paper Path Door

1. Paper path door release button
2. Paper path door

Inside the Paper Path Door

Once you have opened the paper path door, the following parts are visible:

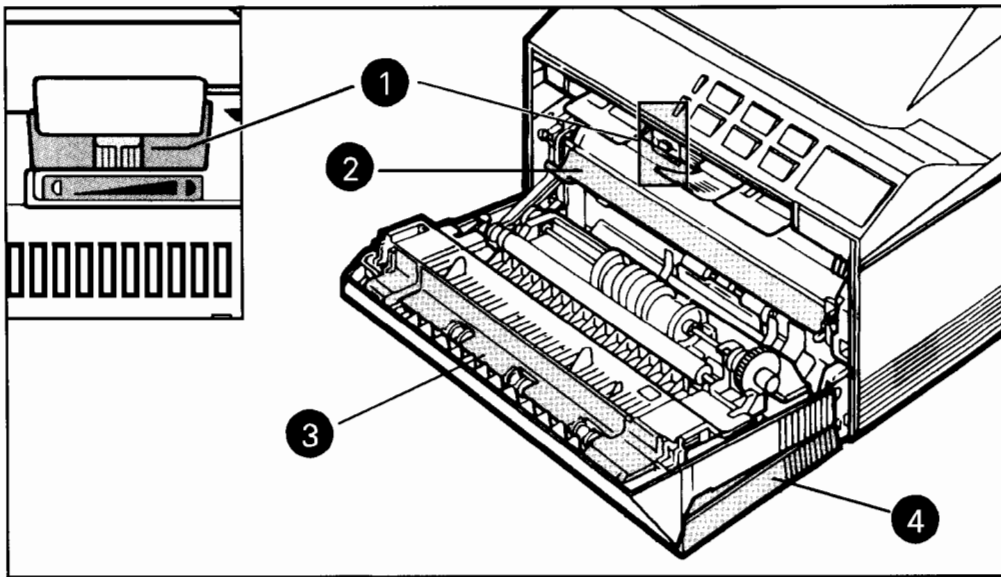


Figure 1-6. Inside the Paper Path Door

1. Print density slide
2. Toner cartridge (installed)
3. Internal fuser access door
4. Multi-Purpose tray door

Back of the Printer

The following parts are located on the back of the HP LaserJet IIP *plus* printer.

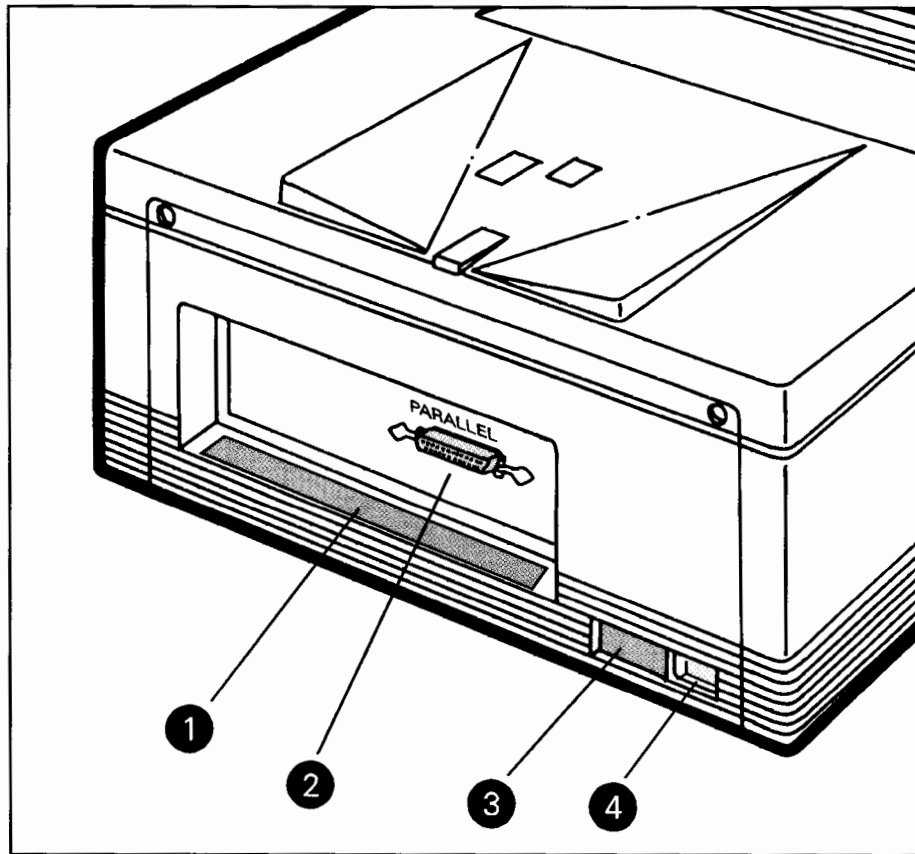


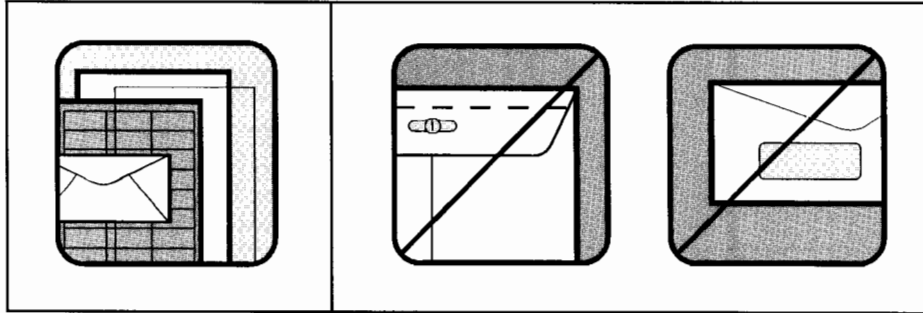
Figure 1-7. Back of the Printer

- | | |
|-------------------------------------|-------------------------------|
| 1. Model number/certification label | 3. Serial number/power rating |
| 2. Parallel interface port | 4. Power cord receptacle |

Guidelines for Buying Paper and Other Print Media

The HP LaserJet IIP *plus* printer is designed to use a wide variety of paper, labels, transparencies and envelopes. However, not all print media is suitable for use with laser printers.

For example, you must be sure that envelopes do not have clasps that could damage the printer mechanism, or windows that could melt in the toner fusing process.



Refer to appendix E, “Selecting Paper and Other Print Media” for more information on selecting the appropriate paper and other print media for use with your printer.

Upgrading Your Printer with Accessories

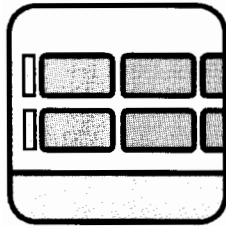
You can increase the capabilities of the HP LaserJet IIP *plus* printer by adding the following accessories. For ordering information, see the *HP LaserJet Accessory Catalog*.

Table 1-1. Printer Options

Accessory	HP Part Number	Uses
Memory Board	33474B - (1 Mb) & 33475B - (2 Mb)	Provides 1 or 2 megabytes of additional memory - for full page 300 dpi graphics. <i>4 megabyte maximum - up to two boards maximum.</i>
Optional Lower Cassette	33472A - letter 33472B - A4	Includes a paper tray that holds an additional 250 sheets of paper, converts the HP LaserJet IIP <i>plus</i> printer into a dual bin machine.
Extra paper trays for the Optional Lower Cassette	92275B - letter 92275C - legal 92275D - A4 92275E - Executive	Holds 250 sheets - letter, legal, executive, or A4 paper sizes.
Envelope Tray for the Optional Lower Cassette	92275F - envelopes	Holds 20 envelopes in Optional Lower Cassette Base.
Extensive Font Collection	See <i>HP LaserJet Accessory Catalog</i>	Enhances your printing capabilities.
EP-L Toner Cartridge	92275A	Toner cartridge for HP LaserJet IIP printer, black print.

Using the Printer Control Panel

Introduction

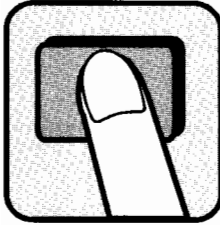


The control panel of the HP LaserJet IIP *plus* printer enables you to set up the printer for a variety of printing jobs, page formats, and printer interface configurations.

This chapter tells you:

- When to use the control panel.
- The layout of the control panel.
- How to use keys and indicators.
- How to select items in the Printing Menu.
- How to select items in the Configuration Menu.
- How to select the local display language.
- How to print and understand self test pages.
- The printer's default settings.

When to Use the Control Panel



Ideally, your computer's software will send all the necessary commands to set up your print jobs. **Software commands will override most of the corresponding control panel settings.** However, the degree of printer support varies among software manufacturers. Hewlett-Packard has designed the control panel to enable you to make selections manually when your software application does not.

Here are some of the main reasons you would want to use the control panel:

- To inform the printer you changed the size of the paper in the Multi-Purpose tray.
- To make a print selection your software does not allow you to make, such as symbol set selection.
- To print a partial page of data using the **FORM FEED** key.
- To identify the available printer fonts using the Font Printout.
- To reset the printer.
- To print a diagnostic self test.
- To generate a sheet of Cleaning Paper.
- To switch between on-line and off-line status.

Note



Remember, commands issued through a software application will override control panel selections.

Control Panel Layout

The control panel consists of the following parts:

- The display.
- The indicators.
- The keys.

The following figure shows the control panel layout:

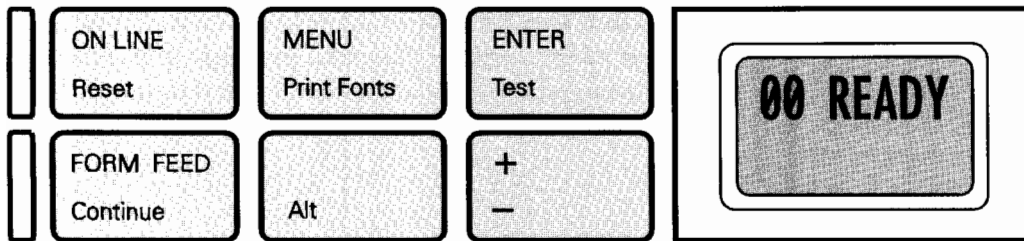


Figure 2-1. The Control Panel

The Control Panel Display

The display shows:

- Printer messages.
- Menu items and their associated selectable values.
- The Processing-Data icon.
- The Selection-Made icon.



Printer Messages

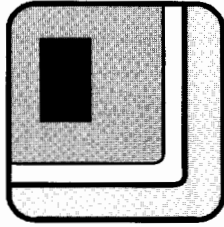
As you use your printer, you will often see **printer messages**. These messages keep you aware of the printer's current operating mode.

For example, 00 READY in the first line of the display tells you that your printer is ready to perform a printing task. See chapter 9 for a complete list of printer messages.

Menu Items

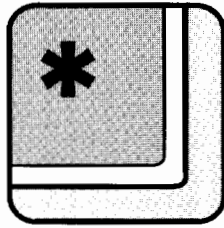
When you use the control panel to select items such as number of copies or paper size, the display lists your available choices.

For example, in the Printing Menu, the display lists the numbers 1-99 as the number of copies choices.



Processing-Data Icon

This icon appears as a black rectangle in the lower-right corner of the display. The black rectangle blinks off and on when the printer is receiving data or processing data into a print image.



Selection-Made Icon

This icon appears as an asterisk (*) in the lower-right corner of the display. This asterisk appears after you click the **ENTER** key to select and save the currently displayed menu choice. As you step through the menu choices, you will see an asterisk (*) next to the choice currently selected (the current default setting).

The Control Panel Indicators

The control panel has the following indicators:

- On-Line indicator.
- Form Feed indicator.

The following figure shows the control panel indicators:

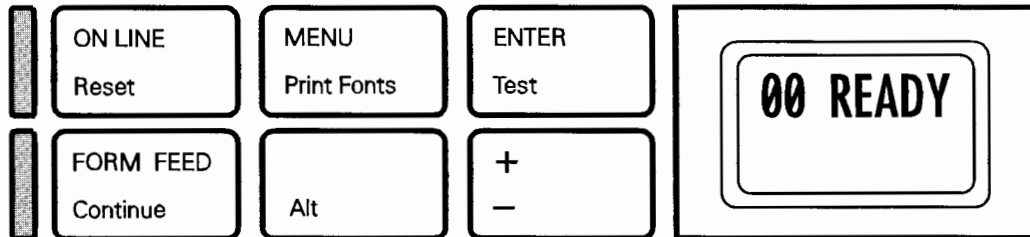
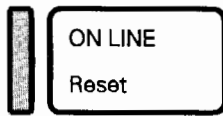


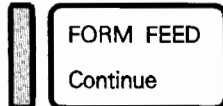
Figure 2-2. The Control Panel Indicators

2-4 Using the Printer Control Panel



On-Line Indicator

The green plastic indicator to the left of the **ON LINE** key is lit when the printer is on-line and ready to receive data. If the indicator is not lit, the printer is off-line. If you take the printer off-line while it is printing, the indicator flashes as it attempts to finish printing and go off-line.



Form Feed Indicator

The plastic indicator to the left of the **FORM FEED** key is lit when there is print data stored in the printer's memory. This indicator flashes while data in the memory is being printed after you click the **FORM FEED** key. The indicator also flashes when information, such as a soft font, is being downloaded to the printer.

If the printer finishes printing a job, but the Form Feed indicator remains on, there is still print data in the printer's memory that has not been printed. Take the printer off-line and click **FORM FEED** to print the stored data.

If you turn off the printer or perform a control panel reset when the Form Feed indicator is lit, you will lose the data stored in memory.

The Control Panel Keys

The control panel has the following keys:

- ON LINE/Reset.
- FORM FEED/Continue.
- MENU/Print Fonts.
- Alt.
- ENTER/Test.
- +/-.

Several of the keys perform two functions, such as the **MENU/Print Fonts** key. To perform the function listed on the

top of a control panel key, momentarily press and then release the key. This action is called “clicking” the key.

To activate the function listed on the bottom of a key, press and hold down the **Alt** key while you click the desired key.

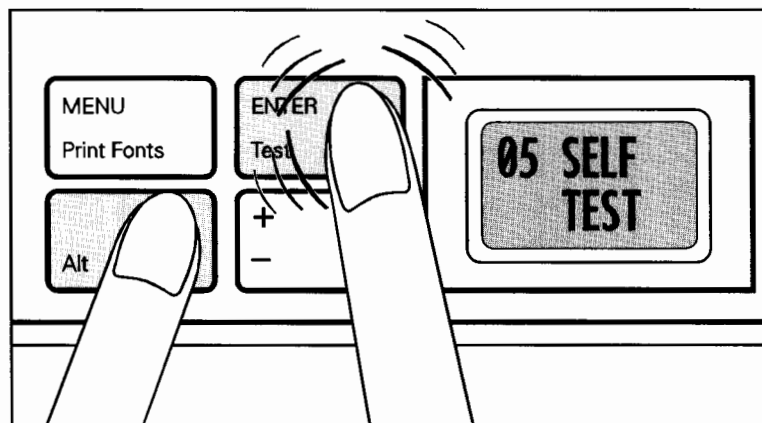
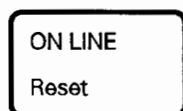


Figure 2-3. Using the **Alt** Key to Access Other Functions

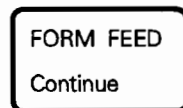
The ON LINE Key



This key switches the printer between a ready-to-receive data state, called **on-line**, and a not-ready-to-receive data state, called **off-line**. To take the printer *off-line* or put it *on-line*, click the **ON LINE** key.

If you are sending data from your computer to your printer, the printer must be placed on-line (the green On-Line indicator is lit.)

The FORM FEED Key



Clicking the **FORM FEED** key tells the printer to print all the stored print data, if any. Clicking the **FORM FEED** key does not force a blank sheet of paper through the printer.

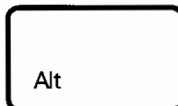
If the last page stored in the printer’s memory is not a full page, and if your software does not send a command to print this data, the Form Feed indicator will remain lit.

2-6 Using the Printer Control Panel

To print out this stored data:

- Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
- Click the **FORM FEED** key. The stored print data will print.
- Click the **ON LINE** key to put the printer back on-line. The green On-Line indicator will go on.

The ALT Key

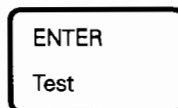


To use the functions listed on the bottom half of the control panel keys:

- Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
- Hold down the **Alt** key and click the desired key.

For example, holding down the **Alt** key and clicking the **Print Fonts** key accesses the print fonts function, producing a Font Printout.

The Test Key



The **Test** key can be used to perform a self test. To perform a self test:

- Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
- Hold down the **Alt** key and click the **Test** key. \emptyset 5 SELF TEST appears. This causes the printer to test its built-in controller. The self test takes approximately 30 seconds to complete, and will take longer if accessory memory boards have been installed.

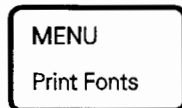
Note



If \emptyset 4 SELF TEST appears, click the **ON LINE** key to stop the continuous self test. Up to 6 more pages will print. \emptyset 4 SELF TEST appears when you hold down the **Test** key for more than 5 seconds while performing a self test.

During the print portion of the self test, the printer displays Ø6 PRINT TEST and prints out two pages. One page contains test patterns and a list of the current printer settings. Refer to “Understanding the Self Test” later in this chapter for an explanation of the self test. The second page printed during a self test is the *printer generated cleaning paper*. Use this cleaning paper to clean the printer when changing toner cartridges. Refer to “Cleaning the Printer” on page 8-13.

The Print Fonts Key

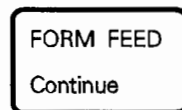


To produce the Font Printout which shows all the fonts that are available in the printer:

- Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
- While holding down the **Alt** key, click the **Print Fonts** key. A Font Printout is generated. There may be some delay in printing the Font Printout while the printer creates the fonts.

Several pages showing samples of characters from each font currently available in the printer will print. The Font Printout is explained in chapter 6.

The Continue Key



To override printer messages and return the printer on-line:

- Hold down the **Alt** key and click the **Continue** key. The printer message should clear.

Printer messages and their recommended actions are described in chapter 9.

You can also use the **Continue** key to override a request to load paper of a different size than you currently have in the input tray. For example, if the printer displays the MP LOAD LEGAL and you have letter-size paper in the Multi-Purpose tray, using **Continue** puts the printer back on-line.

2-8 Using the Printer Control Panel

The printer then begins printing the data it receives, having formatted it to the requested size (legal), but printing on the paper available (letter). If the paper in the tray is not the same size as the requested size, some printed data may be missing (clipped), or the page may be formatted to an odd size.

Note



When print data is clipped by overriding a paper request, black streaks may appear on the back of the next printed page.

The Reset Key

ON LINE

Reset

The **Reset** key allows you to perform two types of printer resets, a Printer reset (Ø7 RESET) and a Printing Menu reset (Ø9 MENU RESET).

Printer Reset (Ø7 RESET)

To clear all software settings, temporary soft fonts, temporary macros, and stored print data from the printer memory, and to tell the printer to begin using the user-selected defaults from the control panel:

- Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
- Hold down the **Alt** key and click the **Reset** key. The display shows Ø7 RESET.

Perform a Printing Menu reset when the printer needs to be returned to the Printing Menu selections you have made through the control panel. These selections are the “user default settings.”

Caution



Performing a reset while a job is printing may cause data loss.

Printing Menu Reset (Ø9 MENU RESET)

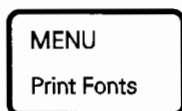
A secondary function of the **Reset** key is the Ø9 MENU RESET, which returns all Printing Menu items (including

your TRAYS selection *if* you have an Optional Lower Cassette installed) to their factory default settings (listed later in this chapter). Menu reset also clears temporary soft fonts, temporary macros, and stored print data from the printer's memory.

To access the Printing Menu reset function:

- Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
- Hold down the **Alt** key, and at the same time hold down the **Reset** key for at least 5 seconds, until Ø9 MENU RESET appears in the display.

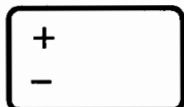
The MENU Key



The **MENU** key allows you to access the Printing and Configuration Menus. The Printing Menu allows you to select user default job and page formatting choices from the control panel, if you cannot specify these choices through your software. See “Selecting Printing Menu Options” later in this chapter.

The Configuration Menu allows you to make selections to configure your printer so it will communicate with your computer. The Configuration Menu also allows you to change the Autocontinue and interface settings. See “Selecting Configuration Menu Options” later in this chapter.

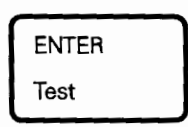
The +/- Key



The **+/-** key allows you to display the next (+) or previous (-) value for the current Configuration or Printing Menu item. For example, if the display shows COPIES 3, clicking the **+** changes the message to COPIES 4. Holding down the **Alt** while clicking the **-** key changes the message back to COPIES 3.

Holding down either of these keys scrolls quickly through all of the choices available for that menu item.

The ENTER Key



The **ENTER** key allows you to select Printing and Configuration Menu choices, or access the Configuration Menu.

To select Printing and Configuration Menu choices:

- Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
- Use the **MENU** key and the **+/-** to find your choice.
- Click the **ENTER** key.

After you click the **ENTER** key, an asterisk (*) appears next to your choice, showing it has been saved. When the printer is placed back on-line, the printer is automatically reset.

Selecting Printing Menu Items

This section describes the items available in the Printing Menu. Listed in order of appearance, these items include:

- MP SIZE (size of paper loaded in Multi-Purpose tray).
- COPIES (number of copies).
- FONT SRC (font source).
- FONT NUM (font number).
- TRAYS (input trays).
- JOB SIZE (printed image size).
- ORIENT (orientation).
- LINES OF TXT (lines of text).
- MAN FEED (manual feed).
- SYM SET (symbol set).
- DEVICE CONFIG (the Configuration Menu).

Note

Most software applications select the Printing Menu items discussed in the following paragraphs. If you know that your software allows you to specify these menu items (such as number of copies, font changes, etc.) you do not need to read this section further.

Example

The following example shows you how to select a Printing Menu item.

- Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
- Click the **MENU** key until the Printing Menu item that you want to change appears in the first line of the display (for example, COPIES).
- Click the **+/-** key until the value you want to set for that Printing Menu item is displayed (for example, 3).
- Click the **ENTER** key to save your choice. An asterisk (*) appears in the display.
- Click the **ON LINE** key to put the printer back on-line.

MP Size

The first item displayed is usually MP SIZE. Because the Multi-Purpose (MP) tray does not have sensors to tell the printer what size paper is being used, you must use the control panel to give the printer this information.

Your choice will remain as the selected MP SIZE until you change it again, using the control panel. A Printer reset or Printing Menu reset does not affect this setting.

Refer to “Using the Multi-Purpose Tray” on page 3-3, or “Using the Optional Lower Cassette” on page 4-3. These sections give complete instructions on setting the MP SIZE, TRAYS, and JOB SIZE menu items.

Note



If you have an Optional Lower Cassette installed and you have configured the menu item TRAYS LC ONLY*, MP SIZE does not appear. Instead, the first menu item as you enter the Printing Menu is COPIES.

Number of Copies To Print

The COPIES menu item tells the printer how many copies of each page to print. You can print up to 99 copies. The printer does not collate the pages. Rather, it will print the requested number of the first page, and then print the requested number of the next page, and so on.

Font Source and Font Number

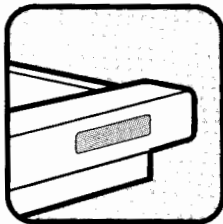
The FONT SRC and FONT NUM menu items allow you to select the default font. If you do not know the source and font number, print a Font Printout to find out. (See "The Font Printout" on page 6-19.)

Note



If you change to a new page orientation or font symbol set, the control panel font selection returns to the factory default setting. You must then select your font again using the Printing Menu as described in chapter 6. Because font numbers change, be sure to check the font number on the new Font Printout.

Trays



The TRAYS menu item will only appear in the Printing Menu if you have installed the Optional Lower Cassette. The choices under the TRAYS item allow you to program the printer to use paper from the Multi-Purpose (MP) tray, the Optional Lower Cassette (LC) tray, or from both trays.

You can use the printer's dual-bin capability to increase the amount of paper you can place in the printer and to enable the printer to hold two different types of paper. For example, you can place plain paper in the Optional Lower Cassette and letterhead or envelopes in the Multi-Purpose tray.

You can set up the printer to feed from either input tray as shown in figure 2-4.

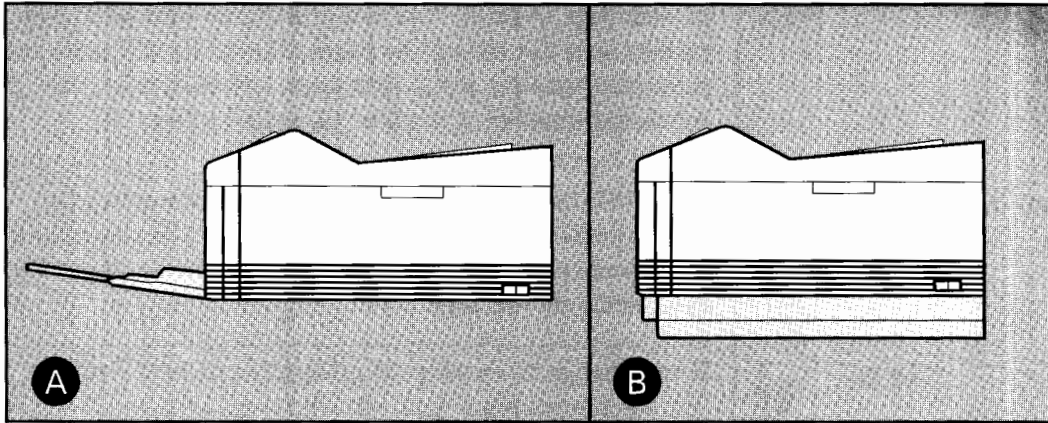


Figure 2-4. Input Trays

- Ⓐ Multi-Purpose - MP Tray
- Ⓑ Optional Lower Cassette - LC Tray

TRAYS LC ONLY

When you install the Optional Lower Cassette, the Printing Menu item, TRAYS LC ONLY * appears. This selection is the factory default setting. It directs the printer to feed paper automatically from the Optional Lower Cassette *only*.

Note



If TRAYS LC ONLY is selected, the Multi-Purpose tray will *only* be used when you select manual feed from the control panel or application software, or use the Optional Lower Cassette override feature, MP priority feed. Refer to page 4-11 for information on the MP priority feed.

TRAYS BOTH

If TRAYS BOTH is selected, and both trays contain the same size paper, the printer begins printing from the Optional Lower Cassette. When the Optional Lower Cassette tray is empty, the printer continues printing from the

Multi-Purpose tray (if you have set the MP SIZE on the control panel to match the size of paper in your Optional Lower Cassette).

If the trays contain different sizes of paper and the MP SIZE setting matches the size of the paper in the Multi-Purpose tray, the printer will automatically pull paper from the tray with the paper size that matches the JOB SIZE menu selection or the job size sent by your software.

TRAYS MP TRAY

If TRAYS MP TRAY is selected, the printer pulls paper automatically from the Multi-Purpose tray. The printer will pull paper from the Optional Lower Cassette only when your software sends a command to do so.

TRAYS LC TRAY

If TRAYS LC TRAY is selected, the printer pulls paper automatically from the Optional Lower Cassette. The printer will pull paper from the Multi-Purpose tray only when your software sends a command to do so, or during an attended manual feed.

Job Size

The printer uses the JOB SIZE setting to format computer data for each page into an image before it pulls a sheet of paper from an input tray.

Many software packages allow you to select the “paper size” (called “job size” in the HP LaserJet IIP *plus* printer) through menus in the software program. When you choose paper size in this way, the formatting commands from your software will override the JOB SIZE selection in the printer’s control panel.

If your software application does not send a printer command telling the printer what size image to use for text, the printer formats the data to the image size specified in the control panel JOB SIZE item. **If this is the case,**

you should make sure the current control panel JOB SIZE setting matches the MP SIZE or the Optional Lower Cassette tray size.

JOB SIZE allows selection from four image sizes to fit four physical *paper* sizes, and from four image sizes to fit four *envelope* sizes. See figure 2-5.

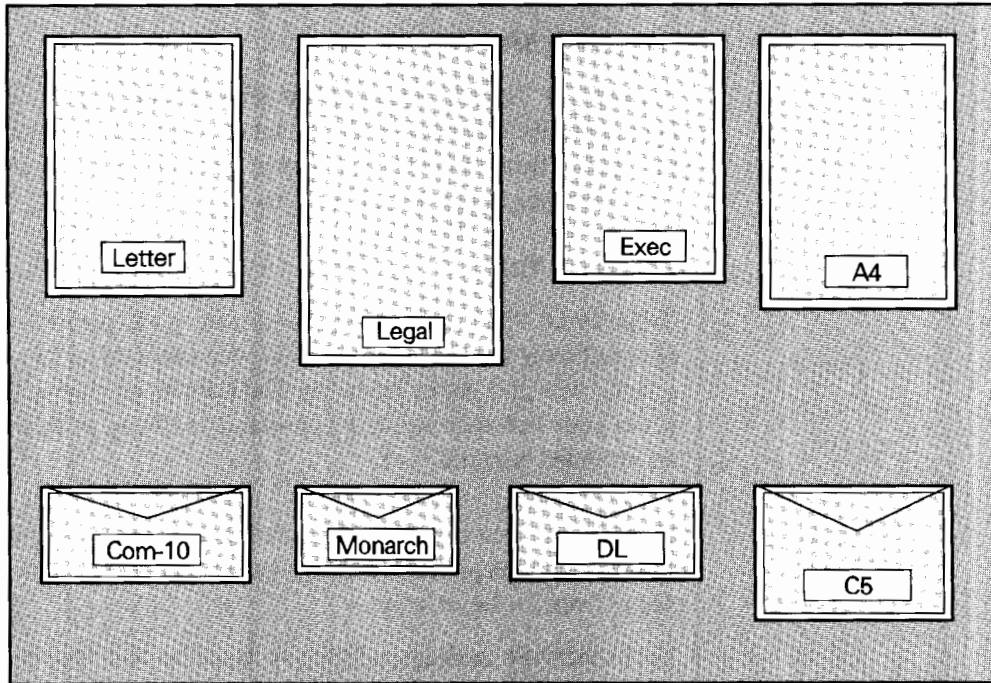


Figure 2-5. Job Size

Printing on Odd-Sized Paper

If you are printing on paper that is a different size from any of the JOB SIZE selections available on the control panel, select a JOB SIZE (and MP TRAY SIZE, if applicable) that is slightly larger than your actual paper size. Then change the margins in your software so that the printed image will fit on the paper you want to use.

Note



The HP LaserJet IIP *plus* printer can only print on paper that meets the minimum and maximum page size requirements listed in chapter 3.

Orientation

Orientation refers to the direction of the print on a page. Printing along the short edge (width) of a page is **portrait** orientation (see ① in figure 2-6), and printing along the long edge (length) of a page is **landscape** orientation (see ② in figure 2-6).

Figure 2-6 shows pages printed in portrait and landscape orientation.

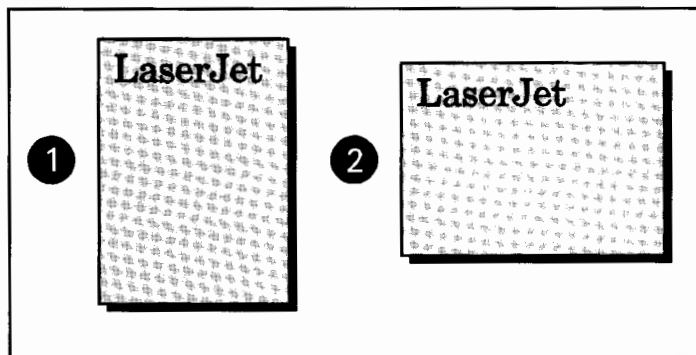
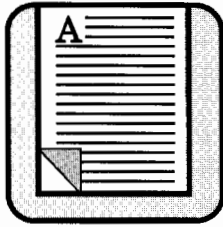


Figure 2-6. Page Orientation

- ① Portrait Orientation
- ② Landscape Orientation

The HP LaserJet IIP *plus* printer can rotate all fonts to make any font available in both portrait and landscape orientation. For example, if you want to print in landscape orientation, and the font you select is a portrait font, the printer can automatically rotate the font into landscape. See chapter 6, “Using Type and Fonts,” for more information on font rotation.

Lines of Text



This menu item selects the default form length setting. Change this setting only if your software does not allow you to select lines-per-page or lines-per-inch.

The most common form-length settings are:

LINES OF TXT 60 for letter-size paper,

LINES OF TXT 64 for A4-size paper, and

LINES OF TXT 78 for legal-size.

These settings are the HP LaserJet IIP *plus* printer's default lines of text settings.

This menu item is used to set the number of lines printed per page. Because the printer spreads the number of lines you select to fill the vertical dimension of the JOB SIZE, the lines-of-text you choose also determines the number of lines-per-inch on the printed page.

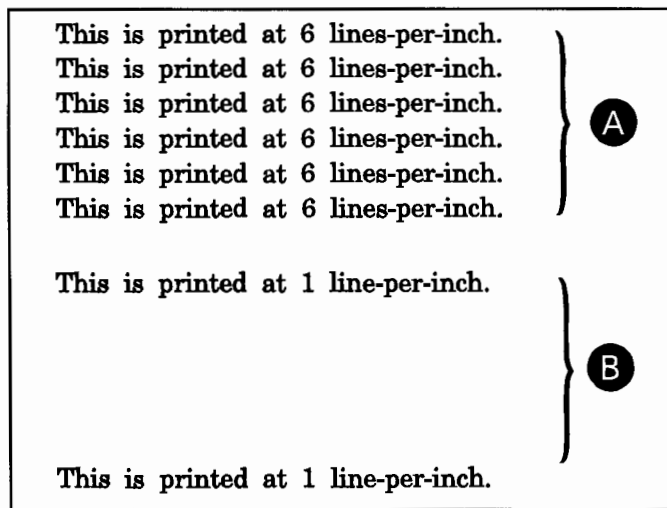


Figure 2-7. Lines-of-Text

Ⓐ 6 lines-per-inch

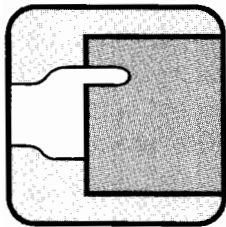
Ⓑ 1 line-per-inch

If you change the job size, or change the page orientation from portrait to landscape, or *vice versa*, the printer automatically performs the calculations necessary to print the same number of lines-per-inch as specified in the original page definition.

Note

If your software page length setting exceeds the current LINES OF TXT control panel setting, the top margin creeps lower on each successive page printed. This problem is called **creeping text**.

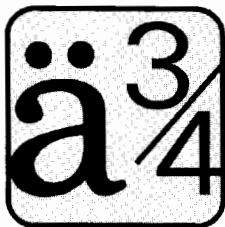
To correct this problem, make sure that your software's page length setting is equivalent to your control panel's lines-of-text setting.

Manual Feed

When the HP LaserJet IIP *plus* printer's manual feed selection is set to on, you can feed the printer individual envelopes or occasional sheets of paper or other print media by hand, one at a time. You may want to use this feature if your software does not have a manual feed selection.

With the HP LaserJet IIP *plus* printer, use the Multi-Purpose (MP) tray for manual feed. The Optional Lower Cassette cannot be used for manual feeding.

For specific instructions on using manual feed, refer to page 3-16.

Symbol Sets

A **symbol set** is a collection of alphabetic, numeric, punctuation and special-purpose symbols. Table 2-1 shows the names of internal symbol sets you can select from the control panel.

Table 2-1.
HP LaserJet IIP *plus* Printer
Selectable Symbol Sets

Internal Bitmapped Fonts	
Roman-8	ECMA-94 Latin 1
PC-8	PC-8 D/N
PC-85ø	Spanish
ISO*	German
Refer to Appendix B for complete information on symbol sets	

The Font Printout shows some of the symbol sets for installed cartridges and downloaded soft fonts. Internal fonts are only shown in Roman-8, ECMA-94 Latin 1, PC-8, PC-8 D/N, and PC-85ø. The remaining selectable internal symbol sets appear on the Font Printout only if selected as the default symbol set from the control panel.

Some font cartridges also have internal symbol sets that are not displayed on the font printout. These symbol sets are selectable by printer commands. See your font cartridge documentation for more information.

See appendix B for symbol set and character identification maps.

Selecting Configuration Menu Items

This section describes the items available in the Configuration Menu. Listed in order of appearance, these items include AUTOCONT (Auto continue).

You will probably select these menu items only once, when you first set up your printer.

Example

The Configuration Menu is the last item on the Printing Menu. To access the Configuration Menu and make changes to the Configuration Menu items:

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Click the **MENU** key repeatedly until you see DEVICE CONFIG on the printer display.
3. Click the **ENTER** key.
4. AUTOCONT will appear in the first line of the display. You are now in the Configuration Menu.
5. Click the **MENU** key until the Configuration Menu item you want to change appears in the first line of the display (for example AUTOCONT).
6. Click the **+/-** key until the value you want to set for that Configuration Menu item is displayed (for example OFF).
7. Click the **ENTER** key to save your choice. An asterisk (*) appears in the display.
8. Click the **ON LINE** key to put the printer back on-line.

Auto Continue

Auto Continue refers to the way several error messages are handled:

- When you select AUTOCONT OFF*, certain printer messages remain in the display until you either correct the problem, tell the printer to continue, or both. For example, if the 2Ø MEM OVERFLOW message appears, the

printer *stops printing* until you press and hold the **ALT** key and then click the **CONTINUE** key to return the printer on-line.

- When you select AUTOCONT ON*, certain printer messages remain on the display for only about 10 seconds. Then, the ØØ READY message appears and the printer resumes printing.

Note



We recommend you operate the printer with AUTOCONT OFF* so that you have time to see the printer messages and take appropriate action. If your printer is part of a network, remote, or spooling system, set AUTOCONT ON*.

Interface Type and Configuration

The HP LaserJet IIP *plus* printer comes with one standard interface. Using the I/O Configuration Menu item select:

Parallel (Centronics).

Note



The parallel interface that comes with your printer is a *Centronics parallel interface*. References to a “parallel interface” throughout this manual imply the Centronics parallel interface.

Printer Default Settings

Before shipping your printer, Hewlett-Packard programs the Printing and Configuration Menus with default settings. These settings are called **factory default settings**. When you use the control panel to select a new choice for an item, you are establishing a new default setting. These are called **user-selected default settings**.

The term **default** refers to the menu setting the printer uses *unless* your software sends a printer command to override the corresponding control panel setting.

2-22 Using the Printer Control Panel

Note

Even though they override both Factory default and user-selected control panel settings, printer commands sent from software do not appear in the control panel menu.

Priority of Commands

As the printer formats output, it executes commands in this order:

- First, it checks for any software printer commands to specify the page format, number of copies, fonts, etc. For more information on software commands, see chapter 5.
- If there are no software commands, the printer will get its instructions from the user-selected control panel settings.
- Finally, if you have not sent a software command, or made any control panel selections, the printer will use the factory default control panel settings to set up the page definition.

Your printer continues to perform using these settings until it receives a reset. To return the printer to its user-defined default settings (a printer reset), perform a 07 RESET (see page 2-9).

Factory Default Settings

If you don't send printer commands from your software or use the control panel to change the original settings, the HP LaserJet IIP *plus* printer prints using the default settings set at the factory. These settings are stored in the printer's permanent memory. Tables 2-2 and 2-3 list the factory default settings and range of user selections on the Printing and Configuration Menus. To return the Printing Menu to its factory default settings, perform a 09 MENU RESET. (See page 2-9.)

Table 2-2. Factory Default Setting — Printing Menu

Menu Item	Factory Default		Range of User Selectable Settings
	115V	220V	
MP SIZE*	LETTER	A4	LETTER, LEGAL, EXEC, A4, COM-10, MONARCH, DL, C5
COPIES	1	1	1 through 99
FONT SRC	I (Internal)	I	I (Internal), C (Cartridge), S (Soft fonts)
FONT NUM	0	0	0 through 999
TRAYS**	LC (Lower Cassette) ONLY		LC ONLY (Lower Cassette), BOTH, LC TRAY, MP TRAY (Multi-Purpose)
JOB SIZE	LETTER	A4	LETTER, LEGAL, EXEC, A4, COM-10, MONARCH, DL, C5
ORIENT	P (Portrait)	P	P (Portrait), L (Landscape)
LINES OF TXT	60	64	5 through 128 lines per page
MAN FEED	OFF	OFF	ON, OFF
SYM SET	ROMAN-8	ROMAN-8	See appendix B

* The MP SIZE item does not appear if an optional Lower Cassette is installed and the TRAYS item is set to TRAYS LC ONLY.

** The TRAYS item only appears if the Optional Lower Cassette is installed.

2-24 Using the Printer Control Panel

Table 2-3.
Factory Default Setting—Configuration Menu

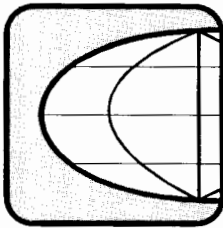
Menu Item	Factory Default	Range of User Selectable Settings
AUTOCONT	OFF	OFF, ON
I/O	PARALEL	PARALEL

User-Selected Default Control Panel Settings

If your software does not send the printer commands required to print pages the way you want, you can use the control panel to change the factory default settings. Your selections will be “remembered” by the printer when you turn the printer off. Your Printing Menu selections, called user-selected defaults, are used in place of the factory defaults. They will be used for printing until you return them to the factory default settings (Ø9 MENU RESET), or you change them one-at-a-time using the control panel.

Refer also to “The Reset Key” section on page 2-9 for more information.



Displaying Messages in Other Languages



You may want your printer messages in a language other than English. You have a choice of five languages with the HP LaserJet IIP *plus* printer: English, French, German, Italian, and Spanish.



To change to another language:


1. Turn off the printer.
2. Press and hold down the **ENTER** key while you turn the printer back on.
3. Release the **ENTER** key when CONFIG LANGUAGE appears. SELF TEST should then appear. Wait until LANGUAGE ENGLISH appears.

4. Click the  key to step through the language choices.
5. Click the  key to select the language you want. An asterisk (*) will appear by your selection.

Note



Be sure to select a language by pressing the  key. If you do not, the printer will default to English until it is turned off. Then each time you turn the printer on it will ask you to select a language by displaying LANGUAGE ENGLISH. The printer will continue to do this until you select a language using the  key.

6. Click the  key to put the printer back on-line. The green On-Line indicator will come on. The printer messages should now display in the language you selected.

A reset will not affect language selection. To change languages you must again follow steps 1 through 6, above.

The Self Test Printout

Use the self test printout to check control panel selections and to help determine print quality. You can also run a self test to verify that options are installed properly (such as additional memory or a font cartridge). For information on generating a self test printout, refer to the **Test** key description earlier in this chapter.

Understanding the Self Test

The following pages describe the self test printout.

1. **Printing Menu** shows the current menu selections.
2. **Configuration Menu** shows the current menu selections.
3. **RAM size** shows how much memory is resident in the printer. (512 Kbytes is standard.)
4. **Page Count** shows how many pages have been printed.
5. **Font Cartridge installed** shows if a cartridge is inserted.
6. **Installed options** shows if you have an Optional Lower Cassette installed, and which size tray you are using.
7. Use the print patterns to check print density and quality.
8. Use the shading and cross-hatch patterns in the borders to check the print density and quality.

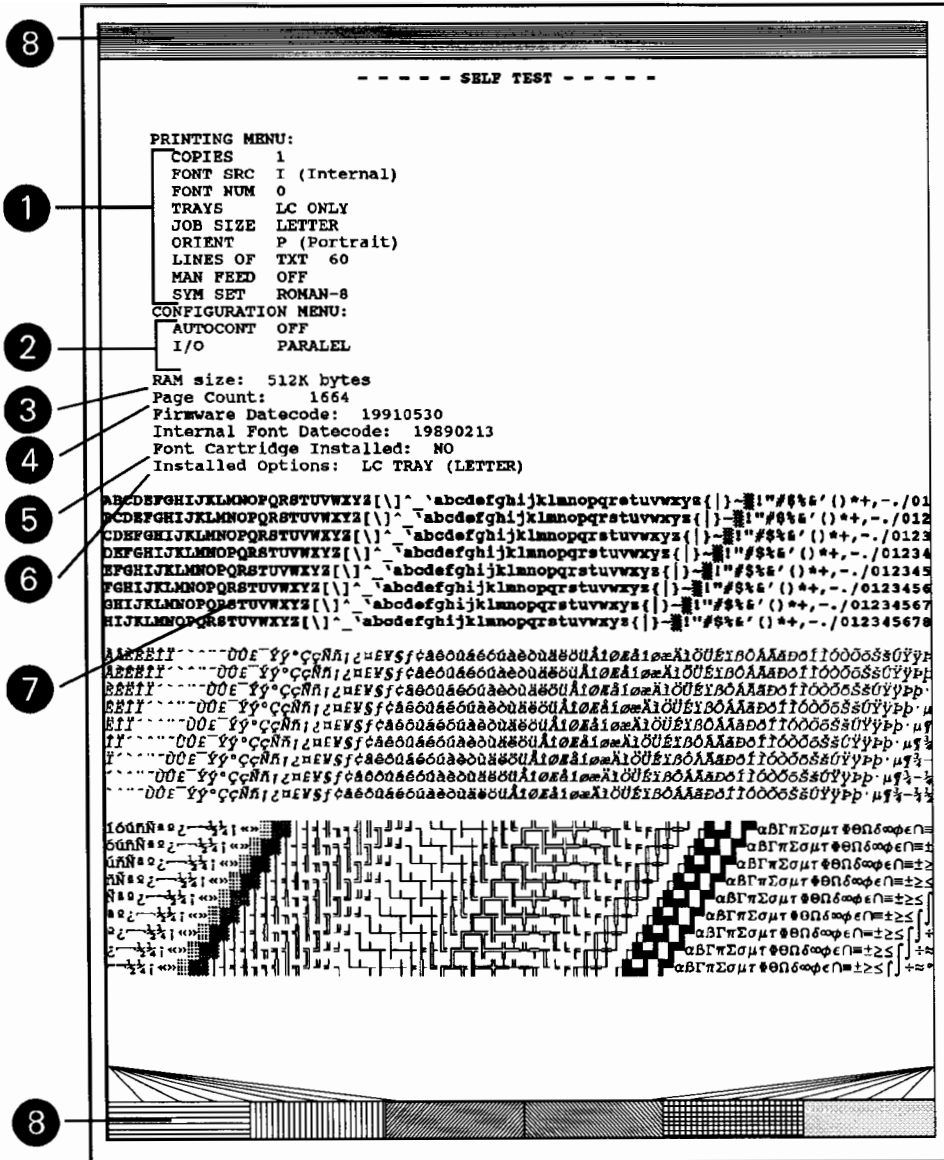
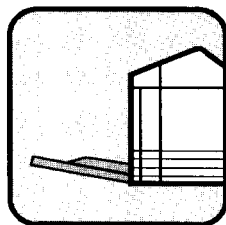


Figure 2-8. Self Test Printout

Printing from the Multi-Purpose Tray

Introduction



This chapter explains how to use the Multi-Purpose tray to feed paper and other print media into your printer.

The chapter explains how to:

- Use the control panel to select paper sizes.
- Load paper into the Multi-Purpose tray.
- Choose the correct paper output path.
- Manually feed paper and other print media.

About the Multi-Purpose Tray

One feature that makes your HP LaserJet IIP *plus* printer different from most previous Hewlett-Packard LaserJet printers is its **Multi-Purpose tray**. The Multi-Purpose tray is Hewlett-Packard's most flexible paper input tray. It supports several types and sizes of paper, making your printer very versatile without requiring you to buy a separate tray for each size of paper or print media you use.

The Multi-Purpose tray can be opened and closed, allowing you to make the printer very compact. This is useful when you are not currently printing or when you have installed an Optional Lower Cassette and wish to print only from it.

The Multi-Purpose tray allows you to feed paper or other print media automatically or manually. It holds paper, envelopes, labels, or transparencies. The tray adjusts to hold paper and other print media within the following dimensions:

•Width range: $3\frac{3}{4}$ in to $8\frac{1}{2}$ in / 96mm to 216mm

•Length range: $6\frac{3}{4}$ in to $14\frac{1}{2}$ in / 170mm to 356mm

Note



Within the specified dimensions, the Multi-Purpose tray feeds any size paper and other print media into the printer. However, you must use the control panel MP SIZE selection to tell the printer the physical size (or next largest available size) of the paper or other print media, and then use your software or the control panel JOB SIZE selection to set the dimensions of the printed image.

3-2 Printing from the Multi-Purpose Tray

Using the Multi-Purpose Tray

To set up the printer to print from the Multi-Purpose tray, perform these four main steps:

1. Select the Multi-Purpose tray paper size (MP SIZE) using the control panel, and select the data formatting size (JOB SIZE) either manually using the control panel or by using your software.
2. Prepare the Multi-Purpose tray for paper.
3. Load the paper into the Multi-Purpose tray.
4. Select and set up the output path you will use.

These steps are described in detail on the following pages.

Selecting the Control Panel Menu Items

To print from the Multi-Purpose tray, first ensure the following menu items are set properly using either your software or the control panel.

- TRAYS – Displays the tray from which the printer will pull the paper or other print media *if the Optional Lower Cassette is installed*. (The TRAYS menu item is not displayed if the Optional Lower Cassette is not installed.)
- MP SIZE – Displays the size paper or other print media the printer expects to be loaded in the Multi-Purpose tray. Because the printer can not sense what size paper or other print media is loaded in the Multi-Purpose tray, you must enter the MP SIZE setting correctly to ensure proper paper handling. *This setting can not be done through software.*
- JOB SIZE – Displays the size of the image that is going to print on your paper or other print media. (You should set JOB SIZE so that it matches the MP SIZE setting if your software does not.)

Selecting TRAYS

If you do not have an Optional Lower Cassette installed, the printer will not have a TRAYS setting. Skip to the next section, “Preparing the Multi-Purpose Tray” on page 3-7.

If you have an Optional Lower Cassette installed, the menu item TRAYS appears as you step through the Printing Menu. You must select TRAYS MP TRAY or TRAYS BOTH to print automatically from the Multi-Purpose tray. See “TRAYS - New Control Panel Item” on page 4-2 for more information.

Note



When you have an Optional Lower Cassette installed and the TRAYS selection menu item is set to TRAYS LC ONLY *, the Multi-Purpose tray can only be used for manual feed.

After you have set the TRAYS menu setting, continue with the next section, “Selecting MP SIZE.”

Selecting MP SIZE

Because the Multi-Purpose tray cannot detect the size of the paper or other print media you are using, you must enter this information. When you enter your MP SIZE selection you are telling the printer the *physical size* of the paper or other print media you are placing in the tray.

The MP SIZE menu item accommodates the paper sizes listed in table 3-1.

Table 3-1. MP Selection Sizes

Type	Choice	Size
Paper	LETTER	8½×11 in / 216×279 mm
	LEGAL	8½×14 in / 216×356 mm
	A4	210×297 mm
	EXEC	7¼×10½ in
Envelopes	COM10	4⅛×9½ in / 105×241 mm
	MONARCH	3⅞×7½ in / 98×190 mm
	C5 (ISO standard)	162×229 mm
	DL (ISO standard)	110×220 mm

Note



The printer “remembers” your paper size selection, even after you reset the printer or turn it off. You do not need to re-enter the paper size until you decide to use another size paper in the Multi-Purpose tray.

To select a paper or other print media size for the MP SIZE menu item, use the following procedure:

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Click the **MENU** key. MP SIZE appears in the first line of the display.

Note



MP SIZE will not appear if TRAYS LC ONLY* is selected.

3. Click the **+/-** key until your choice appears.
4. Click the **ENTER** key to save your selection. An asterisk (*) appears.
5. Click the **ON LINE** key to put the printer back on-line.
6. Continue with the next section, “Selecting JOB SIZE.”

Selecting JOB SIZE

As the printer receives data from the computer, it formats the data into a specific image size (refer to figure 2-5 on page 2-16 for more information). To determine that image size, the printer checks for a printer command from your software. *If* your software does not send a printer command for job size when it sends your data, you must make sure your control panel JOB SIZE menu item and the MP SIZE menu item match or an MP LOAD message may appear.

To select the JOB SIZE, proceed as follows:

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Click the **MENU** key repeatedly until JOB SIZE appears in the first line of the display.
3. Click the **+/-** key until your choice appears.
4. Click the **ENTER** key to save your selection. An asterisk (*) appears next to your choice.
5. Click the **ON LINE** key to put the printer back on-line.
6. Continue with the next section, "Preparing the Multi-Purpose Tray."

Preparing the Multi-Purpose Tray

In addition to setting up the control panel for the correct paper (or other print media) size, you must also physically set up your printer to feed paper or other print media from the Multi-Purpose tray.

When you open the Multi-Purpose tray door you will see the parts identified in figure 3-1.

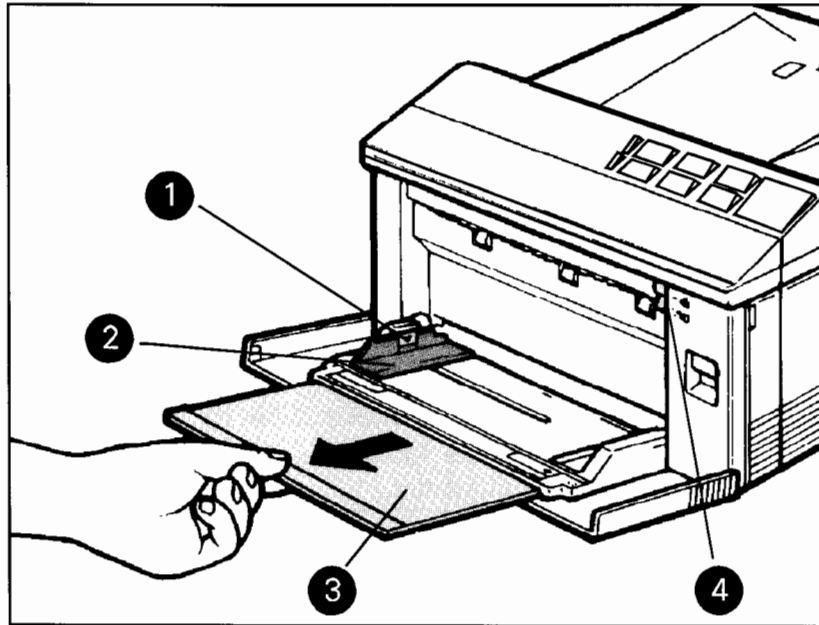


Figure 3-1. Multi-Purpose Tray

1. Paper fill arrow
2. Paper width adjuster
3. Multi-Purpose tray extender (extended)
4. Output path selector button

Multi-Purpose Tray Extender

This part is built in to the door and pulls out to hold your paper. It is designed to allow the Multi-Purpose tray door to be closed easily. You may want to use only this built-in extender if you have an Optional Lower Cassette installed and plan to use the Multi-Purpose tray only occasionally, or if you expect to close the door to the Multi-Purpose tray frequently.

Loading the Multi-Purpose Tray

You must load the paper or other print media into the Multi-Purpose tray correctly to produce properly place the print image on the page. Table 3-2 describes where and how to place each size of paper and other print media and which output path to use. Pictures molded into the Multi-Purpose tray also show the correct placement of paper and envelopes.

Table 3-2. Multi-Purpose Tray Print Media Placement

Media	Placement	Output path
Paper	Side to be printed, face-down, top of page towards printer.	Use top output path.
Transparencies	Side to be printed, face-down, top of page towards printer. Side down varies with manufacturers.	Use front output path.
Label stock	Face-down, top of page toward printer.	Use front output path.
Envelopes	Address side down, flap toward right.	Use front output path.

Caution



When printing on envelopes, label stock, or transparencies, always use the front output path to avoid excessive curling, severe paper jams, and potential damage to the printer.

3-8 Printing from the Multi-Purpose Tray

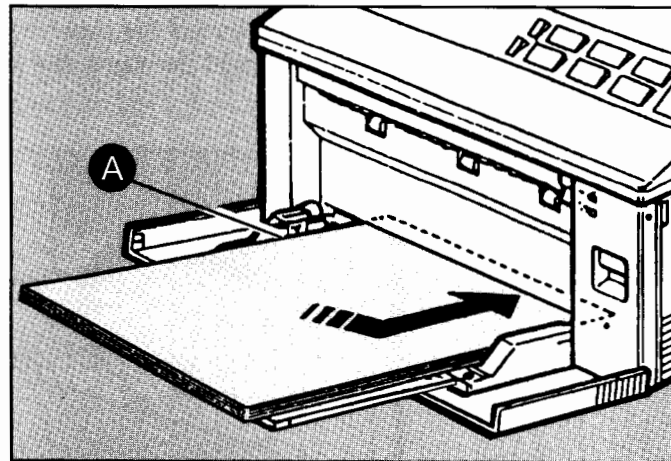
Follow these steps to load paper into the Multi-Purpose tray.

1. Square all paper edges by holding the stack of pages loosely, and tapping the edge of the stack against a flat surface.
2. Insert your paper or other print media with the **print surface face-down**. Place it in as far as it will go, making sure that it is no higher than the tip of the arrow on the paper width adjuster (figure 3-3, **A**).

Note



Most reams of paper have an arrow on the label that points to the side of the paper that should be printed on. Place paper so that this side is facing **down**.



3 Multi-Purpose
Tray

Figure 3-2. Placing Paper Forward in the Tray

3. Place your paper firmly against the right side, tucking it under the plastic paper guide on the forward edge.

Caution



Never add paper or other print media to the top of an existing stack in the Multi-Purpose tray while the printer is printing or a severe paper jam may occur.

- Slide the paper width adjuster to touch the left side of the paper or other print media you have placed in the tray, figure 3-3 (A), and tuck your paper or other print media under the white plastic paper guide, figure 3-3 (B).

The paper width adjuster ensures your paper is correctly fed into the printer. If your paper or other print media does not fit *squarely and firmly* between the paper width adjuster on the left side and the bar on the right side of the Multi-Purpose tray, it may not feed into the printer correctly. As a result, the printed image will be skewed on the page.

Although the paper width adjuster should fit firmly, it should not cause the paper to bow.

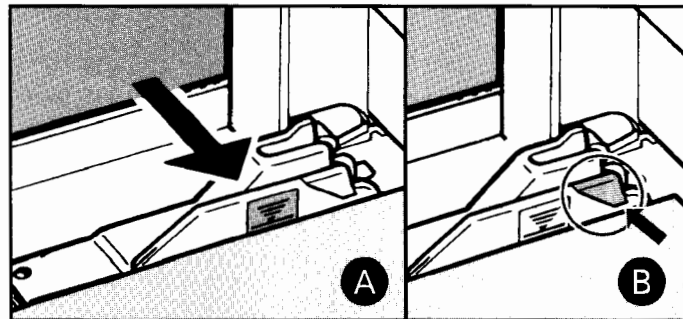


Figure 3-3.
Placing Paper Width Adjuster Flush Against Left Side

- Continue with the next section “Selecting the Output Path.”

Selecting the Output Path

There are two output paths on your HP LaserJet IIP *plus* printer as shown in figure 3-4. Choose the output path that is appropriate for your printing needs and continue to the next section, "Printing."

- A. **Front output path** - the pages exit the printer from the front. *Use this path for envelopes, transparencies, labels, and heavy paper stocks.* Using this path will also help to reduce paper curl. To use the front output path, the Output path selector button must be in the down position.
- B. **Top output path** - the pages exit the printer from the top into the top output tray and stack face-down in correct order. *Use this path for printing on standard paper (such as letterhead).* The tray holds approximately 70 sheets of paper.

To use the top output tray, the Output path selector button must be in the up position.

To ensure your paper or other print media moves through the printer without jamming or double feeding, the paper should meet the guidelines outlined in appendix E.

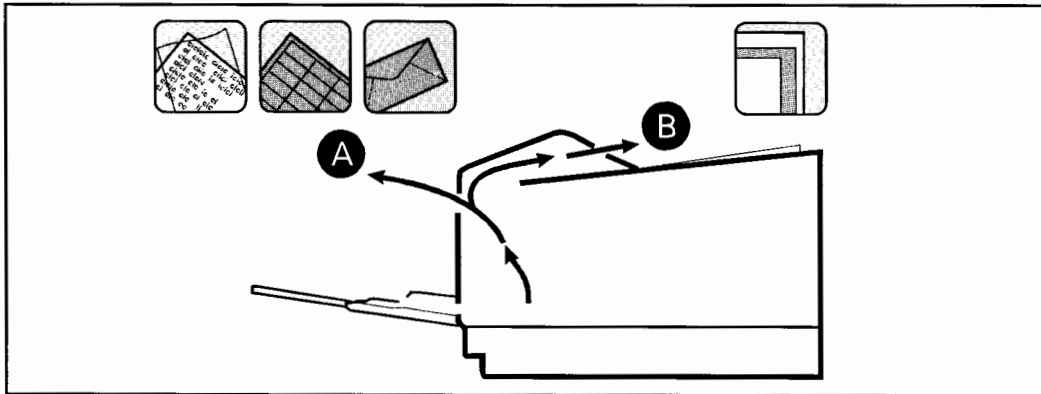


Figure 3-4. The Printer's Output Path

Printing

Now that you have set up your Multi-Purpose tray for printing, loaded the paper or other print media, and selected your output path, it is time to print your document.

Example - Printing Using Legal-Size Paper

The following example shows how to set up the printer to print on legal-size paper.

Let's assume you have been printing on letter-size paper (MP SIZE LETTER*). Now you want to print on legal-size paper from the Multi-Purpose tray. Your software does *not* send a printer command that selects a legal-size format size, so you need to change the selection for the control panel JOB SIZE as well as MP SIZE.

Before you begin, look at the display. If ØØ READY LETTER is displayed, proceed with the directions on changing MP SIZE on the next page.

If ØØ READY is displayed, but LETTER (or another MP SIZE) is not, the printer is telling you the Optional Lower Cassette is installed and the TRAYS menu item is set to LC ONLY *. For this example you must change the TRAYS menu item to MP TRAY to print from the Multi-Purpose tray.

Changing the TRAYS Setting

Follow these steps only if you have an Optional Lower Cassette installed. Otherwise, skip to the next section “Changing the MP Size Setting.”

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Click the **MENU** key until TRAYS appears in the first line of the display.
3. Click the **+/-** key until the display shows TRAYS MP TRAY.
4. Click the **ENTER** key to save your selection. An asterisk (*) appears in the display.
5. Click the **ON LINE** key to put the printer back on-line.
6. Continue with “Changing the MP SIZE Setting.”

Changing the MP SIZE Setting

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Remove *all* the letter paper from the Multi-Purpose tray. The display will show MP LOAD LETTER.
3. Fill the Multi-Purpose tray with legal paper.
4. Click the **MENU** key. The display shows MP SIZE in the first line of the display.
5. Click the **+/-** key until the display shows MP SIZE LEGAL.
6. Click the **ENTER** key. An asterisk (*) appears in the display.
7. Click the **ON LINE** key to put the printer back on-line.
8. The display will show $\emptyset\emptyset$ READY LEGAL.
9. Continue with “Changing the JOB SIZE Setting.”

Changing the JOB SIZE Setting

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Click the **MENU** key until JOB SIZE appears in the first line of the display.
3. Use the **+/-** key until JOB SIZE LEGAL appears in the display.
4. Click the **ENTER** key to save your selection. An asterisk (*) appears next to your choice.
5. Click the **ON LINE** key to put the printer back on-line.
6. Continue with "Output path selection."

Output Path Selection

1. Decide which output path you want to use. (Remember, use the top output path for paper, and the front output path for heavy paper stock, envelopes, transparencies, and labels.)
2. Depending on your selection, follow the directions earlier in this chapter to make the necessary adjustments.

You are now ready to send your data from the computer.

Note



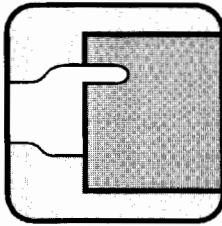
When you are through with this example, use the control panel to return the printer to your previous settings.

Note



If you get a 10 RESET TO SAVE message, refer to page 9-4.

Manual Feed Printing



Attended Manual Feed

The manual feed feature allows you to:

- Print an individual page on special paper such as a company letterhead sheet.
- Monitor your job as each page prints.
- Monitor non-standard sizes of paper, envelopes, labels, and transparencies as each one prints.

Use the Multi-Purpose tray to feed paper manually into your HP LaserJet IIP *plus* printer.

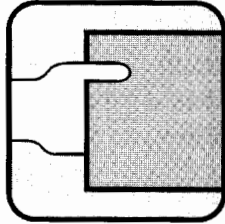
The HP LaserJet IIP *plus* printer allows you to perform manual feed printing by selecting the Attended Manual Feed mode. You can select the Attended Manual Feed mode either by sending a manual feed printer command from your software or by using the control panel.

When the printer is in manual feed mode, all data sent to the printer is printed from the Multi-Purpose tray using manual feed. The printer displays the message MF READY to indicate that it is in manual feed mode.

When your software selects manual feed mode by sending a printer command, the MF READY message will only be displayed while a piece of paper is actually being printed using manual feed.

3 Multi-Purpose
Tray

Example - Manually Feeding Paper



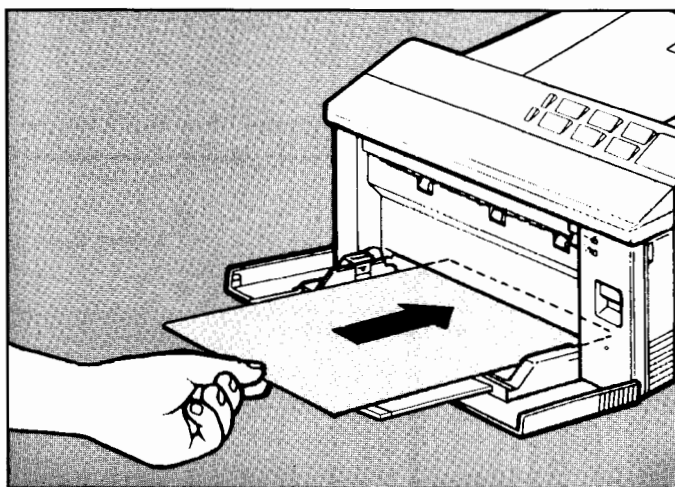
The procedure for manually feeding one or more sheets of paper is as follows:

1. Select manual feed mode by sending a printer command from your software application or by using the control panel. (The MF READY message appears if you select manual feed mode from the control panel.) To use the control panel, follow these steps:
 - a. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
 - b. Click the **MENU** key repeatedly until MAN FEED appears in the first line of the display.
 - c. Click the **+/-** key to show MAN FEED ON.
 - d. Click the **ENTER** key to save your selection. An asterisk (*) will appear in the display.
 - e. Click the **ON LINE** key to put the printer back on-line. The display will show MF READY.
2. Send data from the computer to the printer. (The printer goes off-line and the Form Feed indicator lights up. The first line of the display will show MF FEED or ME FEED to indicate paper or envelopes, respectively.)
3. Place a single sheet into the Multi-Purpose tray. It may be placed on top of paper already in the tray as long as height limits are observed and it is the same size as paper in the Multi-Purpose tray. If paper already in the tray is of a different size, remove it and set the paper width adjuster for the paper to be fed manually. The printer will remain off-line.

4. Click the **ON LINE** key to print on the paper you inserted.

If manual feed mode is still selected and your software has sent additional data to be printed, the printer goes back off-line after the first page has finished printing.

5. Repeat steps 3 and 4 for each page, as necessary.
6. When you are finished printing in manual feed mode, exit manual feed mode by using the same method you used to turn the manual feed mode on.

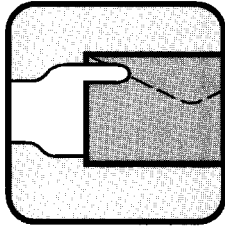


3 Multi-Purpose
Tray

Figure 3-5. Attended Manual Feed



Example - Manually Feeding DL Envelopes



The following example explains how to format an address and prepare the printer to print on a DL envelope.

Formatting the Address to Fit on the Envelope

To format the address to fit on the envelope, do the following:

1. Type in the mailing address, and using your software, set a top margin of approximately 12 lines (2 inches/5cm) from the top of the page, and a left margin of approximately $4\frac{1}{2}$ inches/11.25cm .
2. Print your envelope.

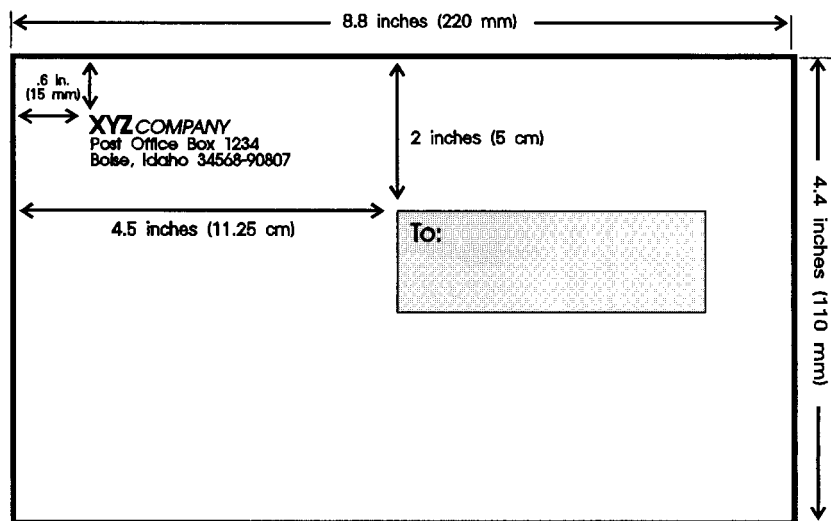


Figure 3-6. Sample Envelope Layout

After you use your software to prepare data to be printed on envelopes, you can send the envelope data to your printer, preceded by software commands to adjust the left margin to 4½ inches/11.25cm, and the top margin to 12 lines (2 inches/5cm) from the top.

Note



To format envelopes correctly, you must use landscape orientation.

Set the Control Panel

If your software does not send the proper printer commands to print an envelope, do the following:

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Click the **MENU** key until JOB SIZE appears in the first line of the display.
3. Click the **+/-** key until DL appears in the display.
4. Click the **ENTER** key to save your selection. An asterisk (*) appears in the display.

3 Multi-Purpose
Tray

5. Click the **MENU** key until ORIENT appears in the first line of the display.
6. Click the **+/-** key to display ORIENT L.
7. Click the **ENTER** key to save your selection. An asterisk (*) appears in the display.
8. Click the **MENU** key until MAN FEED appears in the first line of the display.
9. Click the **+/-** key to display MAN FEED ON.
10. Click the **ENTER** key to save your selection. An asterisk (*) appears in the display.
11. Click the **ON LINE** key to exit the Printing Menu and put the printer back on-line.

Note



If your envelopes jam as they feed through the printer, the paper width adjuster may be too tight against the envelopes. Try backing off the paper width adjuster and leaving a *slight* gap between it and the envelope stack. In addition, make sure the envelope meets the requirements listed in appendix E.

Load an Envelope.

1. Select the Front output path. (See step A under “Selecting the Output Path” earlier in this chapter.)
2. Change the output path selector to the down position.
3. Send data to the printer.
4. The printer goes off-line and displays ME FEED DL.
5. Remove any other size paper already in the Multi-Purpose tray.
6. Flatten the leading edge of the envelope to reduce the possibility of jamming problems.

7. Insert your DL envelope(s) into the Multi-Purpose tray.

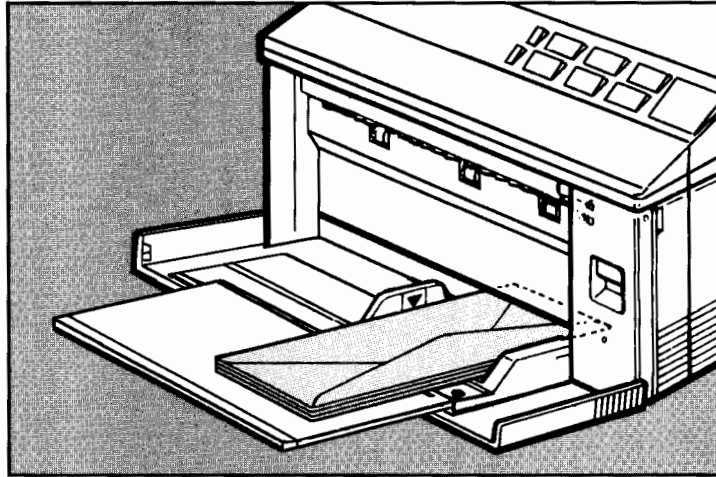


Figure 3-7. Inserting an Envelope into Manual Feed Tray

8. Adjust the paper width adjuster for the envelope size to reduce jamming problems.
9. Click the **ON LINE** key when you are ready to print.
10. To feed additional envelopes, wait for the ME FEED DL message and insert another envelope as necessary.
11. Click the **ON LINE** key to print.

Note



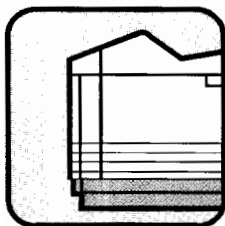
Set the Print density slide to a darker setting if gray background appears. (You can experiment to see which setting works best for your envelopes. Refer to “Adjusting Print Density” on page 8-23 for more information.)

You should use the front output path when printing envelopes to help prevent paper jams and for best print results.

3-22 Printing from the Multi-Purpose Tray

Using the Optional Lower Cassette

Introduction



If your printer does not have an Optional Lower Cassette, you may skip this chapter.

This chapter describes how to use the Optional Lower Cassette base and tray accessory (HP part number 33472A (Letter) or 33472B (A4)). The Optional Lower Cassette accessory increases the paper-handling capacity of the HP LaserJet IIP *plus* printer to up to 320 sheets and provides **dual-bin** capability (printing from both the Optional Lower Cassette tray and the Multi-Purpose tray).

This chapter includes information about:

- Configuring the control panel for the Optional Lower Cassette.
- Preparing the Optional Lower Cassette.
- Choosing the correct paper output path.
- Using two kinds of paper in one job (dual bin printing).
- Printing envelopes from the Optional Lower Cassette.
- Using MP priority feed.

About the Optional Lower Cassette

The Optional Lower Cassette comes with a booklet called *Optional Lower Cassette Installation Guide*. Use this guide to set up your Optional Lower Cassette.

Once you have installed the Optional Lower Cassette, it becomes an integral part of the printer. The Optional Lower Cassette enhances the functionality of the HP LaserJet IIP *plus* printer.

TRAYS - New Control Panel Menu Item

Installing the Optional Lower Cassette tray and base accessory adds a new menu item (TRAYS) and new display messages to the control panel. With the Optional Lower Cassette installed, the printer can also accept additional printer commands from your software to control selection of paper from the Multi-Purpose tray or the Optional Lower Cassette.

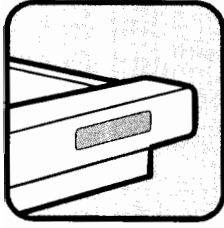
Table 4-1 lists the different ways you can use the Optional Lower Cassette. See page 4-11 for a description of MP priority feed.

Table 4-1. Control Panel TRAY Selections

Select	Primary Paper Source	Secondary Paper Source	Use in the following situation:
LC ONLY (factory default)	Optional Lower Cassette	MP priority feed	The Multi-Purpose tray is used for manual feed and MP priority feed only. You want to keep the Multi-Purpose tray door closed.
LC TRAY	Optional Lower Cassette	Multi-Purpose tray†	The Optional Lower Cassette has the main media. Papers used are the same size, but have different characteristics.
MP TRAY	Multi-Purpose tray	Optional Lower Cassette †	Multi-Purpose tray has the main media. Papers used are the same size, but have different characteristics.
BOTH	Optional Lower Cassette	Multi-Purpose tray	Both trays have the same kind and size of media, increasing capacity. Paper of two different sizes (printer selects requested size automatically).
† Available using a software printer command only.			

4-2 Using the Optional Lower Cassette

Using the Optional Lower Cassette



Selecting the Control Panel Menu Items

To set up the printer to use paper from your Optional Lower Cassette:

1. Select the paper input tray (TRAYS) and the data image size (JOB SIZE), either using your software or the control panel.
2. Load paper into the Optional Lower Cassette tray.
3. Select the paper output path you want to use.

These steps are described in detail on the following pages.

To print using the Optional Lower Cassette, you must set both TRAYS and JOB SIZE Printing Menu items using the control panel. (Remember that job size can also be specified through your software.)

Four combinations of tray selections are available once the Optional Lower Cassette is installed. Use table 4-1 to decide what TRAYS setting you need.

Selecting TRAYS

To select the TRAYS menu item, follow these steps:

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Click the **MENU** key until TRAYS appears in the first line of the display.
3. Click the **↑/↓** key until the choice you want appears.
4. Click the **ENTER** key to save your choice. An asterisk (*) will appear in the display.
5. Click the **ON LINE** key to put the printer back on-line.
6. Continue with the next section, "Selecting JOB SIZE."

Selecting JOB SIZE

As the printer receives data from the computer, it formats the data into a specific image size. To determine that image size, the printer checks for a printer command from your software. *If* your software does not send a printer command for the page size when it sends your data, you must make sure your control panel JOB SIZE menu item setting matches the size of the paper or other print media you have loaded in the tray. To set JOB SIZE, do the following:

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Click the **MENU** key until JOB SIZE appears in the first line of the display.
3. Click the **+/-** key until the size paper or other print media you want to select appears.
4. Click the **ENTER** key to save your size. An asterisk (*) will appear.
5. Click the **ON LINE** key to put the printer back on-line.
6. Continue with the next section, "Preparing the Optional Lower Cassette."

The printer now formats to the size you selected *unless* your software sends a printer command to format the image to a different size.

Note



When you are printing from the Optional Lower Cassette only (you have set TRAYS LC ONLY* on the control panel), the Multi-Purpose tray size (MP SIZE) setting does not appear as a choice in the control panel menu item. This is because the printer can sense which one of the Optional Lower Cassette trays is installed, and does not need to be told through the control panel the physical size of the paper or other print media you have loaded into the Optional Lower Cassette.

4-4 Using the Optional Lower Cassette

Preparing the Optional Lower Cassette

Unlike the Multi-Purpose tray, which adjusts to a variety of paper sizes, the Optional Lower Cassette tray accommodates only one paper size. Additional trays are available, each tray supporting a particular size, such as Legal, A4, or Executive.

Follow the steps presented here to load paper into your Optional Lower Cassette tray. Be sure to follow the steps as presented to avoid the risk of paper jams.

Note



Place your paper with the printing side *face-up* in the Optional Lower Cassette tray. Many paper suppliers mark the print side of the paper on the ream wrapper (usually with an arrow pointing toward the print side). If necessary, you may want to consult with your paper supplier regarding the print side of your paper.

1. Remove the tray from the Optional Lower Cassette base.

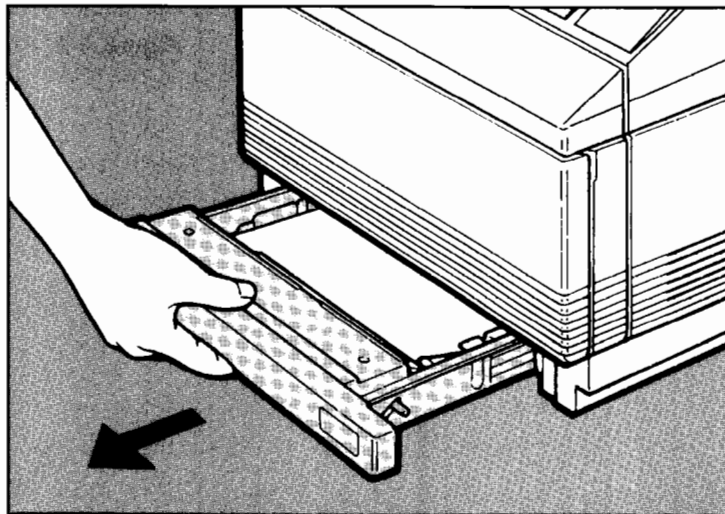


Figure 4-1. Removing the Tray

2. Select up to 250 sheets of paper to load. Then, while holding the stack loosely, tap the edge of the stack against a flat surface to align the edges.

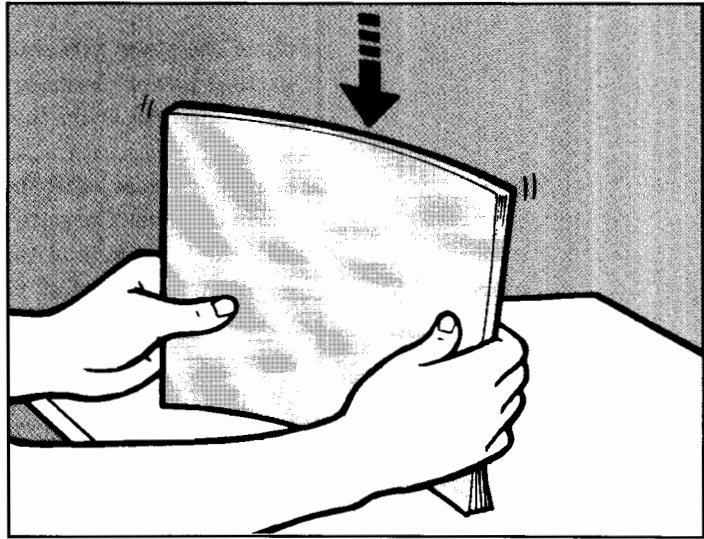


Figure 4-2. Preparing the Paper Stack

4-6 Using the Optional Lower Cassette

3. Slide the paper into the tray from the front side, making sure the paper lies underneath the tabs at the rear of the tray.

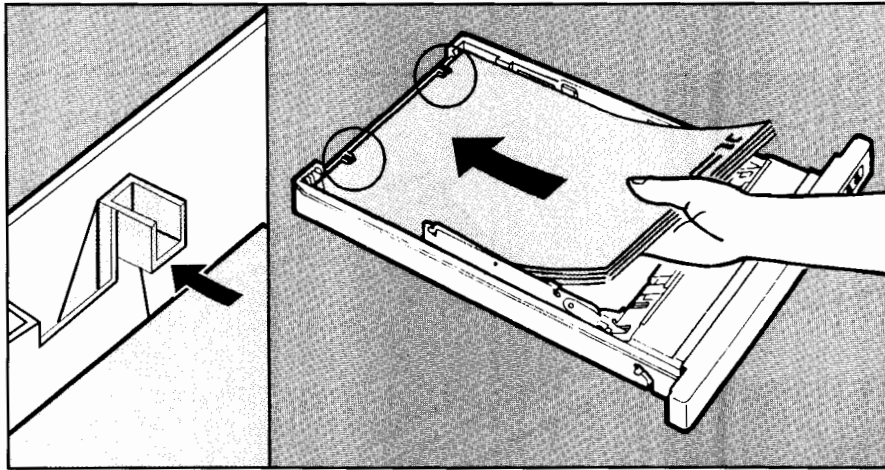


Figure 4-3. Putting Paper in the Tray

4. Press down on the front of the stack to place it under the metal retaining clips at the front of the tray, as shown by **B** in figure 4-4. Make sure you have loaded paper only to the arrow limit mark on the tray, as shown by **A** in figure 4-4.

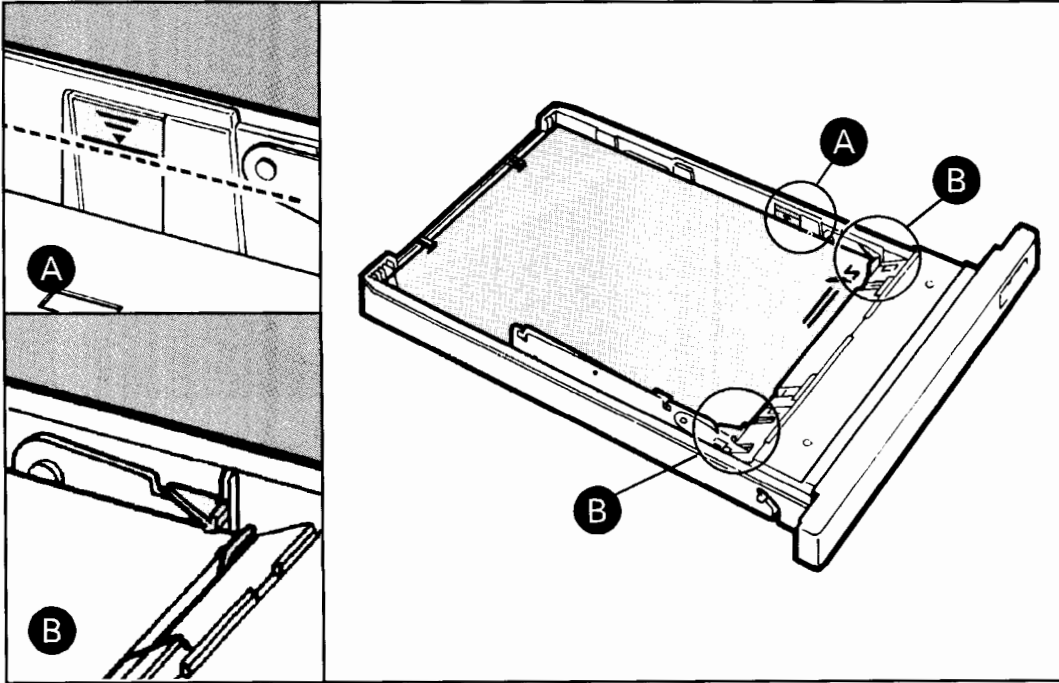


Figure 4-4. Placing Paper Under Metal Clips

4-8 Using the Optional Lower Cassette

5. Insert the tray into the Optional Lower Cassette base.
6. Continue with the next section, "Selecting the Output path."

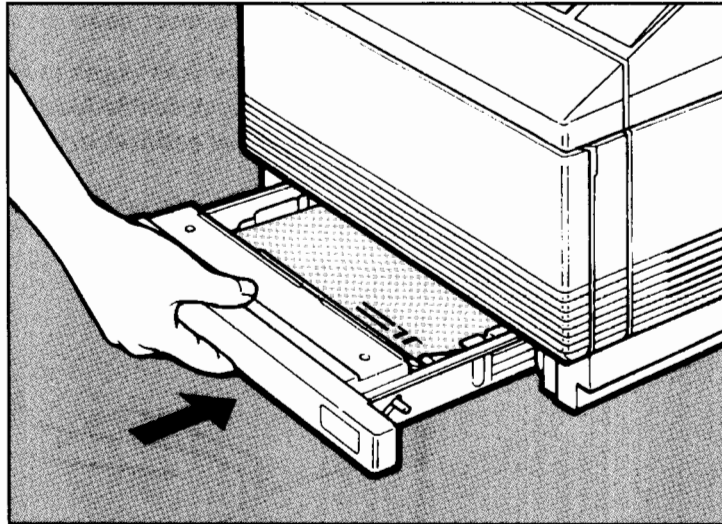


Figure 4-5. Inserting the Tray

Selecting the Output path

There are two output paths on your HP LaserJet IIP *plus* printer as shown in figure 4-6. Choose the output path that is best for your printing needs as described below. Then continue to the next section, "Printing."

- A. **Front output path** - the pages exit the printer face-up from the front. *Use this path for heavy paper stock, envelopes, transparencies, and labels.* Using this path will help to reduce paper curl.

To use the front output path, the Output path selector button must be in the down position.

4
Optional Lower
Cassette

B. Top output path - the pages exit the printer from the top into the Top output tray, and stack face-down. *Use this path for printing on “standard” paper. It accommodates approximately 70 sheets of paper.*

To use the top output path, the Output path selector button must be in the up position.

To ensure your paper moves through the printer without jamming or double feeding, the paper should meet the guidelines outlined in appendix E.

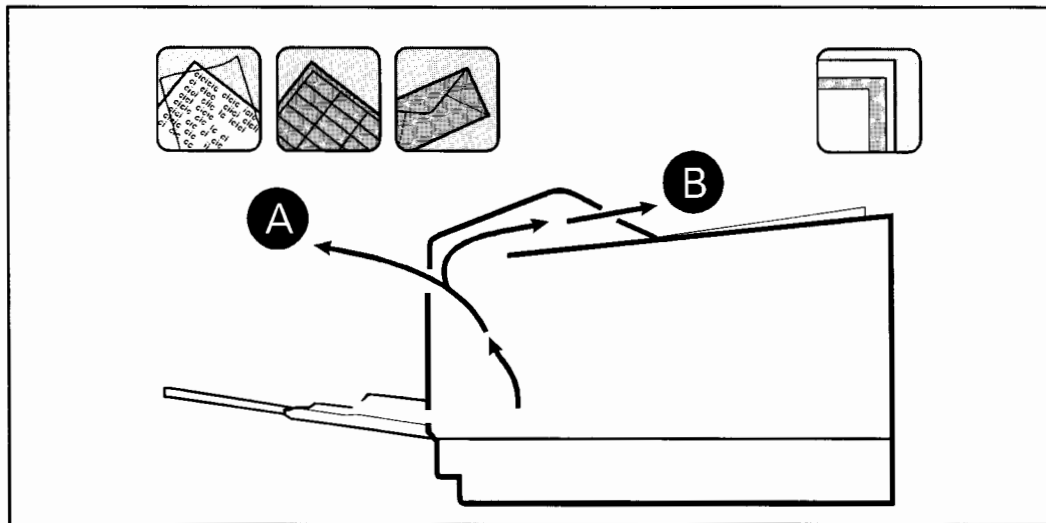


Figure 4-6. The Printer's Output Paths

Printing Now that you have set up your Optional Lower Cassette for printing, loaded the correct paper, and selected your output path, it is time to print your document.

MP Priority Feed




The HP LaserJet IIP *plus* printer allows you to override the Optional Lower Cassette to feed a single sheet of paper or print media (such as letterhead paper or an overhead transparency) without having to set the manual feed menu item using either your software or printer control panel. This feature is called **MP priority feed**.

Use this feature if you want to print on the same size paper or other print media that is currently loaded in your Optional Lower Cassette tray. For example, suppose you were printing on letter sized paper from your Optional Lower Cassette and you wanted to print the first page of your document on letterhead paper. Rather than load the letterhead paper into the Optional Lower Cassette, you can place the sheet of letterhead paper in the Multi-Purpose tray. The printer will automatically pull the first sheet of paper from the Multi-Purpose tray, and then continue pulling paper from the Optional Lower Cassette.

Using MP Priority Feed

To use MP priority feed:

1. Make sure the TRAYS menu item is set to LC ONLY.
2. Load the paper or other print media into the correct-sized Optional Lower Cassette tray. Place the side to be printed face up, with the top of the page at the front of the tray.
3. Make sure job size matches the size of paper you loaded into the Optional Lower Cassette tray. You can set job size either through your software application (refer to your software application documentation for more information), or through the control panel, as follows:
 - a. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
 - b. Click the **MENU** key repeatedly until JOB SIZE appears in the first line of the display.

- c. Click the  key to select the paper or print media size that matches the size of the Optional Lower Cassette tray.
 - d. Click the  key to save your selection. An asterisk (*) appears in the display.
 - e. Click the  key to return the printer on-line.
4. Place one or more sheets of paper or other print media (such as letterhead paper) in the Multi-Purpose tray. Remember to load the paper or other print media side to be printed face-down, with the top of the page towards the printer.
 5. Send your print job to the printer.

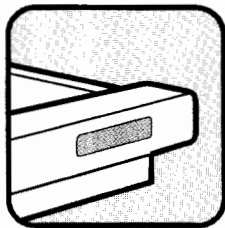
The printer will pull the paper (or other print media) from the Multi-Purpose tray instead of the Optional Lower Cassette tray until the Multi-Purpose tray is empty. The printer will then resume pulling paper from the Optional Lower Cassette tray.

Note



If LC LOAD appears in the first line of the display followed by the paper size (such as LEGAL or LETTER), either the Optional Lower Cassette tray is empty, or the JOB SIZE setting does not match the Optional Lower Cassette tray size. Make sure the Optional Lower Cassette tray has paper in it and that Optional Lower Cassette paper tray size matches the JOB SIZE setting (sent by your software or set at the control panel).

Using Different Input Trays



Five trays are available for your Optional Lower Cassette. Your Optional Lower Cassette comes with a letter tray or an A4 tray depending upon the model you have purchased. You can also purchase any of the following trays to use with your Optional Lower Cassette.

Table 4-2.

Tray	Part Number
Letter	92275B
Legal	92275C
A4	92275D
Executive	92275E
Envelope	92275F

Example - Using the Legal Tray

To print from the legal tray, two main steps are involved:

1. Setting up the control panel for legal-sized paper (necessary only if your software application does not support legal-sized paper.)
2. Setting up the physical printer to accommodate the legal tray.

Setting Up the Control Panel

Use the control panel to select JOB SIZE as follows:

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Click the **MENU** key until JOB SIZE appears in the first line of the display.

3. Click the **4/3** key until JOB SIZE LEGAL appears.
4. Click the **ENTER** key to save your size. An asterisk (*) appears in the display.
5. Click the **ON LINE** key to put the printer back on-line.
6. Continue with the next section, "Setting Up the Printer."

Setting Up the Printer

The legal tray includes a rear cover to keep out foreign material that cause problems. It also helps prevent the tray from becoming dislodged.

To install the rear cover for the legal tray, follow these steps:

1. Remove the paper tray from the Optional Lower Cassette base.

2. Remove the flap from the back of the Optional Lower Cassette base. Grasp the flap in the middle. Flex to bow the flap slightly in order to pull it out of the holes.

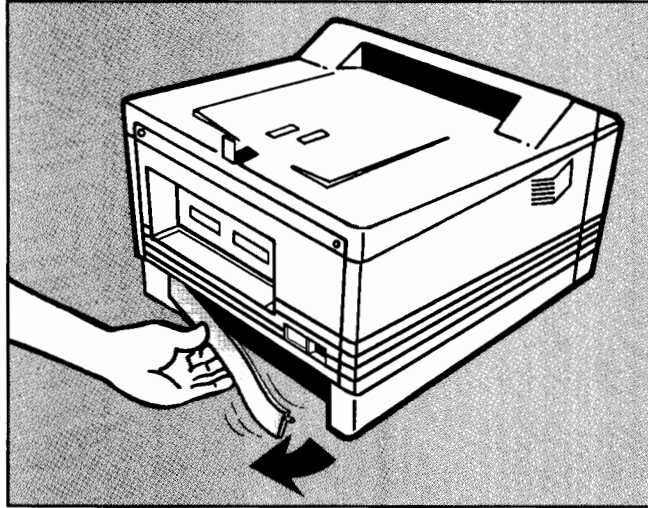


Figure 4-7. Removing the Flap

3. Insert the rear cover into the same holes from which the back flap was removed. You may leave this cover permanently installed. It is compatible with other trays.

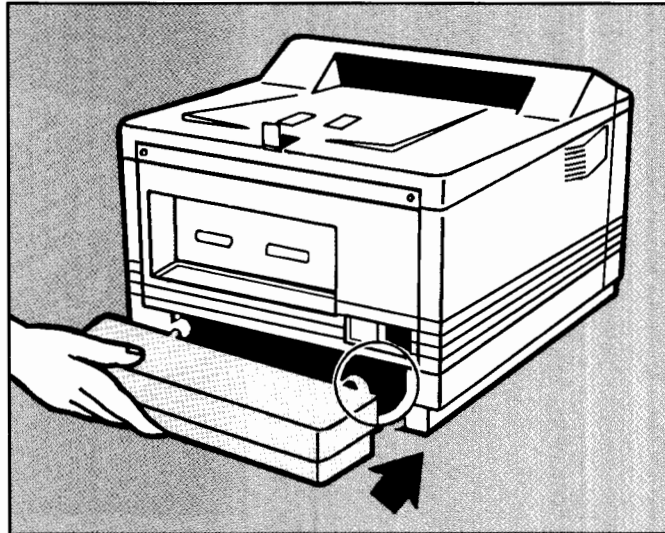


Figure 4-8. Inserting Legal Tray Rear Cover

4. Load legal paper into the tray following the directions for loading paper given earlier in this chapter.

5. Insert the legal tray into the front of the Optional Lower Cassette base.

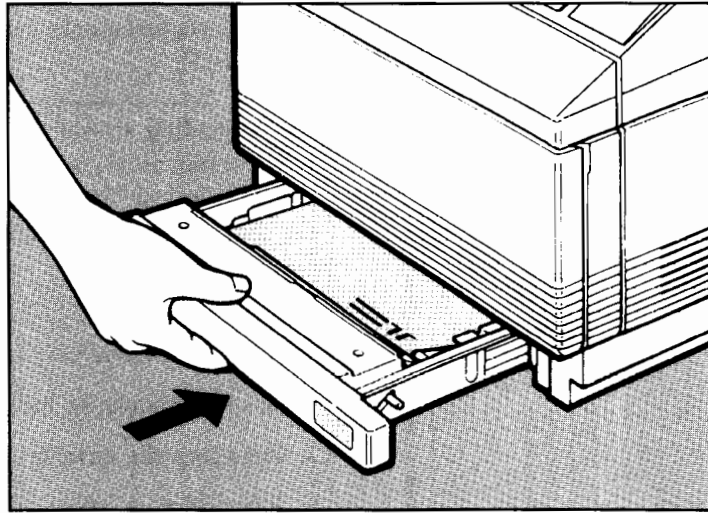


Figure 4-9. Inserting Legal Tray

6. Snap the Legal paper stop on the Top output path into place.
7. Print your document.

Example - Using the Envelope Tray

Purchase envelopes that are constructed with well-creased edges for use in a laser printer to ensure good performance of your printer's envelope tray. Use envelopes that meet material requirements described under "Envelopes" in appendix E.

Note



Before loading envelopes, make sure the envelope construction is of good quality. DO NOT use envelopes that are damaged or "dog-eared." Loading envelopes which do not meet the specifications listed in appendix E may cause paper jams.

Using the envelope tray involves the following procedures.

1. Loading envelopes into the envelope tray.
2. Installing the envelope tray.
3. Responding to the control panel display prompt for envelope size.
4. Selecting the front output path.
5. Printing the envelope.

Loading Envelopes into the Tray

To load envelopes, follow these steps.

1. After inspecting the envelope quality, select up to 20 envelopes, and tap against a flat surface to straighten the stack.
2. Place the envelope stack address side up (flap side down) into the tray, with the top of the envelope towards the outside edge of the tray. Ensure the envelope stack is squarely and uniformly placed under the metal retaining clips in the envelope tray. The uncompressed height of the envelopes must be no higher than the arrow on the side of the tray.

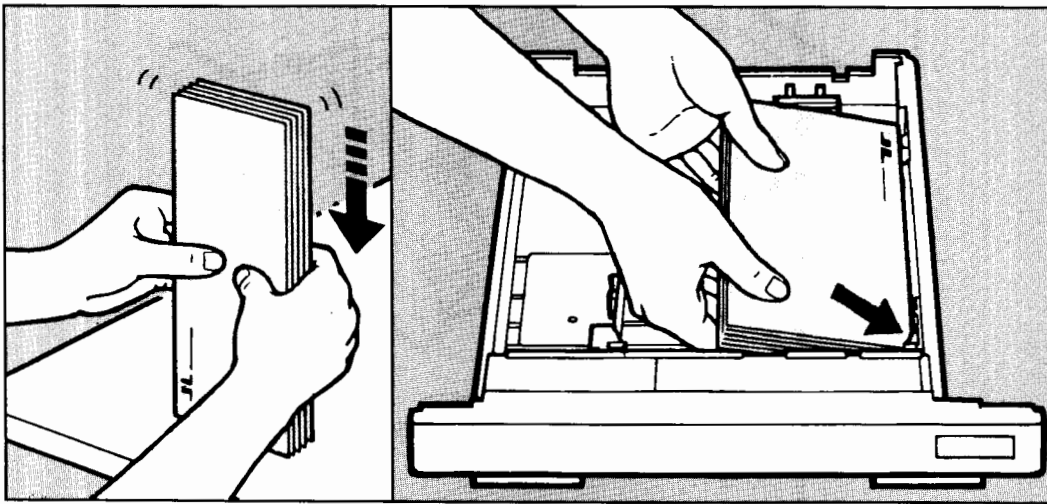


Figure 4-10. Placing the Envelope Stack in the Tray

3. Adjust the width guide ① and length guide ② to match the envelope size.

Note



If you experience envelope jamming problems, try pulling back the width guide slightly and leaving a small gap between the guide and the paper. Refer to chapter 9 for more information on jamming problems.

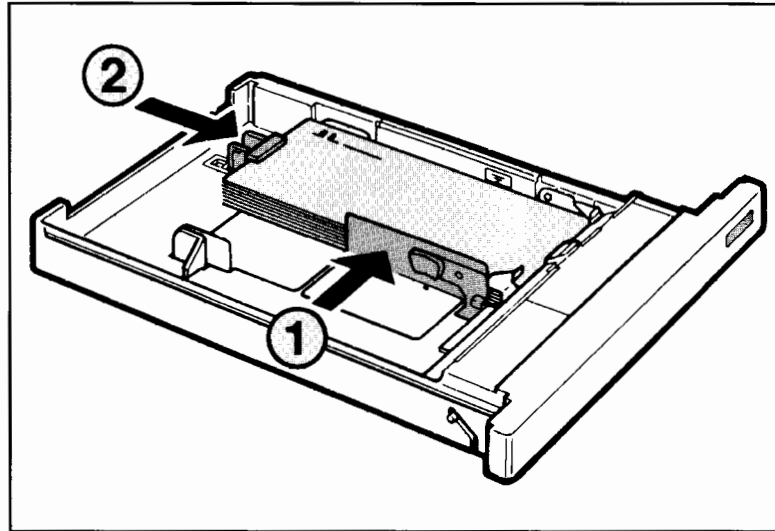


Figure 4-11. Adjusting the Width and Length Guides

4-20 Using the Optional Lower Cassette

Installing the Envelope Tray

Remove the previous paper tray from the base of the Optional Lower Cassette, and insert the envelope tray.

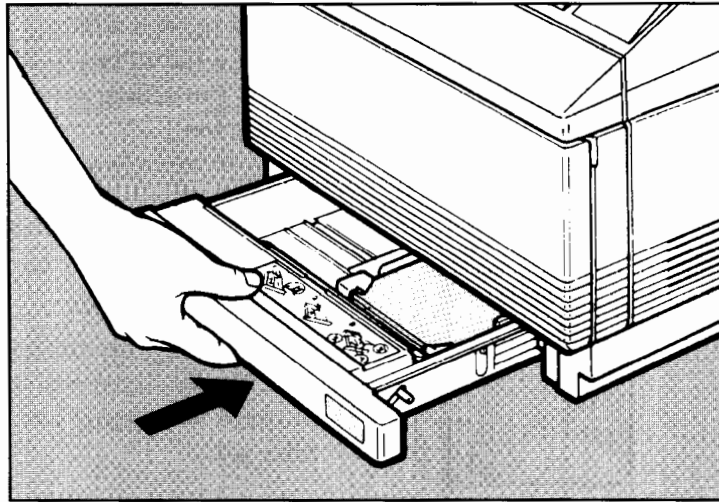


Figure 4-12. Installing the Envelope Tray

Responding to the Control Panel Display

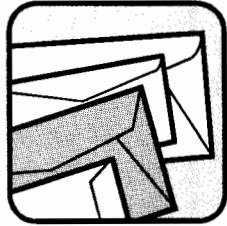
Once you install the envelope tray, LE TRAY appears in the first line of the display for 10 seconds and the printer goes off-line. This is because the envelope tray has no sensors to tell the printer what size envelopes you have installed in the envelope tray.

If the size displayed is the desired size, click the **ON LINE** key, and the printer is ready to print an envelope. The first line of the display should show $\emptyset\emptyset$ READY.

Note



If you do not click the **ON LINE** key within 10 seconds of inserting the envelope tray, the printer assumes the envelope size displayed matches the envelope size loaded, and **ØØ READY** appears in the first line of the display. If you wanted to select a different size but you did not press the keys before the 10 seconds elapsed, remove and re-insert the tray. The printer gives you another 10 seconds to make your selection.



To change from the envelope size displayed, follow these steps, starting while the LE TRAY message appears on the first line of the display:

1. Click the **+/-** key to step through the envelope sizes until the displayed size matches the size in the tray. The message will display one of the envelope sizes listed in table 4-2.

Table 4-3. Envelope Choices and Size

Displayed	Size
COM1Ø	4 $\frac{1}{8}$ x 9 $\frac{1}{2}$ in / 105 x 241mm
MONARCH	3 $\frac{7}{8}$ x 7 $\frac{1}{2}$ in / 98 x 190mm
DL	4 $\frac{1}{3}$ x 8 $\frac{2}{3}$ in / 110 x 220 mm
C5	6 $\frac{2}{5}$ x 9 in / 162 x 229 mm

If you are not using one of the envelope sizes listed above, choose the next largest envelope size.

2. Click the **ENTER** key to make your selection. An asterisk (*) appears in the display.
3. Click the **ON LINE** key to put the printer back on-line. The first line of the display should show **ØØ READY**.

4-22 Using the Optional Lower Cassette

Selecting the Envelope Tray from the Control Panel

If your software application does not allow you to select the job size and orientation, then you can use the control panel to make the selections to print an envelope, as follows:

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Click the **MENU** key until TRAYS appears in the first line of the display.
3. Click the **+/-** key to choose LC ONLY, LC TRAY, or BOTH. You must set the TRAYS menu item to one of these selections.
4. Click the **ENTER** key to make your selection. An asterisk (*) appears in the display.
5. Click the **MENU** key repeatedly until JOB SIZE appears in the first line of the display.
6. Click the **+/-** key until the envelope size you desire appears. The job size you select must match the physical size you have loaded and selected at the control panel. If you are using an odd-sized envelope, you must choose the next largest envelope size.
7. Click the **ENTER** key to make your selection. An asterisk (*) appears in the display.
8. Click the **MENU** key again until ORIENT appears in the first line of the display.
9. Click the **+/-** key until ORIENT L appears.
10. Click the **ENTER** key to save your selection. An asterisk (*) appears in the display.
11. Click the **ON LINE** key to put the printer back on-line.

Selecting the Front Output Path

To select the Front output path, open the Multi-Purpose tray door and set the Output path selector button to the down setting (see figure 3-1, item #4).

Printing the Envelope

You are now ready to send the data from the computer to the printer. For information on formatting the envelope, refer to your software manual or to “Formatting the Address to fit on the Envelope” on page 3-18.

Software and Your Printer

Introduction



The easiest way to control your printer is by using a software application, such as a word processor, spreadsheet, database report generator, or graphics package. *Remember, software commands override corresponding control panel Print Menu selections.*

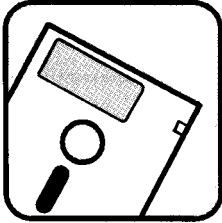
If you use your software to set up your print job, you do not have to change the settings on the control panel each time you send a different kind of job to the printer.

Refer to Chapter 7 “Printing With Your Software” for additional information on printing your HP LaserJet IIP *plus* printer. Another source of information is the documentation that comes with your software package. Many software companies also offer a phone line for technical assistance.

In this chapter, you will learn how to:

- Control your printer through software printer drivers.
- Use set-up strings in your software.
- Embed PCL printer commands in your software.
- Combine PCL printer commands.

How Software Works With the Printer



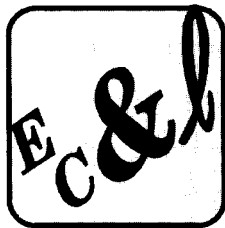
Typically, you print using a software package, such as a desktop publishing or word processing system, spreadsheet, or graphics package.

Software applications send information that selects and controls printing features in three different ways:

- **Drivers** are special files within software applications that control the operation of the printer.
- **Setup strings** or initialization strings are entered in software and sent to the printer before you print a job.
- **Embedded printer commands** can be entered anywhere in your document.

Because most printing problems stem from the way your software and the printer interact, learn how your software works with the printer. If you have trouble and suspect that it may be software related, please contact your software supplier for information on using your package with the printer.

What are Printer Commands?



Printer commands tell the printer which tasks to perform or fonts to use. Once you know how your software works with the printer, you may be able to enter printer commands indirectly (by making software selections), or directly (by using set-up strings or by entering the command within the text of your file). Printer commands are sometimes called **escape sequences** because they begin with the ASCII escape (E_C) character. Printer commands usually override any selections you have made on the printer's control panel.

Remember that many software packages do not require you to enter printer commands. Before going on, look in the printing section of your software manual to see how your software works with the printer.

Software That Uses Drivers

Drivers are programs that allow your software package to send page set-up commands and print data to the printer. They work automatically so that you do not have to enter individual printer commands yourself. For example, drivers allow you to change fonts and select paper trays. Some software packages let you make these selections through menus, while others use function keys.

Some common software packages that use drivers to communicate with the printer are:

- WordPerfect.
- Microsoft Word.
- Windows applications.
- WordStar.
- MultiMate.
- Ventura Publisher.

Driver Availability

If an HP LaserJet IIP *plus* printer driver is not available, select the driver definition that is closest to the printer's features that you want to use. A LaserJet IIP driver will give you all the paper handling features of the HP LaserJet IIP *plus* printer. If a LaserJet IIP driver is not available, any LaserJet driver will provide minimal feature support. Call your software manufacturer for information about full HP LaserJet IIP *plus* printer support.

Figure 5-1 shows a sample menu that uses a driver to send printer commands to the printer.

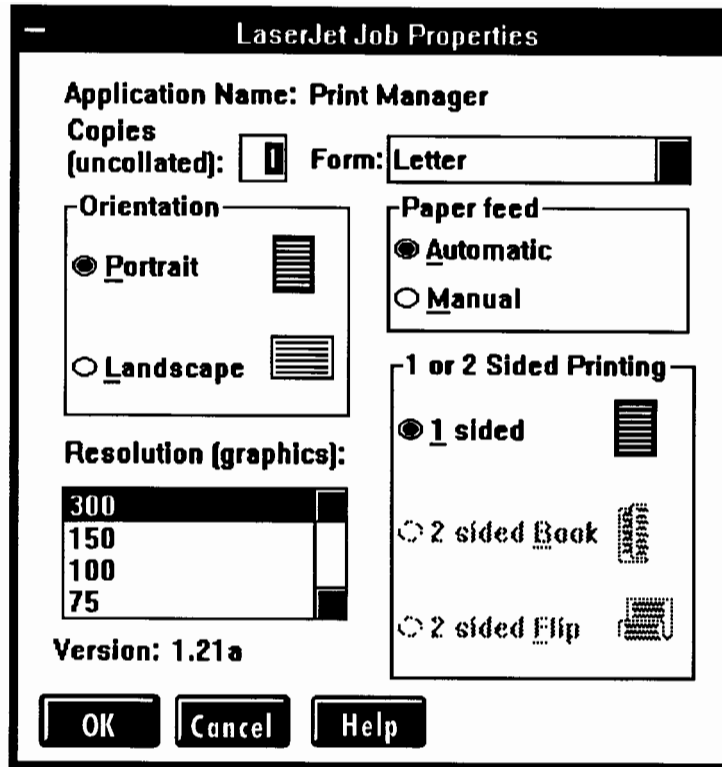


Figure 5-1.
Some Selectable Printing Options
Using Software Drivers

Software That Uses Set-Up Strings

Some software packages allow you to enter printer commands in initialization or set-up strings. You combine and enter the printer commands in a menu or screen. The set-up string goes to the printer first, before any other data. Some software packages that use set-up strings also allow you to embed printer commands in your file. Refer to "Software That Uses Embedded Printer Commands" on page 5-6.

A screen where you enter a set-up string may look like this:

```
A1: Enter Setup String:\027E EDIT
  A      B      C      D      E      F      G
 1
 2          SOUTH SEAS SHIPPING COMPANY
 3          MONTHLY SALES TRANSACTION
 4          BY CUSTOMER
 5  CUSTOMER NUMBER: 705
 6  CUSTOMER name: Manhattan Exports, Ltd. Representative
 7
 8  Product#  Quant  Unit Price  Ext. Price  Cost
 9 -----
10  CK3000   15     $1,800.00  $27,000.00  $1,530.00
11  PB3040   15     $2,250.00  $33,750.00  $2,175.00
12  PX3050    5     $3,000.00  $15,000.00  $2,350.00
13  PB9030    8     $3,000.00  $24,000.00  $2,300.00
14  MX3010   10     $1,700.00  $17,000.00  $1,630.00
15 -----
16  Customer
17  Totals    53     $116,750.00
18
19
                               Num Pad
```

Figure 5-2. Set-Up String Example

Software usually limits the length of set-up strings. Refer to “Combining PCL Printer Commands” later in this chapter for ways to shorten the length of your set-up string.

Software packages that use set-up strings to communicate with the printer include:

- Lotus 1-2-3.
- Quattro.
- Symphony.

For information on using set-up strings with a specific application, look in your software manual or see Chapter 7, “Printing With Your Software”.

Software That Uses Embedded Printer Commands

Some software packages let you enter printer commands anywhere in your file. Figure 5-3 shows an example of embedded printer commands. (The commands are highlighted.)

```
Executive MemoMaker
Line: 1 Column: 1 Length: 18
Ready.
Directory: C:\EMM\

[EB&l00[COU
[(s1p18v0s3b4101T

[&a+1440H          MEMORANDUM

[(s1p12v0s0b4101T

To:      Scott Lokken
From:    Tom Simmonds

The following are the minutes of the meeting with the Learning Products
Department.

1. Attendance: Paul Akins, Jane Bell, Mike Billings, Jim Hall, Helen
Higgins, Rosalie Hughes, Monica Knight, Bob Kunz, Frank
Riskie, Rich Smith, Nor Rae Spohn, Velma Sugg, Dennis Swift,
and Denise Zimmerman.

1 File 2 Block 3 Format 4 Print 5 Picture 6 Memo 7 Help 8 Exit
Keys Keys Keys Keys Keys Speller MEMOMAKR
```

Figure 5-3. Embedded Printer Commands

Some common software packages that use embedded printer commands to communicate with the printer are:

- Lotus 1-2-3.
- Quattro.
- Executive MemoMaker

5-6 Software and Your Printer

AutoFont Support

Hewlett-Packard provides font width information for your software through **AutoFont Support**. Your software uses font width information to determine how many characters will fit on a line in any given point size.

If your software application offers AutoFont Support, you will have instant access to any of Hewlett-Packard's internal or optional bitmapped font products.

Included with the most recent HP bitmapped font and scalable typeface products are several diskettes containing **AutoFont Support** files. These files have the extension .TFM. Installation instructions are included with the diskettes.



Type Director



Software Applications

The Type Director font management program will let you install and create bitmapped fonts for several versions of popular software packages.

Type Director supports software applications in two ways. The first is completely automatic. The second requires the use of software that can “read” Hewlett-Packard’s PCL Language soft font formats.

Automatic Support

“Automatic support” means that Type Director can take care of all your software’s font management. This includes installing fonts and creating and/or updating font support files. The fonts made for these applications are ready to be used as soon as you leave Type Director. Automatic support is available for:

- AutoFont Support applications
- Aldus PageMaker (versions 1.0a and 3.0)
- HP NewWave (version A.01.00)
- MS Excel (all MS Windows versions)
- MS Word (versions 4.0 and 5.0)
- MS Windows applications (versions 2.03, 2.1 and 3.0)
- WordPerfect (versions 5.0 and 5.1)
- Word for Windows (version 1.0)
- Xerox Ventura Publisher (version 2.0)

Many software manufacturers are incorporating AutoFont Support as a standard method of managing fonts. Check

your software manual or with your software manufacturer to see if your program has this feature.

PCL Soft Font Support

Fonts made with Type Director can be used with many software applications. These software applications must have the ability to read (interpret) Hewlett-Packard's PCL printer language soft font files. With these software applications, the creation of font support files takes place *outside* of Type Director.

These applications may require the use of additional font utility programs to prepare the soft fonts for use. Check your software manuals for more information. Some of the software applications that can "read" soft font files include:

- MultiMate (version 4.0)
- HighStyle (version 1.1)
- Manuscript (version 2)
- WordStar (version 5.5 and 6.0)
- WordStar 2000 (version 3.0)
- XyWrite (version 4.0)

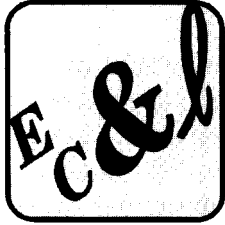
Software Utilities

A few software packages do not let you send printer commands directly. In such cases, you can often use a software utility designed specifically to control printer output.

Some software utility packages for controlling printer output are:

- LaserControl.
- Laserific.

PCL Printer Language Mode



If you have a software package that supports PCL4, you will not need to use escape sequences. However, if your software package does *not* support PCL4, escape sequences will be needed. PCL printer commands always begin with the escape character (E_C). The escape character precedes a unique series of letters and numbers that tell the printer what to do (see figure 5-4). Software packages have different ways of inserting or representing E_C , most commonly by its numeric character value: 27 in decimal or 1B in hexadecimal.

Most PCL printer commands have a value field for which you must supply a number. This number can be a literal value, such as 12.00 for point size, or a representative value, such as 1 for Multi-Purpose tray. In figure 5-4, a # symbol within a PCL printer command means you should enter a number for the quantity or value you want in place of the # symbol.

All PCL printer commands end with an uppercase letter or a special symbol (such as =).

Note



PCL printer commands are *case sensitive*. Make sure you enter uppercase and lowercase letters correctly.

Figure 5-4 displays the elements of a page orientation PCL printer command.

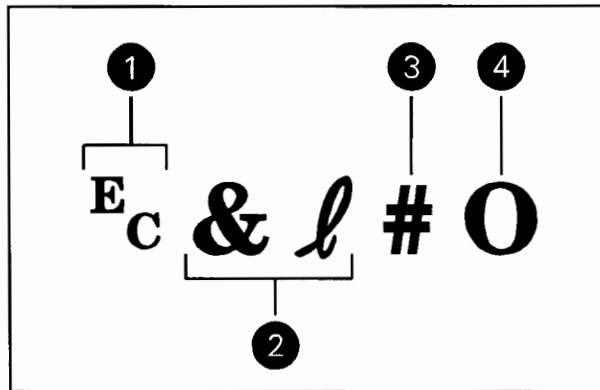


Figure 5-4. PCL Printer Command Explanation

1. Escape character – begins command.
2. Notifies printer of the type of command.
3. Value field designator.
4. Uppercase letter terminates a command.

Note



Before using printer commands, distinguish between these characters:

Lowercase l: *ℓ* Uppercase O: O

Number one: 1 Number zero: 0

Many printer commands use the lowercase letter l (*ℓ*) and the number one (1), or the uppercase letter O (O) and the number zero (0). These characters may not appear on your screen as shown here.

For a complete description of the PCL printer commands, refer to the Appendix A.

How to Use PCL Printer Commands

If your software does not automatically send printer commands, you may be able to enter them directly into your job file, or in a menu provided by your software. Refer to your computer and software manuals to find the best method to enter printer commands.

The escape character E_C is often represented by:

- 1B (Hexadecimal).
- 27 (Decimal).

Usually, the E_C character does not appear on your screen. Instead, a different character appears, depending on the software you are using. How you insert the escape character E_C and what it looks like on your screen depends on your software package.

The printer commands seen on the screen are not printed and do not take up space on the printed copy. They may take up space on the screen.

In printer commands, the escape character precedes additional characters (ASCII characters) or hexadecimal representations of these characters. For example, the landscape orientation command can be entered using these ASCII characters in Lotus 1-2-3:

\027&l10

In some software applications, you can enter the same command using these hexadecimal codes:

1B 26 6C 31 4F

(Appendix A lists the hexadecimal codes for printer commands.) Once you know which method to use to enter commands (if required by your software), read the next section to learn how to shorten them. Combining commands is especially helpful if you are using set-up strings or have a limited amount of space in which to enter the commands.

Note



A printer command that the printer receives stays in effect until changed by a subsequent command. A printer reset will reset the printer back to its Printing Menu selections.

For example, if you send the printer a command to change the left margin, each page will print with that margin setting until you send a new margin command or reset the printer.

To reset the printer, take the printer off-line. Hold down the **Alt** key and click **Reset**. 07 RESET will appear in the display. Another method is to send the reset printer command (**ESC**E) from your computer.

Combining PCL Printer Commands

Some printer commands can be combined before sending them to the printer. With some software packages, you may need to shorten a string of commands because of limited string length.

These two printer commands set the job size to legal and the orientation to landscape:

$E_C \& \ell 3A$ and $E_C \& \ell 1O$

They can be combined and sent to the printer like this:

$E_C \& \ell 3a1O$

Notice that the E_C , the $\&$, and the ℓ are dropped from the second printer command when they are combined. Also, the upper-case “A” that ended the first command becomes a lower-case “a” when these commands are combined.

Use these three rules to combine and shorten PCL printer commands:

- The first two characters after E_C must be the same in all printer commands you want to combine. In the example above, these characters are $\&$ and ℓ .
- All alphabetic characters within the combined printer commands must be lowercase, except the final letter. In the combined example above, “A” becomes “a.” The final character in the printer command must always be uppercase to tell the printer the command sequence is complete.
- Printer commands take effect as your printer encounters them. Be sure to combine printer commands in the order that the printer should perform them. The printer commands are listed in appendix A in the order they are executed. Refer to the *LaserJet IIP Printer Technical Reference Manual* for more information.

An example of how PCL printer commands are combined can be found on the Font List printout (see figure 6-11). The last 2 columns show the Print Sample and Escape Sequence used to select the font. The escape sequence (printer command) shown is a combination of several commands specifying the symbol set, spacing, pitch, point size, style, stroke weight, and typeface family.

The *LaserJet IIP Printer Technical Reference Manual* contains detailed information on printer command hierarchy.

5-16 Software and Your Printer

Using Type and Fonts

Introduction



The term **type** describes all the printed letters of the alphabet and other characters and symbols. “Type” can also describe just one character or a collection of characters. You can select type using your software, printer commands or the printer’s control panel.

The HP LaserJet IIP *plus* printer supports type in the form of **internal bitmapped fonts**, as well as optional cartridge or disk-based products. You must install disk-based, scalable typefaces through the “Type Director 2.0” font management program. HP part numbers for ordering are:

C2057B 3½ in disks
C2058B 5¼ in disks

This chapter describes:

- The terms pertaining to type, fonts, and typography.
- The HP LaserJet IIP *plus* printer type offering.
- The Font printout.
- How to install optional type and font products.
- How to select fonts with printer commands and the control panel.

What Are Typefaces?

A **typeface** is the *name* of a design of characters and symbols. A typeface is a single variation in a typeface family. For example, Univers Medium is one typeface and Univers Medium Italic is another. Typefaces are the source of fonts.

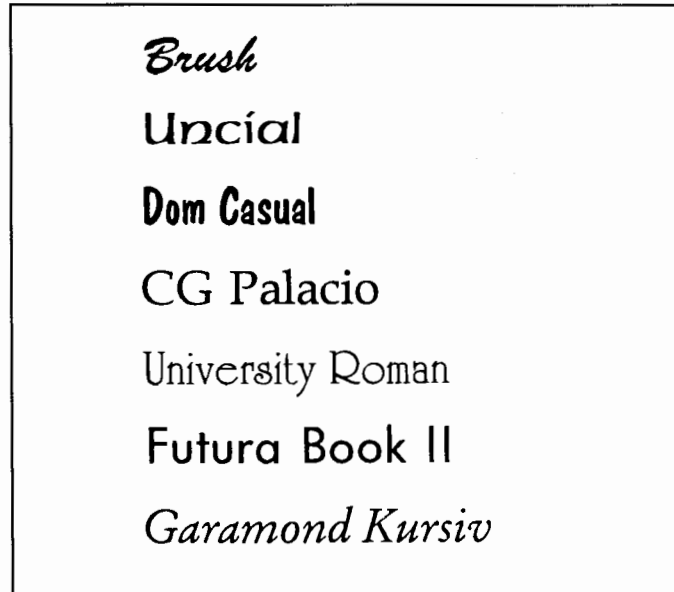


Figure 6-1. Sample Individual Typefaces

What Are Fonts?

Fonts are created from typeface designs for a unique device such as a printer or screen display. Fonts are limited collections of characters and symbols in that they have *specific attributes* like style and stroke weight. The HP LaserJet IIP *plus* printer provides bitmapped fonts.

Bitmapped Fonts



Bitmapped printer fonts are made of tiny dot-by-dot patterns in pre-defined sizes. Bitmapped fonts have fixed **point size, pitch, style, and symbol set** attributes. For example, 10 point Courier is one font and 12 point Courier Bold is another font. Fourteen bitmapped fonts are contained inside the HP LaserJet IIP *plus* printer (figure 6-3). Optional bitmapped font cartridges are also available.

ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890

Figure 6-2. Sample Bitmapped Font — Limited To A Fixed Size

HP LaserJet IIP *plus* Printer Type Offering

Your printer comes with fourteen bitmapped fonts built in. Figure 6-3 shows seven of the bitmapped fonts in portrait orientation (the other seven fonts are landscape versions of these).

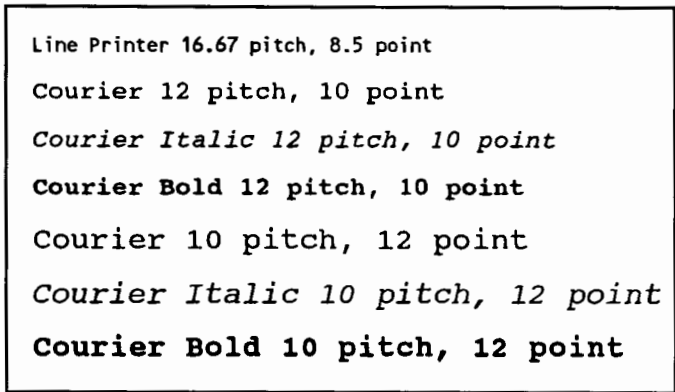


Figure 6-3. Sample of Internal Bitmapped Fonts

Default Font

Courier 10 pitch, 12 point (medium) is the factory **default font** the printer uses unless you:

1. Send a font selection command (using software or a printer command) to request a font in place of the default.
2. Select a different default font using the control panel.
3. Insert a font cartridge with a default font. Some HP font cartridges have a designated default font.

Point Size

The height of fonts is measured in units called points. There are approximately 28 points per centimeter. A point size of 14 would be approximately a 0.5 cm if measured from the top of the upper-case letters to the bottom of the lower-case letters (for example, the tail of the letter “y”). The text you are reading now is 10 point.

Choosing Point Sizes

As a general rule, select a point size based on the following kinds of work:

Kind of Work	Point Size
Footnotes	6 to 8
Standard body text	10 to 14
Headlines	14 and above

Spacing

All fonts use either fixed spacing or proportional spacing.

With **fixed spacing**, the space allowed for the width of each character is the same. For example, a “w” and an “i” take up the same amount of space (see figure 6-4). Typewriter-like typefaces such as Courier and Letter Gothic use fixed spacing.

Fixed spaced fonts are often used in tabular work because every character or number easily aligns. Use fixed spaced fonts for spreadsheets, lists, tables and other data processing work. Fixed spaced fonts can also be used for “personal” memos, where a crisp typewritten look is desired.

With **proportional spacing**, the width allowed for each character varies. For example, a “w” has a much larger width than an “i.” Publication typefaces, like CG Times and Univers (and Century Schoolbook, the typeface of this text) are proportionally spaced.

Proportionally spaced fonts have the typesetter-quality look of professional publications. Use proportionally spaced fonts for such work as reports, proposals, manuals or letters.

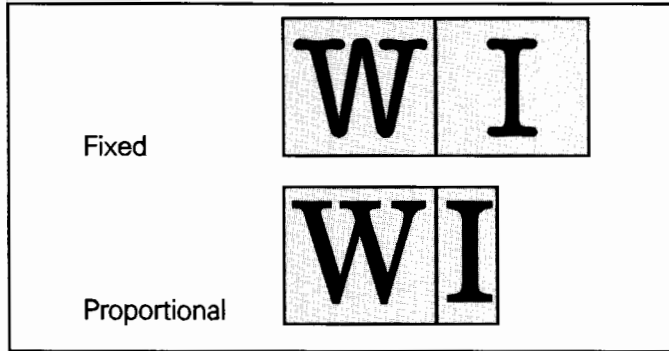


Figure 6-4. Fixed and Proportional Spacing

Pitch **Pitch** refers to the number of characters that can be printed in one horizontal inch. For example, a font with a pitch of 10 will print 10 characters for every horizontal inch of text. Pitch applies only to fonts with fixed spacing. Fonts with proportional spacing have no specified pitch.

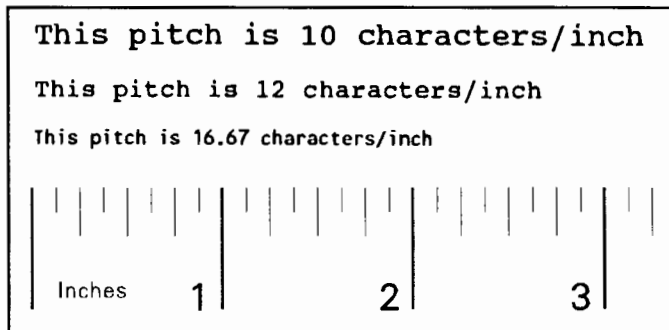


Figure 6-5. Pitch

Style and Stroke Weight

The PCL language term **style** signifies the *shape* of the typeface, such as upright, condensed or italic (figure 6-6). The PCL language term **stroke weight** refers to the *thickness* of print, such as light, medium, bold and extrabold (figure 6-7).

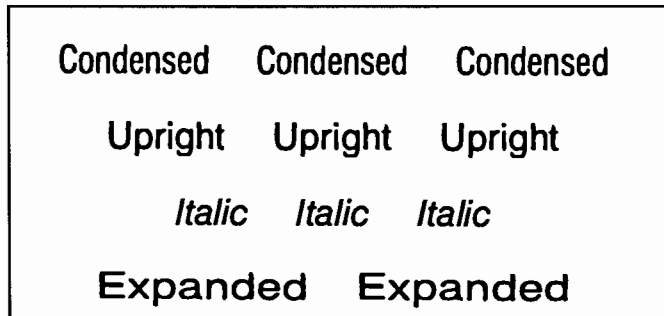


Figure 6-6. Style

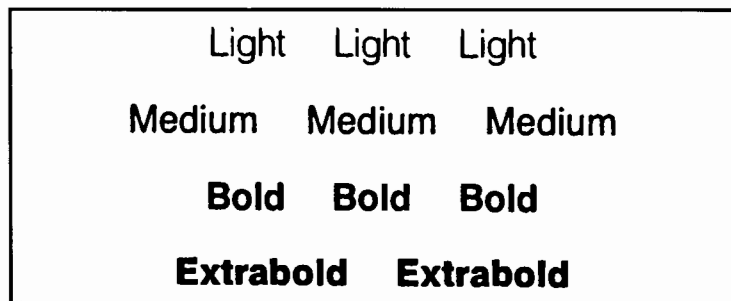


Figure 6-7. Stroke Weight

Symbol Set

A **symbol set** is a specific collection of alphabetic, numeric and special symbols in a font. Though a typeface can contain hundreds of different symbols, only a sub-group is available in any one font. These sub-groupings (symbol sets) are defined for specific application or language requirements. For example, the Math-8 symbol set supports scientific applications.

The Font Rotation Feature

Whether or not the original font is in the orientation you want, the HP LaserJet IIP *plus* printer can automatically rotate type to portrait or landscape. Figure 6-9 shows a single portrait font automatically rotated using the print direction command.

For example, the fonts on some font cartridges are available only in portrait orientation. If you select landscape orientation for your job, the HP LaserJet IIP *plus* printer will automatically rotate the font 90 degrees.

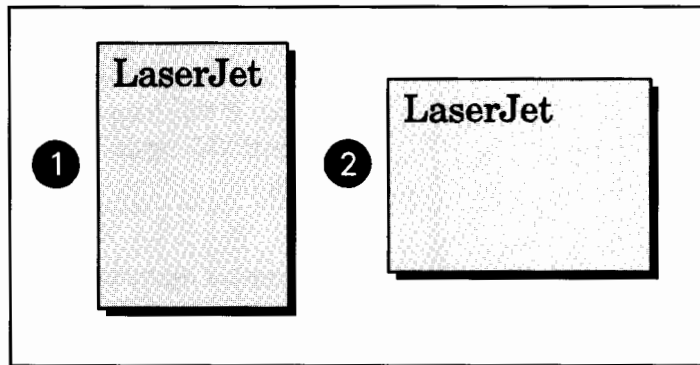
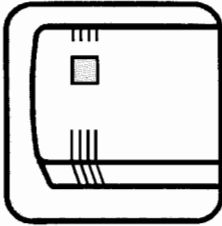


Figure 6-9. Print Directions

① Portrait ② Landscape

Typeface and Font Cartridges



Caution



Many optional font cartridges are available. Refer to your *HP LaserJet Accessory Catalog* for a list of Hewlett-Packard font cartridges, and for purchasing information.

Do not insert or remove font cartridges while the printer is on-line. (The printer is off-line when the green On-Line indicator is off.) In addition, do not remove cartridges while the Form Feed indicator is lit. This causes a message to appear. If this happens you must power the printer OFF and back ON again to recover. Any data in printer memory is lost.

Installing Font Cartridges

To install a cartridge in the printer:

1. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
2. Hold the cartridge right side up. (The cartridge label should be on the top of the cartridge.)
3. Slide the cartridge into the slot on the right side of the printer and push until the cartridge is firmly in place (figure 6-10). You should hear and feel the cartridge snap into place. **Don't be afraid to push very hard.**

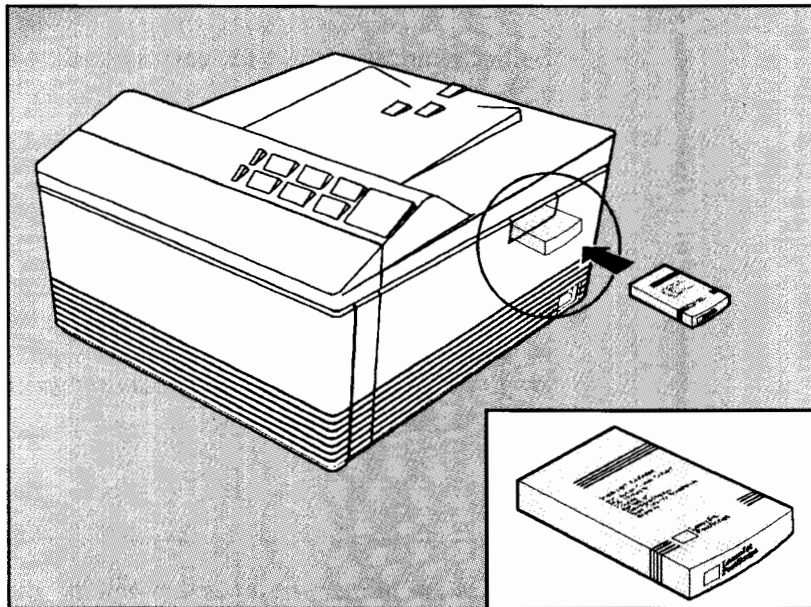


Figure 6-10. Inserting a Cartridge

4. Click the **MENU** key until FONT SRC appears in the first line of the display.
5. Click the **+/-** key repeatedly until C (Cartridge) appears in the display. If C appears in the display, the cartridge is properly installed.

Note



If C (Cartridge) does not appear in the display, the font cartridge is not installed correctly. Make sure the font cartridge is **right-side up** (the label is on the top of the cartridge) and properly seated (**you should feel the cartridge snap into place**).

6. Click the **ON LINE** key to return the printer on-line.

Selecting Default Cartridge Fonts

If you are using a cartridge font as your default, remember the following:

- Do not remove or insert the cartridge while the printer is on-line.
- Do not remove a cartridge while the Form Feed indicator is lit.
- The printer returns to the factory default if a cartridge containing a default font is removed.
- Some HP font cartridges contain a default font, noted by an asterisk (*) on the cartridge label. The printer will use the cartridge default font unless you select a different font using the control panel.

Soft Fonts



Soft fonts are bitmapped fonts that can be transferred from disks in your computer to the printer's memory. The process of transferring soft fonts from your computer to the printer is called **downloading**. Soft fonts are sometimes referred to as *downloadable fonts* or *disk-based* typefaces.

Hewlett-Packard offers an extensive line of optional disk-based HP soft fonts. Contact your local authorized HP dealer for ordering information.

Downloading Bitmapped Fonts

Software packages vary in the kinds of font products they can download. Some packages automatically download any fonts for you. Check the font section of your software manual for specific instructions.

If your software does not download fonts for you, Hewlett-Packard provides you with several methods, such as the *Type Director* program which runs on your PC, to make the downloading process easy.

Note



All downloadable soft fonts are erased from printer memory when the printer is powered off.

Downloading Fonts Using Type Director

Type Director is Hewlett-Packard's typeface and font management program. Use *Type Director* to install scalable typefaces and generate scalable fonts for downloading. *Type Director* also helps you create high quality screen fonts to complement and enhance the capabilities of your compatible software application.

Refer to the *Type Director User's Guide*, which provides complete instructions for installing scalable typeface products and downloading bitmap fonts.

Permanent or Temporary Status

Soft font downloading programs, like *Type Director*, allow you to assign either permanent or temporary status for soft fonts.

Permanent means that the fonts will remain in the printer memory until a delete font command is sent through your software, or the printer is turned off. **Temporary** means that the fonts will be erased anytime a printer reset command or delete font command is sent, or when the printer is turned off. Because many software applications send the printer a reset command when you print a job, temporary status is not recommended when downloading soft fonts through a utility such as *Type Director*.

Note



The Font Printout only displays soft fonts downloaded as “permanent.”

Soft Font Identification Numbers

Soft fonts can be identified by two numbers on the Font List printout. The “Font #” field is used solely for font selection from the printer’s control panel. The “Font ID” field is used for soft font selection through printer commands or software applications.

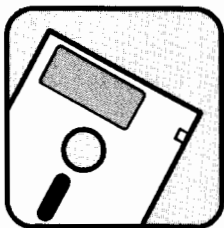
Caution



Generating the Font Printout deletes all *temporary soft fonts*. Because of this, temporary soft fonts do not appear on the printout.

Powering off the printer deletes all soft fonts from memory.

Soft Font Hints



The following hints will help you use soft fonts efficiently. They are especially helpful when several users are sharing one printer.

- Powering off the printer deletes all downloaded soft fonts. You must download them again to use them.
- The printer has a limited amount of memory in which to store fonts. Each occupies a portion of memory that cannot be used for anything else until you delete the font.
- If you use a large number of downloaded soft fonts, or if you create and use very large font sizes, consider purchasing additional printer memory. This expands the printer memory, allowing more fonts to be stored. (See appendix F.)
- If the printer is shared among several users, decide which soft fonts to download and the ID numbers to assign them. Making these decisions helps avoid problems such as downloading duplicate fonts or deleting fonts needed by others.



The Font Printout

The Font Printout lists all the fonts currently available in your printer and displays a print sample of each. You will find the Font Printout a helpful tool because the exact printer command (escape sequence) to access individual fonts is displayed.

Caution



Generating the Font Printout deletes all *temporary soft fonts*. Because of this, temporary soft fonts do not appear on the printout.

To print a list of the printer's current fonts:

1. Click the **ON LINE** key to take the printer off-line. The green On-line indicator should be off.
2. Hold down the **Alt** key and click the **Print Fonts** key.

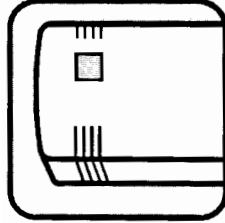
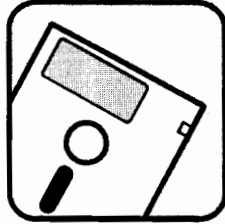
Ø6 FONT PRINTOUT appears in the display and several pages are printed. There may be some delay in printing the Font Printout while the printer creates the fonts.

The Font Printout contains 12 columns of information (see figure 6-11):

1. *Font #* is the number assigned by the printer that you use to select internal, cartridge, or downloaded fonts from the control panel. (Don't confuse font *number* with the soft font *ID*, described next.) The letter preceding the font number shows the source of the font.
 - S = Permanent soft font, residing in printer memory.
 - C = Fonts in the cartridge slot.
 - I = Internal printer fonts.
2. *Font ID* is an ID number you assign to fonts. This is often used when you download fonts through your software.
3. *Symbol Set* is a specific collection of characters and symbols associated with a font.

4. *Fix/PS* indicates whether the font has fixed spacing or proportional spacing.
5. *Pitch (cpi)* is the number of characters per inch of a fixed-spaced font. This field is blank for a proportionally-spaced typeface.
6. *Point Size* is the height of a font.
7. *Style* indicates the appearance and posture of the font, such as italic, upright, or condensed.
8. *Stroke Weight* is a font treatment, such as light, medium, or bold.
9. *Name or Typeface* is the name of the font or typeface.
10. *Default Orient* is the orientation of the font.
11. *Print Sample* is an example that shows what the characters look like.
12. *Escape Sequence* contains the **escape sequence** that selects the designated font.

Selecting Fonts



You can select fonts using your application software, printer commands, or by using the control panel. Ask yourself the following questions to determine the best way for you:

1. Does your software support the fonts you want to use?
To find out:
 - a. Check your software manual.
 - b. Call your software manufacturer for the most current information on printer drivers.
2. Do you know how your software selects fonts? Consider:
 - a. Some software allows you to select a limited number of fonts at one time (for example, WordPerfect 4.2).
 - b. Some software properly supports only fixed-spaced fonts (for example, Lotus 1-2-3, release 2.01).
 - c. Some software requires printer drivers and spacing tables to select fonts for you (for example, Microsoft Word and Ventura Publisher).

If you do not select a font, the printer uses the current default font. The **factory** default font is Courier, 12 point, 10 pitch, upright, medium-weight using the Roman-8 symbol set. The current default will be different if you have manually changed the control panel Printing Menu setting or installed a cartridge with a default font.

Selection Priority

A desired font may be available from more than one source. In this case, the printer selects the source in the following order:

- The printer selects a downloaded soft font.
- If the requested font is not available as a soft font, the printer selects the font cartridge.
- If the requested font is not available on cartridge, the printer selects an internal font.

When choosing a font, the font must be available from one of these sources. If the font you request is not available, the printer selects the closest match based on individual characteristics.

Selecting Fonts Using Software Applications



The easiest way to select fonts is through your software application.

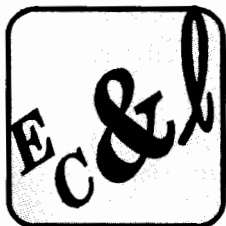
Many software applications support the fonts used with the HP LaserJet IIP *plus* printer. You can select fonts using your software instead of entering printer commands.

Most software applications allow you to define bitmapped fonts to use in your documents. You usually make these definitions as part of the application's installation or set-up procedure. You then access the font using the procedures for your particular software. For example:

- MultiMate assigns a unique font letter to each font. To change from one font to another, change the MultiMate font letter.
- Microsoft Word, Microsoft Windows, and WordPerfect select fonts by specifying the font name, size and style.

Check your software manual to find out which method your software uses to select fonts.

Selecting Fonts Using Printer Commands



Printer commands for selecting fonts are based on descriptions of the individual characteristics of a font. If the exact font you want is not available, the font with the closest characteristics will be substituted. Because of this process, it is important that the printer commands be entered in the following order: symbol set, spacing, pitch, point size, style, stroke weight, and typeface family.

The exact printer commands (escape sequence) to select fonts are displayed on the Font Printout (see “The Font Printout” section earlier in this chapter). Use of the entire command ensures correct font selection.

Each characteristic of a font has a specific printer command. You can select fonts by combining these commands. Table 6-1 shows the individual printer commands and the order in which they should appear. The ID represents a numerical value and an uppercase alphabetical designator that you must insert into the command.



Table 6-1. Font Characteristic Commands

Symbol Set	Spacing	Pitch	Point Size	Style	Stroke Weight	Typeface Family
$E_C(ID)$	$E_C(s\#P)$	$E_C(s\#H)$	$E_C(s\#V)$	$E_C(s\#S)$	$E_C(s\#B)$	$E_C(s\#T)$

The commands to select Roman-8, proportional, 12 point, italic, medium Univers font look like this:

$E_C(8U)$

$E_C(s1P)$

$E_C(s12V)$

$E_C(s1S)$

$E_C(s\emptyset B)$

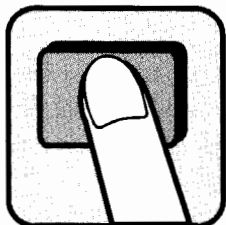
$E_C(s4148T)$

When combined, the command looks like this:

$E_C(8U^E_C(s1p12v1s\emptyset b4148T|$

The printer commands you need to select fonts are shown on the Font Printout (figure 6-11). Refer to appendix A for a complete list of printer commands and to “Combining PCL Printer Commands” on page 5-16 for more information on how to combine (shorten) printer commands.

Selecting Fonts Using the Control Panel



If your software does not allow you to specify fonts, you can select any of the internal, cartridge or permanent downloadable soft fonts through the control panel.

Example — Selecting Fonts From the Control Panel

The following example shows how to select a cartridge, soft, or internal font.

1. If you are using a font cartridge, make sure the font cartridge is properly installed, and that the cartridge label is facing up. **When a cartridge is inserted you should feel it snap into place. Do not be afraid to push hard on the cartridge.**
2. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
3. Hold down the **Alt** key and click **Print Fonts** to print a list of all available fonts. (Ø6 FONT PRINTOUT appears on the display.) Refer to “The Font Printout” on page 6-17? for information on understanding the font printout.
4. Find the font number that corresponds to the font you wish to use. (Refer to “The Font Printout,” on page 6-17 for an explanation of the font printout.)
5. Click **MENU** until FONT SRC appears in the first line of the display.
6. Click **+/-** to select C (for cartridge fonts), S (for soft fonts), or I (for internal fonts).

Note



If C (Cartridge) does not appear in the display, the font cartridge is not installed correctly. Make sure the font cartridge is **right-side up** (the label is on the top of the cartridge) and properly seated (**you should feel the cartridge snap into place.**)

If S does not appear in the display, there are no soft fonts permanently downloaded to the printer.

7. Click **ENTER** to save the selection. An asterisk (*) appears in the display.
8. Click **MENU** again to display FONT NUM in the first line of the display.
9. Click **+/-** until the number that corresponds to the font you wish to use appears, such as IØ12 or SØØ7.
10. Click the **ENTER** key to save your selection. An asterisk (*) appears in the display.
11. Click **ON LINE** to exit the menu and put the printer back on-line.

Note



If you get a 1Ø RESET TO SAVE message, refer to page 9-4.

Special Application Fonts

Hewlett-Packard designs some fonts for special applications such as printing bar codes, preparing presentation slides, or producing special symbols such as those used in legal documents or in mathematical formulas. Some of the applications are shown in figure 6-12. For ordering information see your dealer or the *HP LaserJet Accessory Catalog*.

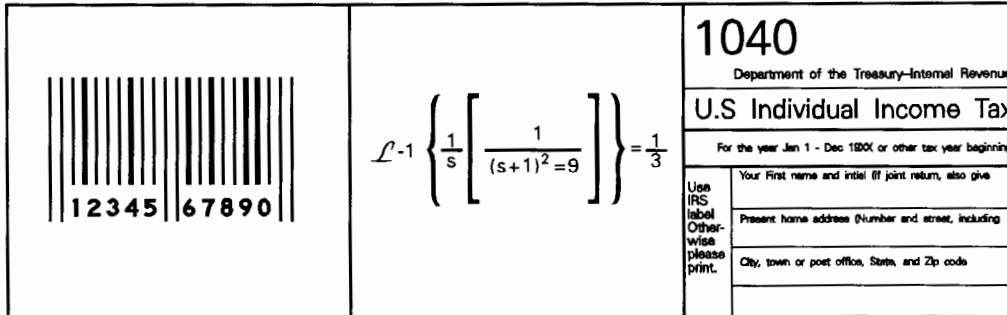


Figure 6-12. Special Applications Using Fonts

Custom Font Cartridges, Macro Cartridges, and Soft Fonts

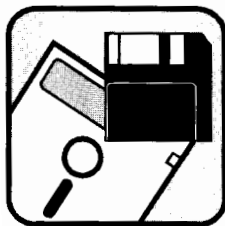
You can design your own soft font or macro file that can be printed on your HP LaserJet IIP *plus* printer, refer to *LaserJet IIP Printer Technical Reference Manual* (HP part number 33471-90905) for more information. Contact your local dealer or HP Sales Representative for a quotation from HP Peripherals Group's ODS (Output Design Service) in Europe if your particular application requires special features such as:

- A customized font cartridge.
- A macro file in a macro cartridge.
- Your signature or your company's logo in a special cartridge.
- Particular forms to be stored in a cartridge.

6-26 Using Type and Fonts

Printing With Your Software

Introduction



This chapter gives a general overview of tasks you might perform with your printer, and provides some guidelines on solving common printing problems. This chapter also tells you what kinds of instructions to look for in your software documentation.

Supported Fonts

Most conventional software packages contain printer drivers that support one or more of the following HP accessory font products:

BITMAPMED FONT PRODUCTS	
<p>Cartridge Fonts 92286 ... A, B, C, D, E, F, G, H, IC, J, K, L, M, N, P, PC, Q, R, T, U, V, W, W1, X, Y, Z1, Z1A</p> <p>Cartridge Fonts 92290 ... S1, S2</p> <p>Cartridge Fonts C2053A ... #C01, #C02, #C03, #C04, #C05, #C06, #C07, #C08, #C09</p> <p>Soft Fonts 33412 ... AA, AB, AC, AD, AE, AF, AG, DA, DC, EA, RA, RB, SA, SB, TA, TB, UA, UB</p>	<p>Scalable Typeface Disk Collections C2050A ... * #D80, #D81, #D82, #D83, #D84, #D85, #D86</p> <p><i>*Requires Type Director 2.0 to function.</i></p> <p>Type Director Typefaces C2050A ... #D01, #D02, #D03, #D04, #D05, #D06, #D07, #D08, #D09, #D10, #D11, #D12, #D13, #D14, #D15, #D16, #D17, #D20, #D21, #D22, #D23, #D24, #D25</p>

The following fonts products are discontinued:

All cartridges 92286 ... with the exception of the 92286T, 92286IC, and 92286PC.

All cartridges 92290...

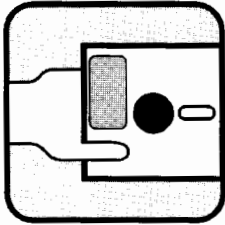
All soft fonts 33412 ... with the exception of the 33412DA, 33412DC, and 33412EA, 33412AG.

Installation

Installation of an HP LaserJet printer with a conventional software package involves one or all of the following:

- Installation of a printer driver(s).
- Installation of accessory fonts (if used).
- Selection of a printer port.

Printer Installation



Most software packages allow you to select the type of printer you wish to use. The process of selecting a specific printer is called choosing a “printer driver.”

When you install your software, you may be asked for information about your system: monitor, type of mouse, mouse port, type of printer, and printer port. If the software contains a driver for the LaserJet IIP, you may be able to select the LaserJet IIP during this step.

If the software package does not offer a printer driver for HP LaserJet IIP *plus* or IIP printer, you should:

1. Select one of the other HP LaserJet selections.
2. Select an unlisted option or generic printer driver.

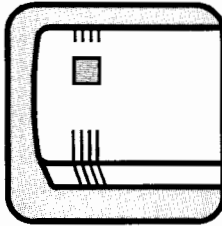
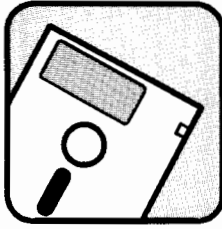
Note



Selection of a printer other than the one that is actually being used may prevent you from accessing some of the printer’s supported features.

3. Call the software vendor and request a LaserJet IIP printer driver. If a LaserJet IIP driver is not available, you should ask the software vendor for the specific steps necessary to configure the software to work with the LaserJet IIP *plus* printer.
4. If the software does not contain any LaserJet printer drivers, you may have to look for a third-party product (driver) to convert your file to PCL.

Installing Fonts



The following information is provided to aid in the installation of Hewlett-Packard font products using conventional software packages.

Generally, fonts are supported by the HP LaserJet IIP *plus* printer in one of the following three ways:

- As an internal font.
- As a soft font.
- As a cartridge font.

If the software allows you to choose a specific type of printer, it will probably also allow you to select the specific type of fonts you wish to use. You should complete the following steps to install fonts for the HP LaserJet IIP printers:

1. Consult the software manual or vendor to determine the procedure for installation of fonts using an HP LaserJet IIP printer driver.
2. If an HP LaserJet IIP printer driver is provided in the software program (see the software documentation for this information), the driver can be used to access fonts supported by the printer. If no printer driver exists, see the section on “Selecting Fonts” in the “Common Tasks” section of this chapter.
3. If the first two steps have not proven successful, you may be able to send PCL commands to the printer to access the fonts. Refer to the information on “Sending Code to the Printer” in the “Common Tasks” section of this chapter.

Selecting a Printer Port

Most software programs allow you to choose the printer port you wish the software to address (i.e., LPT1, LPT2). Choosing the correct printer port is a function of the software program. Refer to the software documentation or vendor for information on selecting the correct printer port from within the application.

Common Tasks

If the desired output is not obtained after completing the following steps, you should call the software manufacturer.

Selecting Fonts



Most software packages allow you to select and change fonts from within the application.

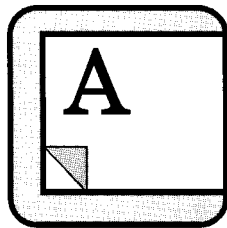
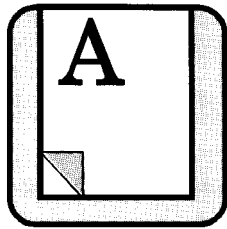
To select a font, you should complete the following steps:

1. Verify that the software has a printer driver for the HP LaserJet IIP *plus* or IIP printer.

Once the HP LaserJet IIP printer driver has been selected, the software should recognize the fonts present in the printer by listing them in a font menu. It is at this menu that the fonts should be selected. If there are no printer drivers available, proceed to the following section.

2. Refer to the printer users manual for information on selecting the printer's default font from the front panel of the printer. Many software packages offer little or no direct printer support and therefore rely on the printer's default settings for font selection (i.e., they do not send printer commands to override the printer's default font). If a software falls into this category, font selection may only be achieved by changing the printer's default font settings from the front panel of the printer.
3. Occasionally, some software neither overrides the printer, nor allows you to select the fonts you wish to use from the printer's front panel. In these instances, it may be necessary to send printer commands. All printer commands for font selection can be found in the printer user's manual. For information on embedding these commands, refer to the "Sending Code to the Printer" section later in this chapter.

Changing Orientation



The HP LaserJet IIP *plus* printer supports auto font rotation, therefore, all fonts are available in both portrait and landscape orientation.

To change orientation, you should complete the following steps:

1. Check to see if your software has an HP LaserJet IIP *plus* or IIP driver.
2. If it does, you should be able to select orientation from a menu within the application. Look for something like an orientation menu setting that offers portrait and landscape as selections like the paper size/type selection in WordPerfect 5.1, or a page length/page width setting in inches (like MS Word or DisplayWrite 4).
3. If the software does not have an HP LaserJet IIP printer driver, it probably is not sending PCL codes to the printer. If the software is not sending code to the printer, you should be able to change orientation on the printer's control panel. (See page 2-17.)
4. If setting the front panel is not a viable option and there is no menu selection within the software, it may be possible to send the landscape command to the printer from the software. The printer command for landscape orientation is `^c&l10`. For information on embedding printer commands, refer to "Sending Code to the Printer" section later in this chapter.

Using Supported Paper Sizes

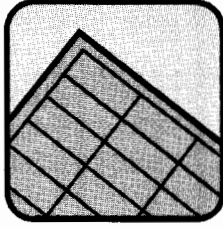
Most software programs allow you to choose paper size. The HP LaserJet IIP *plus* printer supports only the following paper sizes:

Letter	8.5×11 in.	216×279 mm
Legal	8.5×14 in.	216×356 mm
A4	8.27×11.69 in.	210×297 mm
B5	7.17×10.12 in.	182×257 mm
Executive	7.25×10.5 in.	184×267 mm
Envelope sizes between a minimum paper size of 3.5×7.5 in. and 7.2×10.1 in. such as the following:		
COM-10	4.12×9.5 in.	105×241 mm
Monarch	3.87×7.5 in.	98×190 mm
DL	4.33×8.66 in.	110×220 mm
C5	6.38×9 in.	162×229 mm

Paper sizes can be chosen by one of the following three methods:

1. Via an option provided in the software program where you can select the paper size (refer to the software documentation or software vendor for more information regarding this procedure).
2. From the front panel of the printer. If the you have a software package that does not allow paper selection from a menu selection in the program, you may be able to select your paper size from the front panel of the printer. (See pages 2-15 through 2-17.)
3. Via the use of printer commands. The correct code that would be utilized for this procedure is found in Appendix A or the *LaserJet IIP Technical Reference Manual*. For more information on embedding printer commands, refer to the “Sending Code to the Printer” section on page 7-13.

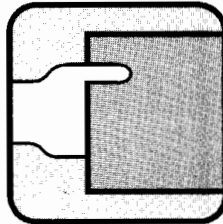
Formatting Labels



Some things to remember when you are formatting labels are:

1. The printer has, by default, a 13 mm top margin, a 13 mm bottom margin (perforation skip), and 25.5 cm of printable area between the top and bottom margins. The printer's front panel should be set to factory defaults, and the page length setting in the software should be set to 64 for A4. Margin settings can then be manipulated to achieve desired results.
2. Because of the default 13 mm top margin, you should purchase labels that are specifically manufactured to leave a margin around the outside edges of the page of labels that correspond to the default margins on the printer.
3. The printer places the data where it is told. Therefore, any formatting problems need to be addressed in the software. Consult the software user's manual or software technical support.

Manually Feeding Paper



Most software packages will allow you to select the source of your paper (for example, manual feed versus tray feed).

To select manual feed you should complete the following steps:

1. Verify that your software has a printer driver for the LaserJet IIP *plus* or IIP printer and that it has been selected.
2. Refer to the software documentation for instructions on selecting manual feed.
3. If an option for manual feed cannot be found within the software, change the default paper source from the front panel of the printer to manual feed.
4. If the printer is still not requesting manual feed, the following printer command may be embedded: `^c&l2H`.

Refer to the “Sending Code to the Printer” section on page 7-13.

Dual Bin Printing

The HP LaserJet IIP *plus* printer supports dual bin paper selection. To feed from the optional lower cassette, you should complete the following steps:

1. Verify that the software provides a LaserJet printer driver for your specific model of printer. If it does not, check to see if the software has a driver for a LaserJet model that supports dual bin printing. If a specific or compatible Hewlett-Packard LaserJet printer driver is available, you should look for a “Lower Tray” or “Bin 2” menu selection within the software.
2. If the software does not have the correct or compatible driver, it probably is not sending PCL commands to the printer. Therefore, you should be able to set the printer’s front panel to TRAYS=LC ONLY.
3. If setting the front panel is not a viable solution and there is no menu setting, it may be possible to send a paper source command to the printer from the software. The printer command for accessing the lower tray is `^c&l4H`. For more information on embedding printer commands, refer to the “Sending Code to the Printer” section later in this chapter.

Setting Margins

Most software programs provide the ability to set top, bottom, left and right margin settings from within the software package. If this procedure is not available from within the software, margin commands can be embedded within the document (if the software supports that option). For more information on embedding printer commands, refer to the “Sending Code to the Printer” section later in this chapter.

The default margin settings on the printer are:

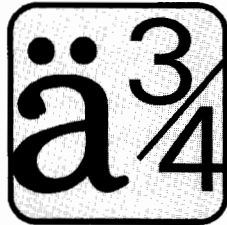
Top margin - 3 lines (.5 inch / 13mm)
Bottom margin - 3 lines (.5 inch / 13mm)
Left margin - 0 at left edge of logical page
Right Margin - right edge of logical page

Note



The default right margin is pitch sensitive, and therefore dependent on the pitch of the default font.

Printing Special Characters



Special characters can be printed if your HP LaserJet IIP *plus* printer has an internal, cartridge, or soft font that supports the character; the supporting font is active; and your software allows you to access these characters.

You should first determine whether the printer's internal fonts support the character or symbol you wish to access. If you have an optional cartridge or soft font, you should refer to the documentation that accompanied that font product. Once the character is found, it may be accessed in one of several different ways.

Accessing Special Characters

The most common ways to access special characters from within a software package are described below.

1. Many software packages allow you to access special characters by positioning the cursor where the character is to be printed, holding down the **Alt** key, and entering the decimal value of the character on the **numeric** keypad. Often the character displayed on the screen may not correspond to the character that was requested. However, the requested character will print out.
2. Some software packages may require that a distinct sequence of characters be typed in before the decimal value. MultiMate, for example, requires holding down the **Alt** and **A** keys simultaneously before typing in the

decimal value. For software specific information, you must refer to the documentation that came with the software package.

3. A few software packages use procedures that are specific to that software (for example, WordPerfect which re-bitmaps). These methods are not typical, and therefore cannot be discussed in generic terms. For application-specific information on accessing special characters, refer to the documentation that came with your software package.

Note

Special characters cannot be accessed from the front panel of the printer. Accessing these characters must be done through the software.

Drawing Lines and Boxes

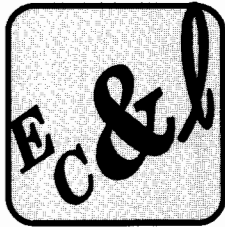
There are two ways to draw lines and boxes: 1) by using raster graphics or rules, or 2) by accessing a symbol set that contains line and box draw characters. Unless the software is a graphics-based package, it will probably use line draw characters.

To access the line and box draw characters, you should complete the following steps:

1. Verify that the software has an HP LaserJet IIP, or other, printer driver which supports the PC-8 symbol set. (The software company may have to be contacted). If a driver is available, you must check the software documentation to determine how the line and box draw characters are accessed.
2. If the software does not have an HP LaserJet IIP printer driver, it is unlikely that it is sending PCL codes to the printer. Therefore, you should be able to set the printer's front panel to `SYM SET = PC-8*`.
3. If changing the symbol set on the front panel is not a viable solution and there is no menu selection for symbol set within the application, it may be possible to send the

appropriate symbol set command to the printer utilizing a printer command. Symbol set commands can be found in Appendix A. For more information on embedding these commands, refer to the section on “Sending Code to the Printer” later in this chapter.

Sending Code to the Printer



To access the HP LaserJet IIP *plus* printer features that are not supported by the software's printer driver and cannot be accessed from the front panel, it may be necessary to send the appropriate codes directly to the printer via one of the three methods discussed below.

Specific software may or may not support one or all of the following:

Embedded Commands: Some software packages allow you to embed printer commands at the top of the document (for example, MultiMate Adv. II and Professional Write). Embedding commands is specific to your software package, you will need to refer to your user's manual for further instructions.

Setup Strings: Some software packages allow you to enter setup strings to access printer features (i.e., Lotus 1-2-3, Paradox, Quattro, etc). Refer to your software user's manual for more information.

Control Codes: Some software packages allow you to enter control codes, usually with decimal values (for example: 27 69 27 40 115...) to access printer features. This is a common method for older packages that were designed for dot matrix printers.

Common Problems

This section provides a troubleshooting approach to solving many of the common problems and error messages associated with using the HP LaserJet IIP *plus* printer.

Pages Do Not Eject

Problem: The last page of each print job is not automatically ejected from the printer.

Causes: Like DOS, some software packages do not issue a form feed command to the printer at the end of a print job.

Solutions:

1. If the software package will allow you to place printer commands within the document, have them embed the following command: `^C&lØH` Refer to the software documentation for instructions on embedding printer commands.
2. If the software does not allow you to send printer commands from within the document, you will have to manually eject the page from the printer by taking the printer off line and pressing the **Form Feed** key once.

Creeping Text

Problem: The first page of the document prints correctly, but subsequent pages have larger and larger top margins (i.e., creep down).

Causes: The number of lines of text being sent to the printer including the top margin, bottom margin, and page length exceeds the default text length of the printer.

Solutions:

1. The default page length of all LaserJet printers is 64 lines for A4 paper in portrait orientation. Verify that the software is not sending more than 64 lines of text per page (for example, if the software has a "Page Length" selection make sure it is set at 64).

2. If the software has a default page length of 66 lines that can not be altered, change the printer's default page length through the front panel of the printer to 66 lines.

Incorrect Font

Problem: When the document is printed, all or some of the text is printed in the wrong font.

Causes:

1. The font that was selected in the software is not present in the printer, or was not properly selected .
2. The wrong printer definition has been selected within the software.
3. The font selection that was made on the front panel of the printer is being overridden by the software.

Solutions:

1. Verify that the font you requested is available at the printer by generating a font printout from the front panel of the printer.
2. If selecting a font from within the software, check to ensure that you made the font selection correctly.
3. If you are selecting the fonts from the front panel of the printer, verify that the correct steps for front panel selection were followed.
4. If selecting a printer from within the software, verify that the printer selected is a LaserJet IIP *plus* or IIP.

LC Load Exec, or MP Load Exec

Problem: The LaserJet printer displays a LC LOAD EXEC or MP LOAD EXEC message when a document is sent to the printer.

Causes:

1. The printer's default Lines of Text (6 lines/inch) has been changed.
2. An improper paper size was specified from within the software.

Solutions:

1. Perform an Ⓚ MENU RESET from the front panel of the printer.
2. Find and delete all improper paper size specifications within the document.

Printer Not Ready

Problem: The message PRINTER NOT READY or PRINTER ERROR appears on the computer screen when trying to print.

Causes:

1. Improper printer, computer, or software configuration.
2. Wrong, loose, missing, or damaged interface cable.
3. The printer was not "On Line" when the print job was sent.
4. Printer Timed Out.

Solutions:

1. Refer to the *HP LaserJet IIP plus Printer Getting Started Guide* that was shipped with the printer to verify proper printer/computer configuration for the interface being used.

2. If the software allows you to select and configure the printer being used, verify that the selections made in the software match those that were made in the previous step.
3. Verify that all cables are appropriate for the interface being used, and are securely attached to both the computer and the printer.
4. Add the mode command to the AUTOEXEC.BAT file:
Mode LPT1:,,P
or
Mode LPT1:,,B (for DOS 4.0 or greater)

Blank or Extra Pages

Problem: Blank pages are ejected when the document is printed.

Causes:

1. The number of lines of text (including the top and bottom margin) exceeds the printers default text length.
2. If the printer is in a network environment, the network may be sending a form feed command of its own in addition to the form feed being issued by the software.

Solutions:

1. Refer to the solution for “Creeping Text” earlier in this section.
2. Verify whether or not the printer is networked. If it is, have them remove the printer from the network and try printing again to determine if the network is issuing an additional form feed. If so, contact your network support to obtain information for disabling the additional form feed being sent by the network.

ERROR 20

Problem: The LaserJet printer displays a 20 ERROR message on its front panel.

Cause:

You have run out of available memory in the printer. This condition may happen when you try to print a document that downloads too many soft fonts or contains high resolution rules, shades, and/or graphs.

Solutions:

1. Press **Continue** to resume printing. If the error persists, you must simplify the document to accommodate the printer's available memory.
2. Add additional memory to the printer.



ERROR 21

Problem: The LaserJet printer displays 21 ERROR message on its front panel.

Cause:

The complexity of the data sent to the printer exceeded the printers ability to create the image and keep pace with the engine printing process.

Solution:

Press **Continue** to resume printing, perform a 09 Menu Reset on the printer and try printing the page again. If the error persists, the image needs to be simplified.

Other Problems



If you are having other types of problems, or if the suggestions provided in this section have not resolved the problem:

1. Read the "Common Tasks" section in this chapter.
2. Try printing similar documents. Is the problem isolated to one document? If so, you should verify that the correct software settings have been made in the document that is not printing correctly.

3. Repeat the installation procedures if the problem is common to all software files. This will help ensure proper installation of the correct printer and other device drivers.
4. Refer to the software documentation or call your software support if you have questions which pertain specifically to the software.

Note



Call the software technical support group from a phone next to your computer and LaserJet printer. Assistance requires access to the printer and software, as well as the software documentation which will usually contain any identification numbers which may be required by the software technical support group.

Maintenance and Adjustments

Introduction



This chapter explains how to optimize your printer's performance by cleaning it and making print quality adjustments.

The following is a list of topics found in this chapter:

- Storing the toner cartridge.
- Replacing the toner cartridge.
- Extending the life of the toner cartridge.
- Cleaning the inside of your printer.
- Generating a page of cleaning paper.
- Using the printer-generated cleaning paper to clean the inside of the printer.
- Cleaning the outside of your printer.
- Adjusting the print density.

Ensuring Good Print Quality

If your print is coming out too light or too dark on either text or graphics, you can adjust the print density using the density control slide. Refer to the section “Adjusting Print Density” on page 8-23 to correct these problems.

To obtain the clearest, sharpest images, you should use paper manufactured specifically for photocopying. Generally, this type of paper is manufactured to specifications that promote excellent image formation and paper handling.

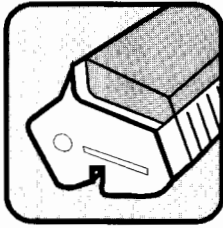
Note



Always test samples of the paper you plan to buy to ensure that it meets the performance standards of your printer. Refer to appendix E for more detailed paper specifications.

Each time you install a new toner cartridge, you must run a self test to generate a sheet of cleaning paper. Then you must use that *printer-generated* cleaning paper to clean the inside of the printer. Refer to “Cleaning the Printer” on page 8-13 for instructions.

Using Toner Cartridges



The toner (EP-L) cartridge in your Hewlett-Packard HP LaserJet IIP *plus* printer has been designed to simplify the replacement of your printer's "consumable" items. The toner cartridge contains a print drum and a supply of toner.

A toner cartridge will print approximately 3500 pages if you are using a typical word processing application, with text covering about 5% of the page. If you regularly print pages with less text coverage, such as short memos, your toner cartridge should print more than 3500 pages. However, if you routinely print both text and graphics, your cartridge probably won't print the full 3500 pages.

Caution



Refilling a used toner cartridge is not recommended. Damage to the printer may occur if an improperly refilled cartridge is used. Service required as a result of using refilled cartridges will not be covered by the HP warranty or service agreements.

Storing the Toner Cartridge

If the toner cartridge must be removed from the printer, always store the cartridge in:

- The aluminum bag in which it was originally packaged.
- A dark cabinet, away from direct sunlight.
- A horizontal position, not on its end.
- Temperatures between 32° and 95°F (0° and 35°C).

Caution



Never expose the toner cartridge to direct sunlight. In addition, never expose the toner cartridge to room light for more than a few minutes. Light can cause the electrophotographic drum inside the cartridge to degrade and become damaged.

Replacing the Toner Cartridge

When the toner supply in the toner (EP-L) cartridge gets low, some parts of a page may exhibit light printing or no printing at all. You will need to replace the toner cartridge when the toner has been used up. You may be able to extend the life of your cartridge by following the directions found in “Extending the Life of the Toner Cartridge,” on page 8-12.

Caution



To prevent damage to your printer, you must clean the inside of the printer each time you replace the toner cartridge. Follow the steps for using the printer-generated cleaning paper in the section “Cleaning the Printer” on page 8-13.

Always handle toner cartridges gently and be sure to store them properly. Use the following procedure each time you replace a cartridge.

1. Pull down on the Multi-Purpose (MP) tray to open it.
2. If the Multi-Purpose tray is already open and has paper in it, remove the paper before proceeding.

3. Push the release button upward ① and pull on the paper path door to open it ②.

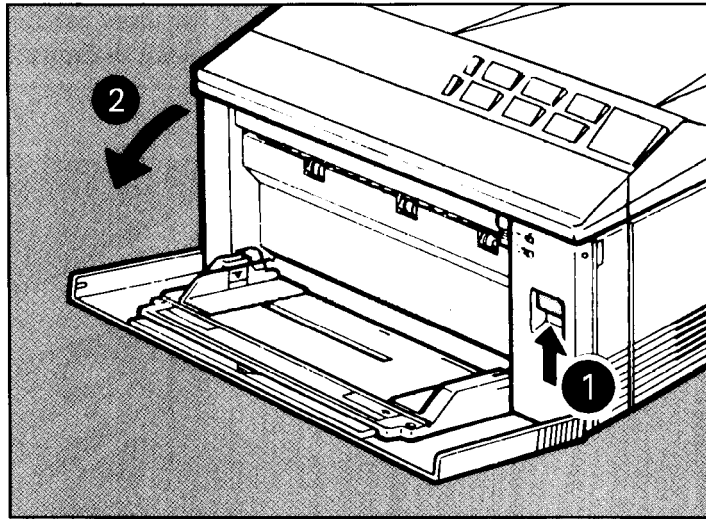


Figure 8-1. Opening the Paper Path Door



4. Grasp the old toner cartridge by the green tab and remove it from the printer.

Note



It may be necessary to push the green release button to the right of the toner cartridge before removing the cartridge (see the detail in figure 8-2).

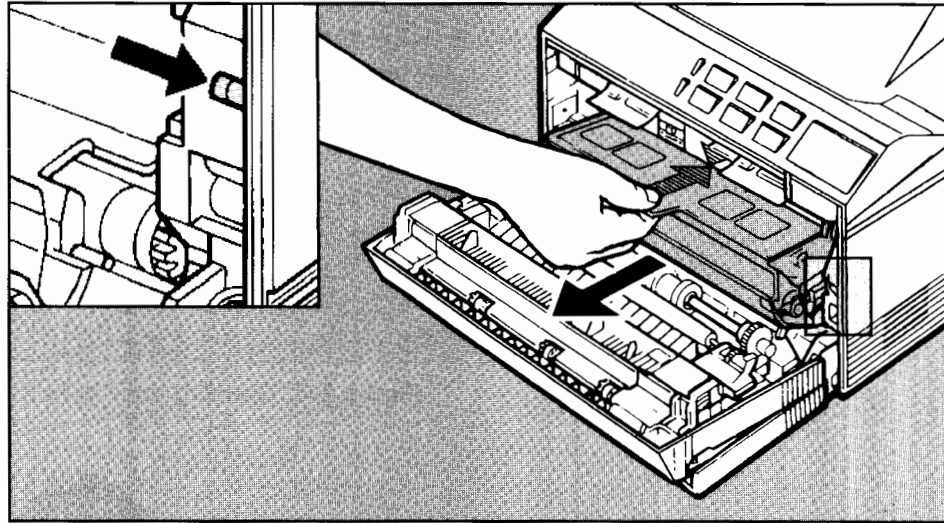


Figure 8-2. Removing the Used Cartridge

5. Remove the new toner cartridge from its box, then cut open the end of its bag. Save the packing materials for possible cartridge storage.

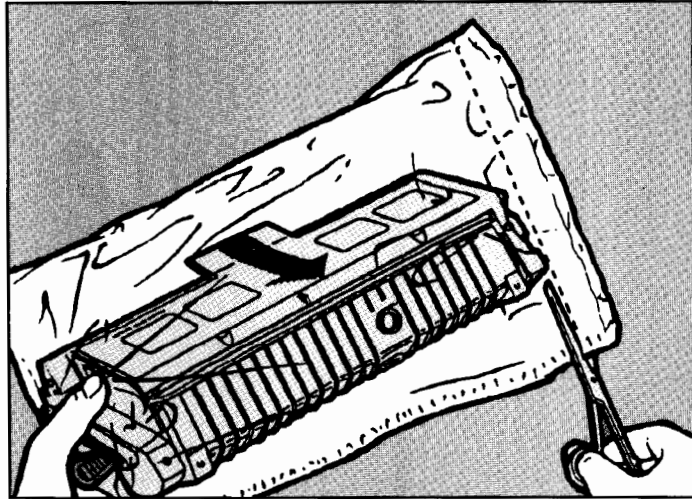


Figure 8-3. Removing the Toner Cartridge

Caution



Never expose the toner cartridge to direct sunlight. In addition, never expose the toner cartridge to room light for more than a few minutes. Light can cause the electrophotographic drum inside the cartridge to degrade and become damaged.

6. Slowly rock the cartridge from end to end five times to distribute the toner.

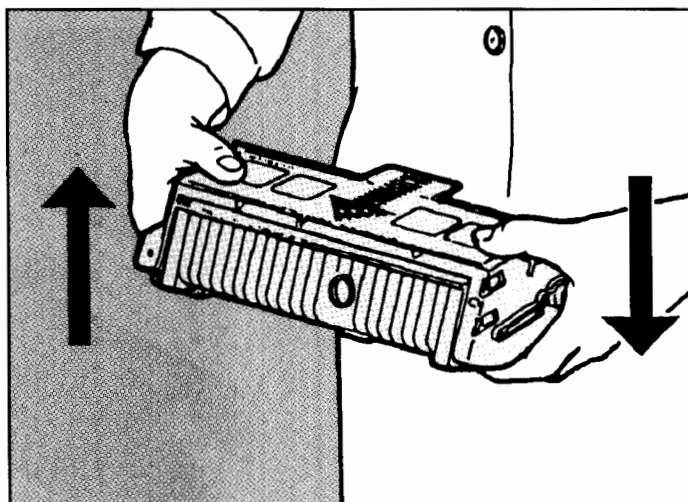


Figure 8-4. Rocking the Toner Cartridge

7. Firmly grasp the orange tab on the side of the cartridge. Pull firmly and straight out to remove the 18 inch (45.72 cm) strip of clear sealing tape. Discard the sealing tape. If the orange tab separates from the tape, pull the tape out.

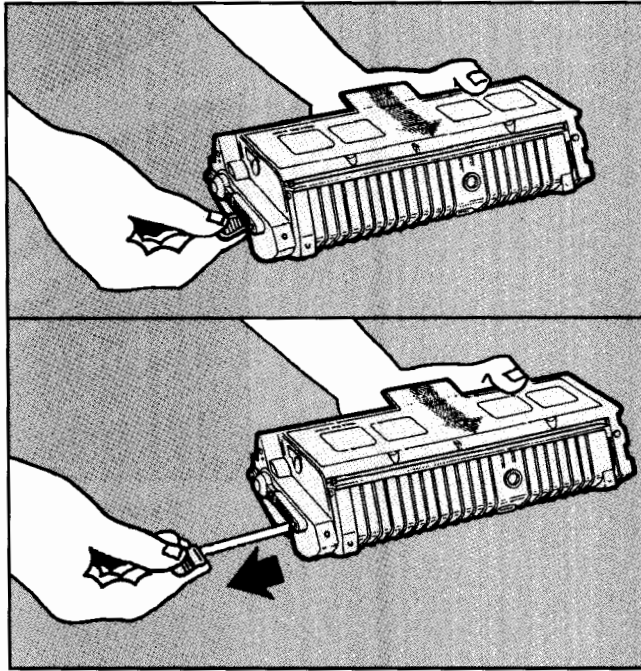


Figure 8-5. Removing the Sealing Tape

Note



If toner gets on your clothes, wipe it off with a dry cloth and wash the clothes in **cold** water. Hot water sets toner into fabric.

8. Insert the toner cartridge, aligning the green arrow (▲) on the cartridge with the green arrow (▼) centered inside the printer.

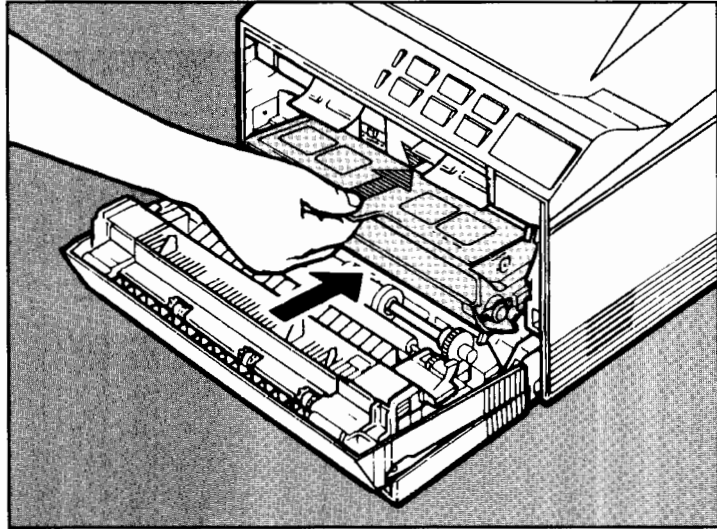


Figure 8-6. Installing the New Toner Cartridge

9. Close the paper path door, but leave the Multi-Purpose tray door open.

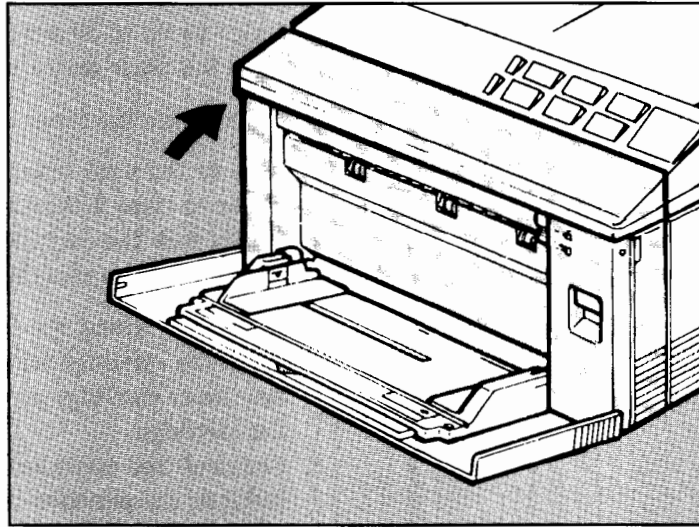


Figure 8-7. Closing the Paper Path Door

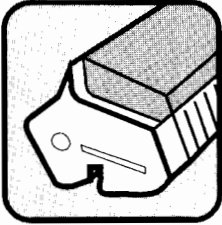
10. After installing a **new** toner cartridge you must follow the steps in the section, “Cleaning the Printer,” on page 8-13.

Caution



To prevent damage to your printer, you should use the printer-generated cleaning paper to clean the inside of the printer each time you install a new toner cartridge.

Extending the Life of the Toner Cartridge



When the toner supply in the toner (EP-L) cartridge gets low, some parts of a page may exhibit light printing or no printing at all. You can often extend the life of the cartridge by up to 50 pages by redistributing the remaining toner in the toner cartridge.

To redistribute the toner follow these instructions:

1. Remove the used toner cartridge from the printer. (Refer to steps 1 through 3 in the previous section.)
2. Slowly rock the cartridge from end to end five times to redistribute the remaining toner, as shown in figure 8-4.

Typically, rocking the toner cartridge will not extend the life of the cartridge for very long. You should order a new toner cartridge as soon as you find a need to rock the cartridge.

3. Re-install the cartridge in the printer. (Refer to steps 8 and 9 in the previous section.)
4. Retry printing with the cartridge.

If, after rocking the toner cartridge, the print quality does not improve, or if it worsens, you need to replace the cartridge. (Refer to the previous section “Replacing the Toner Cartridge.”)

Cleaning the Printer

Your printer is designed to require minimum cleaning. However, at times it may be necessary to clean the inside or outside of your printer. Use the instructions in this section to help you obtain optimum print quality and maintain the appearance of your printer.

Generating the Cleaning Paper

Each time you run a Self Test from the control panel, the printer generates a page of **cleaning paper** (the second page of the Self Test printout). The best way to correct print quality problems, or frequent paper jams in the fuser area, is to clean your printer using *printer-generated* cleaning paper.

Note



To prevent damage to your printer, you should use the *printer-generated* cleaning paper to clean the internal parts of the printer each time you install a new toner cartridge.

Perform the following steps to generate a page of cleaning paper, and to use it to clean the inside of the printer:

1. Remove any accessory cartridge you may have installed. (Make sure the printer is *off* before you remove the cartridge.)
2. If the Optional Lower Cassette is installed, make sure TRAYS MP TRAY is set in the Printing Menu by doing the following:
 - a. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
 - b. Click the **MENU** key repeatedly until TRAYS appears in the first line of the display.
 - c. Click the **MP TRAY** key until MP TRAY appears in the second line of the display.

- d. Click the **ENTER** key to save your selection. An asterisk (*) appears in the display.
- e. Click the **ON LINE** key to return the printer on-line.

This will ensure that paper is pulled from the Multi-Purpose tray, which is necessary for the second half of this procedure.

3. Make sure both the Printing Menu items are set for A4 paper (MP SIZE A4, and JOB SIZE A4) by doing the following:

- a. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
- b. Click the **MENU** key repeatedly until MP SIZE appears in the first line of the display.
- c. Click the **+/-** key until A4 appears in the second line of the display.
- d. Click the **ENTER** key to save your selection. An asterisk (*) appears in the display.
- e. Click the **MENU** key until JOB SIZE appears in the first line of the display.
- f. Click the **+/-** key until A4 appears in the second line of the display.
- g. Click the **ENTER** key to save your selection. An asterisk (*) appears in the display.
- h. Click the **ON LINE** key to return the printer on-line.

4. Install A4-size paper into the Multi-Purpose tray.

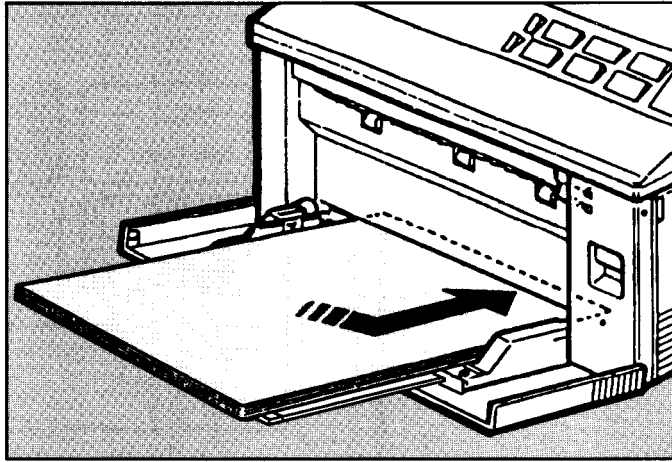


Figure 8-8. Loading Paper Into the Multi-Purpose Tray

5. If the green On-Line indicator is lit, click the **ON LINE** key to take the printer off-line. If the On-Line indicator is already off, go on to the next step.



6. While holding down the **Alt** key, click the **Test** key.
The display will show Ø5 SELF TEST.

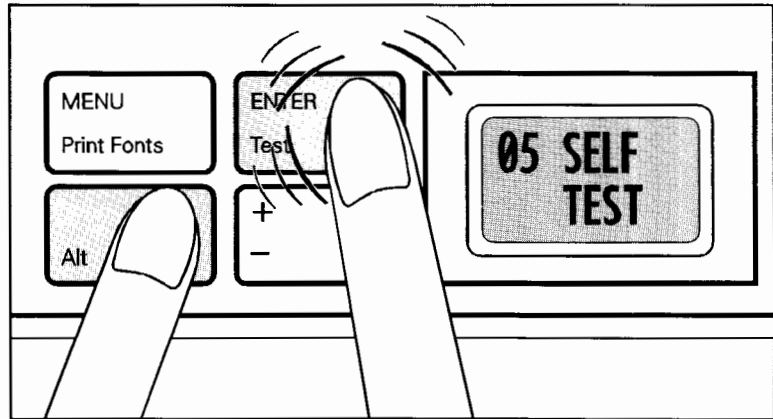


Figure 8-9. Performing a SELF TEST

Note



If Ø4 SELF TEST appears, click the **ON LINE** key to stop the continuous self test. Up to 6 more self tests will print. Ø4 SELF TEST appears when you hold down the **Test** key for more than 5 seconds while performing a self test.

7. After about 30 seconds, Ø6 PRINT TEST will appear in the display. Two pages will print. The first page is a self test printout. The second page is the cleaning paper.

The black strip on the cleaning paper removes any built-up toner from the printer's internal parts when used as described in the following steps.

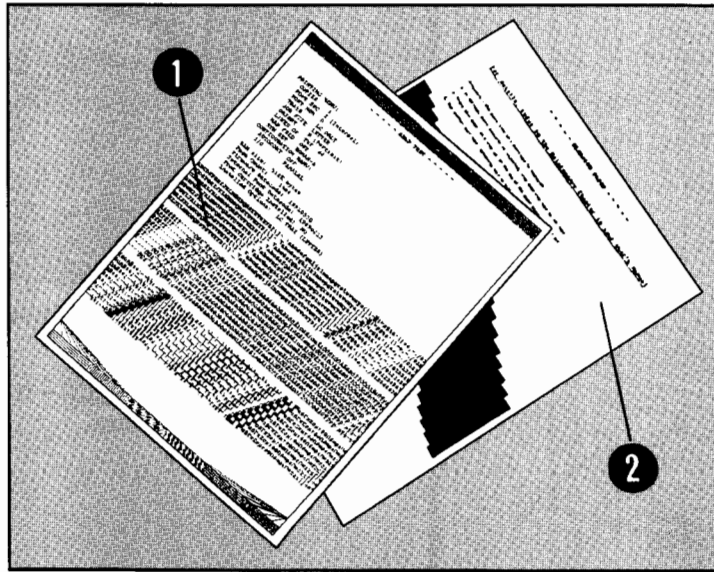


Figure 8-10. Sample Pages

1. Self test paper
2. Cleaning paper

8. Place the cleaning paper *face-up* in the Multi-Purpose tray on top of the paper stack.

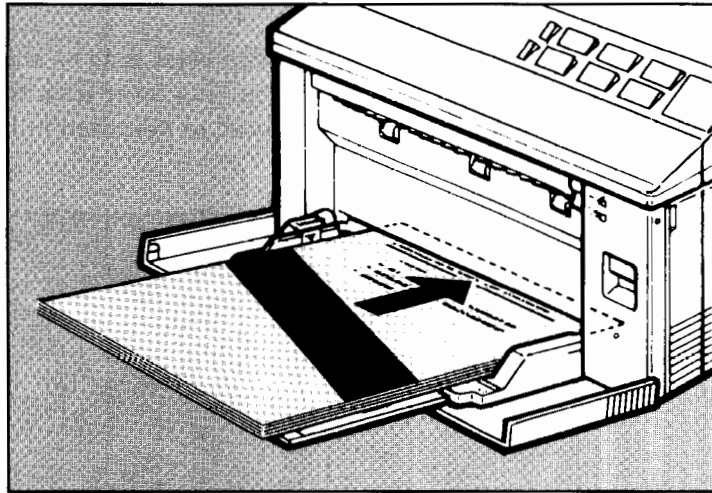


Figure 8-11. Loading the Cleaning Paper

9. Hold down the **Alt** key and click the **Test** key to run another Self Test.

Two pages will print out. The first page will have print on both sides, as shown in figure 8-12. The second page will be a new sheet of cleaning paper.

If the first page does not have print on both sides, you loaded the cleaning paper incorrectly. Repeat step 8.

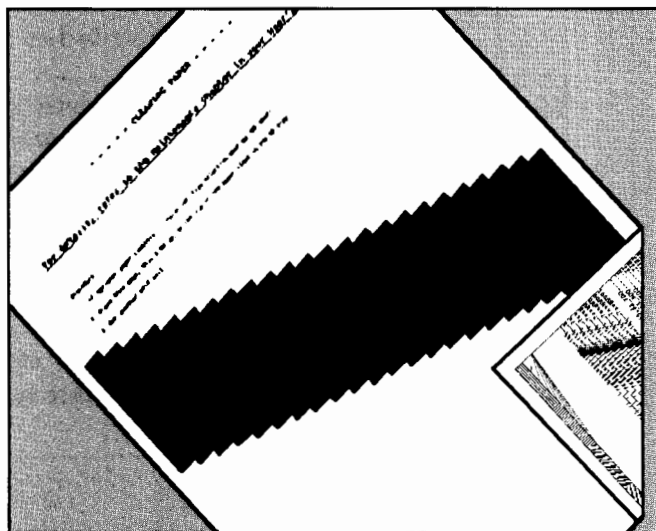


Figure 8-12. Correctly Used Cleaning Paper

10. You have now cleaned the paper path inside your printer. Discard all the self-test pages printed.

Note



You may need to reset your Printing Menu MP SIZE, TRAYS, and JOB SIZE items to match the media you were using. Reinstall any personality cartridge you might have removed in step 1.

Cleaning the Inside of Your Printer

If the toner cartridge has leaked, or toner has gathered on the inside of printer, you will need to clean the inside of the printer as described on the following pages.

Warning



- **Remove the printer's power cord from the power outlet before cleaning, or injury may result.**
 - **Never use sharp objects when cleaning your printer!**
 - **Never use cleaning solutions to clean the inside of your printer! To prevent printer damage, use only a DRY lint-free cloth.**
-

Note



If toner gets on your clothes, wipe it off with a dry cloth and wash the clothes in **cold** water. Hot water sets toner into fabric.

1. Look inside the printer for toner. Figure 8-13 highlights places where toner may collect.

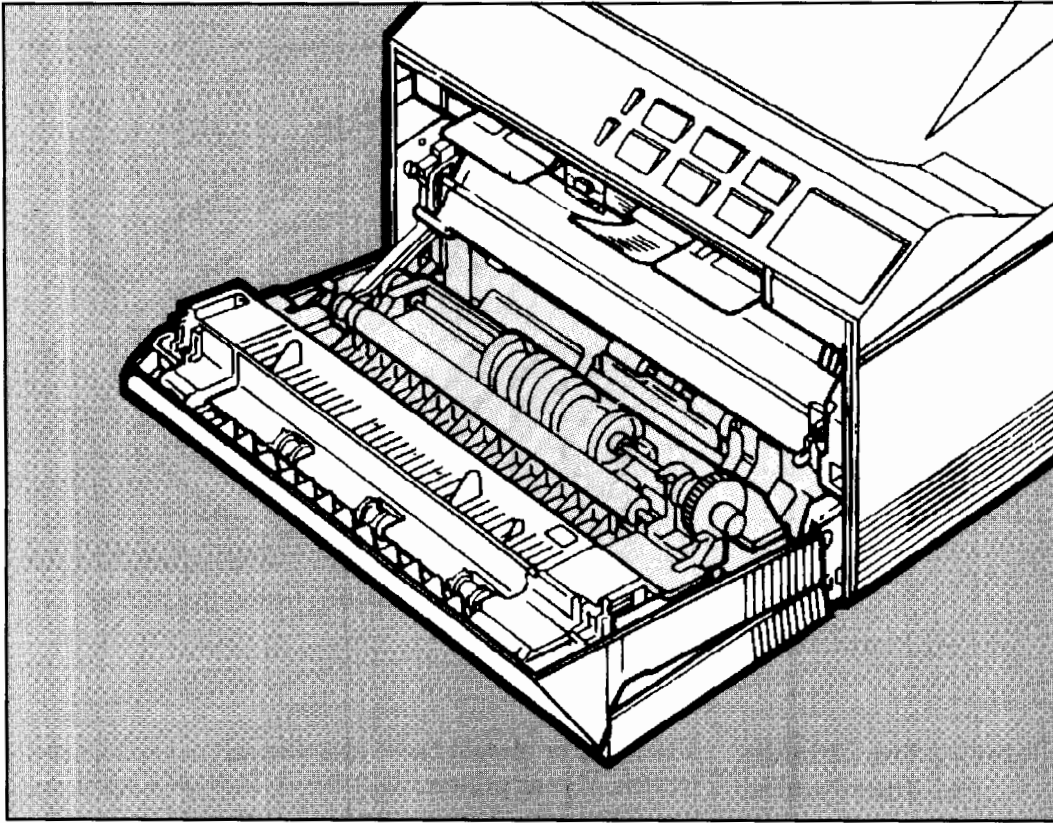


Figure 8-13. Inspecting for Toner

2. Wipe away any visible toner, using a dry lint-free cloth. Do not remove the toner cartridge. Be careful not to bend any of the plastic paper guides circled in figure 8-14.

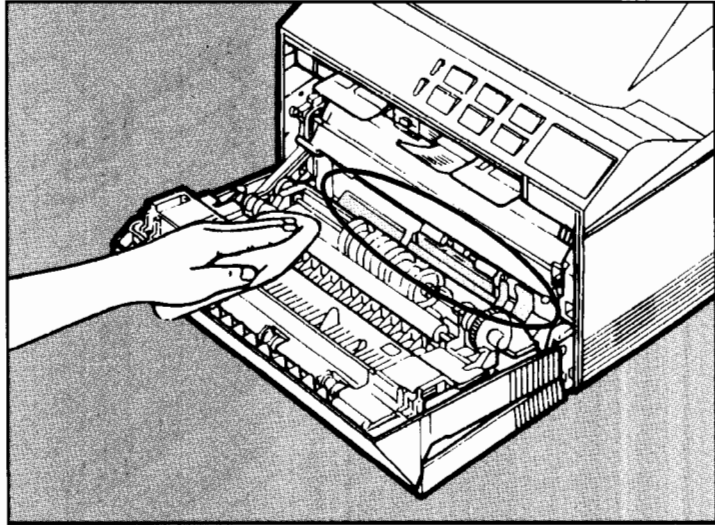


Figure 8-14. Cleaning Inside the Printer

Cleaning the Outside of Your Printer

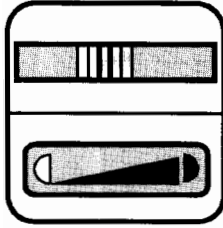
Use water or alcohol-based cleaning solutions to clean the outside of your printer. Test the cleaner on a small area of your printer to check its cleaning performance.

Caution



- Do not use any other chemical-based cleaning solutions, such as ammonia. The printer's covers and internal components can be permanently damaged by some chemicals and fumes.
- Never spray cleaning solutions directly onto the printer. Always spray the cleaning solution onto a cloth, and then wipe your printer with the cloth.

Adjusting Print Density



Print density defines the darkness (or lightness) of the print on a page. Dense print appears heavier and thicker, while less dense print appears lighter and thinner.

The printer uses the toner contained in the toner cartridge faster if you move the print density slide to the right to obtain very dense print.

To adjust print density, perform the following steps:

1. Pull down on the Multi-Purpose (MP) tray to open it.

Note



If the Multi-Purpose tray is already open and has paper in it, remove the paper before proceeding.

2. Push the release button upward ① on the right side to open the paper path door ②.

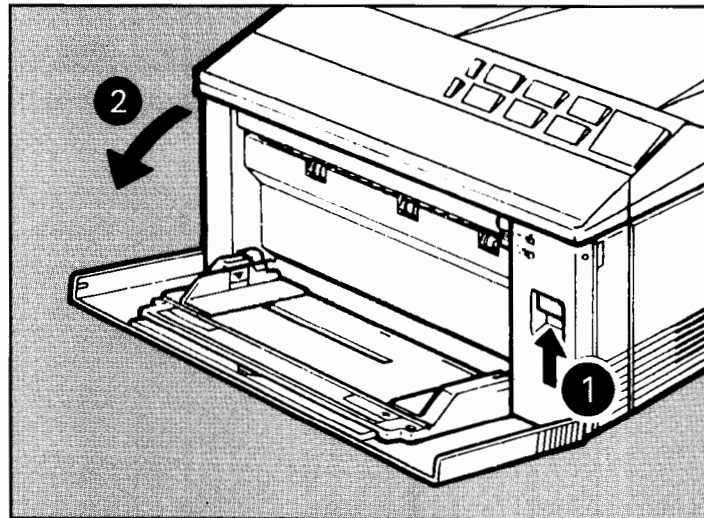


Figure 8-15. Opening the Paper Path Door

3. Move the print density slide (detailed in figure 8-16) to the right for darker print, or to the left for lighter print. The recommended setting is in the middle (you can feel a slight notch at this position).

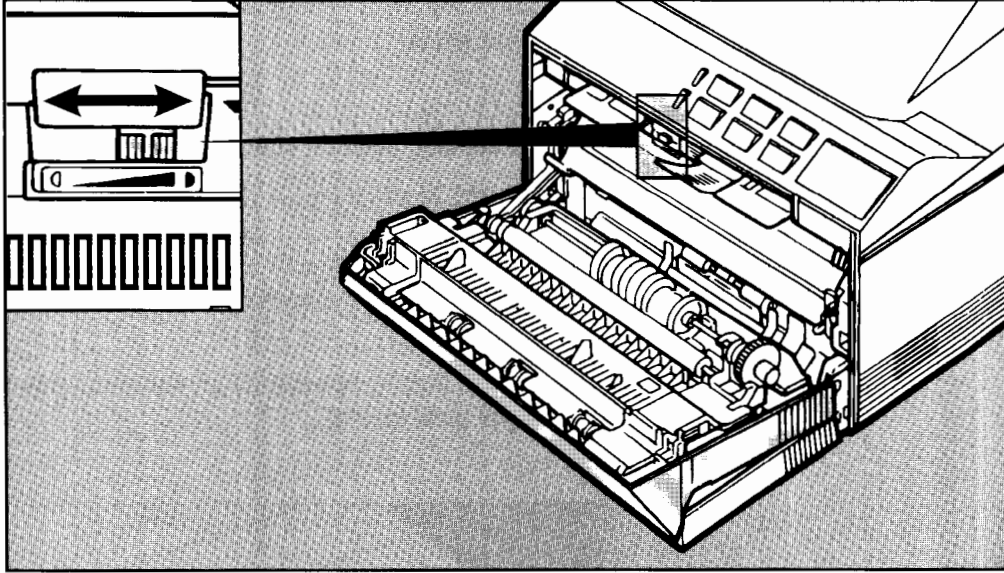


Figure 8-16. Adjusting Print Density

4. Close the paper path door, making sure it latches.

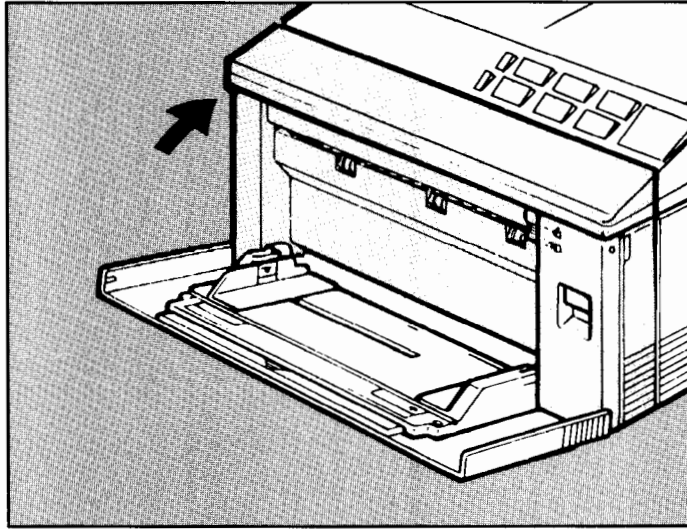


Figure 8-17. Closing the Paper Path Door

Note



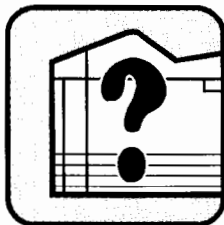
It may take up to three pages for the new density setting to stabilize.



8-26 Maintenance and Adjustments

Solving Printer Problems

Topics Covered in this Chapter



This chapter can help you diagnose and solve problems with your printer.

This chapter includes information about:

- Understanding printer display messages.
- Problem solving.
- Preventing paper jams.
- Clearing paper jams.
- Preventing multiple feeds.
- Troubleshooting font problems.
- Troubleshooting manual feed problems.
- Solving some print quality problems.
- Solving typical envelope problems.
- Commonly asked questions.

Printer Display Messages

The printer communicates with you by showing messages in the display. If you are having problems with your printer, monitor these messages carefully.

Note



If your control panel AUTOCONT setting is set to ON, then some error and service messages will only appear for a few seconds. When troubleshooting a printing problem, we recommend you set AUTOCONT to OFF on the control panel in the DEVICE CONFIG section of the Configuration Menu.

Table 9-1. Printer Messages

Message	Description	Recommended Response
00 READY	The printer is ready to use. This message may be accompanied by the Multi-Purpose tray size setting or an empty tray advisory message.	Normal condition.
02 WARM UP	Printer is warming up.	If the message persists for more than 2 to 3 minutes, service is required.
04 SELF TEST	Continuous self test is in process.	Click the ON LINE key to exit the continuous self test mode. Up to 6 self test pages will continue to print until the printer's memory buffer is empty.
05 SELF TEST	The non-printing portion of the self test is in process.	Proceed by clicking the ON LINE key, if necessary, after 00 READY is displayed.
06 FONT PRINTOUT	Font sample printout is printing.	Proceed by clicking the ON LINE key, if necessary, after 00 READY is displayed.
06 PRINT TEST	Self test is printing.	Proceed by clicking the ON LINE key, if necessary, after 00 READY is displayed.
07 RESET	The printer is clearing buffered pages, temporary soft fonts and temporary macros. (This returns all internal printer settings back to the user-selected control panel Printing Menu settings.)	Proceed after 00 READY is displayed.

Table 9-1. Printer Messages (continued)

Message	Description	Recommended Response
09 MENU RESET	The printer is clearing buffered pages, temporary soft fonts and temporary macros. (This returns all Printing Menu settings back to the factory default settings.)	Proceed after 00 READY is displayed.
10 RESET TO SAVE	This reminder appears when changes to the Printing Menu have been made, and data, temporary fonts, or temporary macros are present in the printer's memory.	Hold down the Alt key and click the Reset key to activate changes to the Printing Menu (data in the printer's memory will be lost). Or click the ON LINE key (Printing Menu changes will not take effect until the next RESET).
12 OPEN OR NO EP	The printer is not closed properly, the toner cartridge is missing, or the cooling fan is not working.	Securely close the paper path door and the fuser access door. Insert a toner cartridge if it is missing. Check in the fuser for jammed paper which may be holding the fuser door slightly open. If you are unable to clear this message, service is required.
13 PAPER JAM	The printer senses a paper jam.	Refer to "Clearing Jams" later in this chapter to remove the jammed paper. Make sure you open and close the paper path door. Click the ON LINE key to resume printing. If you are unable to clear this message, service is required.

9-4 Solving Printer Problems

Table 9-1. Printer Messages (continued)


Message	Description	Recommended Response
20 ERROR	<p>The printer's memory has received more data from the computer than can be stored. Data loss has occurred.</p> 	<p>Reduce soft fonts and other data stored in the printer's memory buffer. Lower the resolution (DPI) of graphics sent to the printer. Hold down the Alt key and click the Continue key to eject the page and return the printer on-line. Additional printer expansion memory may be required.</p>
21 ERROR	<p>The printer received too much, or too complex data (rules, raster graphics, or dense text); some data loss may occur.</p>	<p>Simplify your page layout. Hold down the Alt key and click the Continue key to resume printing.</p>
22 ERROR	<p>The printer's receiving buffer has overflowed during a busy state. Your software application is ignoring the printer's busy state.</p>	<p>Verify that the printer and the computer's software are set up to communicate correctly. Hold down the Alt key and click the Continue key to resume printing. Check to make sure you have the proper printer interface cable and that it is firmly plugged in. Call for service if error persists.</p>
41 ERROR	<p>A temporary error occurred while printing. The last printout may be missing text or be incomplete.</p>	<p>Hold down the Alt key and click the Continue key to resume printing. If the error persists, service is required.</p>

Table 9-1. Printer Messages (continued)

Message	Description	Recommended Response
50 NEEDS SERVICE	There is a fusing assembly malfunction.	Attempt to clear the error by turning OFF the printer for at least 10 to 15 minutes. If the error persists, service is required.
51 ERROR	There is a beam detection malfunction.	Hold down the Alt key and click the Continue key to resume printing. If the error persists, service is required.
52 ERROR	There is a scanner malfunction.	Hold down the Alt key and click the Continue key to resume printing. If the error persists, service is required.
53 ERROR or 53 ERROR UNIT X	There is a specific memory unit error. The number 1 represents the top memory unit installed and 2 is the bottom. The memory board may have been installed incorrectly.	Try to isolate the problem by swapping out memory boards. Refer to appendix F for more information on troubleshooting printer memory. If the error persists, call for service.
55 ERROR	There is an internal printer error.	Hold down the Alt key and click the Continue key to resume printing. If the error persists, service is required.

9-6 Solving Printer Problems

Table 9-1. Printer Messages (continued)

Message	Description	Recommended Response
57 ERROR UNIT X	The printer's memory expansion limits have been exceeded. The number 1 represents the top memory unit installed and 2 the bottom. The maximum expansion memory this printer can recognize is a combination of memory units equaling 4 Mbytes.	Hold down the Alt key and click the Continue key to resume printing. Any excess memory will be ignored.
61 through 67 NEEDS SERVICE	There is an internal printer error.	Turn the printer OFF and then back ON . If the error persists, service is required.
68 ERROR	An error in the memory used to store the control panel selections has occurred. All or part of the user's default settings are set back to the factory default settings.	Verify Printing and Configuration Menu settings and Hold down the Alt key and click the Continue key to resume printing. If the error persists, service is required.
68 NEEDS SERVICE	An error in the memory used to store control panel selections has occurred. All of the printer's user default settings are returned to the factory default settings.	Hold down the Alt key and click the Continue key to resume printing. You must re-select Printing and Configuration Menu settings, but they will be lost once the printer is turned OFF . The message 68 READY is displayed to remind you that service is required. The printer will require service.

Table 9-1. Printer Messages (continued)

Message	Description	Recommended Response
70 ERROR	The cartridge you installed is not working properly with this printer.	Verify that the firmware cartridge was specifically designed to work with this printer. If it was not, turn OFF the printer and remove the cartridge. If it was, turn the printer OFF and back ON . If the error persists, discontinue using this firmware cartridge.
71 ERROR	The firmware cartridge you installed is not designed to work with this printer.	Turn the printer OFF and remove the firmware cartridge. Discontinue the use of this firmware cartridge.
72 NEEDS SERVICE	A font cartridge is removed from the printer while the printer was accessing it, or the printer's cartridge connector is damaged.	Turn the printer OFF , install the correct font cartridge, and turn the printer back ON . Try installing a different cartridge. If this error persists, service is required. If the problem stays with a particular cartridge, discontinue its use.
79 - XXXX SERVICE	An internal printer error is detected. A four digit code will be displayed at XXXX. This message may indicate a compatibility problem with personality cartridges and printer memory.	Turn the printer OFF , then back ON . If the message reappears, remove all accessories (such as additional printer memory) and try to print again. If the error persists, record the number shown on the display, and call for service.

9-8 Solving Printer Problems



Table 9-1. Printer Messages (continued)

Message	Description	Recommended Response
A blank display	A blank display indicates a problem with external power or internal printer components.	Check the power cord and outlet. Turn the printer OFF, wait 10 to 15 minutes, then turn it back ON. If the display remains blank, service is required.
CONFIG LANGUAGE	The printer was powered on while holding down the ENTER key, allowing the selection of a local language for the display.	Wait until LANGUAGE ENGLISH appears. Then select the display language by clicking the +/- key until the language you want to use appears in the first line of the display. Click the ENTER key to make your selection and press the ON LINE key to return the printer on-line.
FC REMOVED	The font cartridge was removed while the printer was off-line and the printer still contains buffered print data.	Re-insert the original cartridge and click the ON LINE key to return the printer to the on-line status. If the same cartridge is not re-installed, the printer displays FC REMOVED until the printer is turned off.
FE CARTRIDGE	The font cartridge was removed while the printer was on-line. This error occurs whether or not the cartridge was being accessed.	To clear the error, turn the printer OFF, then back ON.
LANGUAGE ENGLISH	No display language is selected.	Click the +/- key to choose a language. Click the ENTER key to save the language. Then click the ON LINE key to put the printer back on-line.

Table 9-1. Printer Messages (continued)

Message	Description	Recommended Response
ME FEED	The printer has been configured or has received a command from the computer for manual envelope feed. The envelope size may be: COM10, MONARCH, DL, or C5.	Load the correct envelope into the Multi-Purpose tray, and click the ON LINE key.
MF FEED	The printer has been configured for manual feed, or it has received a command to manually feed a sheet of paper from the computer. The paper size may be: A4, EXEC, LETTER, or LEGAL.	Load the correct paper into the Multi-Purpose tray, and click the ON LINE key.
MF READY	The printer is configured for manual feed and ready to use.	Normal condition when the printer is configured for manual feed mode.
MP LOAD, LC LOAD, LE LOAD	The selected tray (Multi-Purpose, Lower Cassette, or Lower Envelope) is either empty or does not contain the correct size paper or other print media. This also occurs when the JOB SIZE setting does not match the MP SIZE setting.	Load the correct paper into the selected MP, LC, or LE tray. The MP SIZE or LE TRAY menu items must be set to match media size given in the message. Refer to chapter 2. Click the Continue key if you want to print the image on the media in the specified tray, regardless of its size.

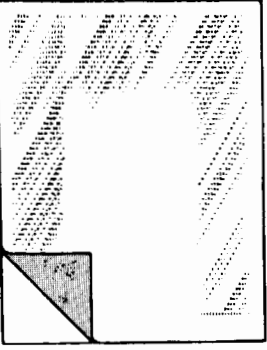
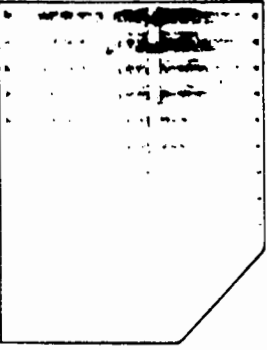
Table 9-1. Printer Messages (continued)

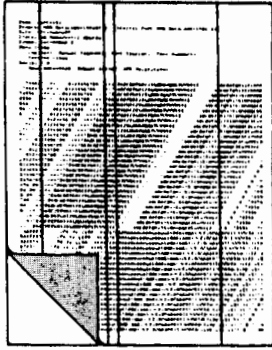
Message	Description	Recommended Response
MP EMPTY, LC EMPTY, LE EMPTY	The paper tray (Multi-Purpose, Lower Cassette, or Lower Envelope) is empty and is <i>not</i> the selected paper tray.	This message does not require paper to be loaded. It is only a reminder that there is no paper in the MP, LC, or LE tray.
LE TRAY	An Optional Lower Cassette envelope tray has been installed. The second line of the display indicates the current envelope size selection.	Use the  keys to select the actual size of the envelopes installed in the Optional Lower Cassette envelope tray and press  to continue. Otherwise, the printer will use the previously selected envelope size setting. Refer to “Responding to the Control Panel Display” on page 4-20 for more information.

Solving Print Quality Problems

This section includes several print quality problems, and describes possible solutions for the problems.

If the problem is accompanied by a message in the display window, refer instead to table 9-1, “Printer Messages.”

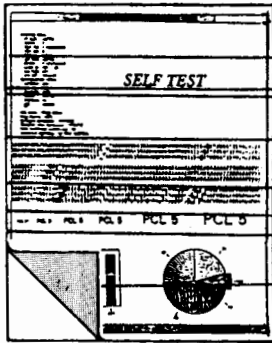
	<p>Faded Print</p> <p>Faded print can be a faded area or faded block of vertically aligned white streaks.</p> <ul style="list-style-type: none"> ■ The toner cartridge may be getting low on toner. See “Extending the Life of the Toner Cartridge” on page 8-12. ■ The paper may not meet the guidelines in appendix E. For example, the paper may be excessively moist.
	<p>Staining</p> <p>Stains usually appear as small, round, black dots that occur on the front or the back of a page. Sometimes wide, inconsistent stains appear.</p> <ul style="list-style-type: none"> ■ Your paper may not meet the media guidelines required for the printer. See appendix E, “Selecting Paper and Other Print Media.” ■ You may be printing on the wrong side of the paper. Remove the input paper stack and turn it over. ■ The fuser roller may need cleaning. See “Cleaning the Printer” on page 8-13. ■ Toner may have accumulated inside the printer. See “Cleaning the Inside of Your Printer” on page 8-20. ■ The toner cartridge may be damaged. You may need to replace it if maintenance procedures do not improve print quality.



Vertical Lines

Sometimes vertically aligned black streaks or smears can appear on successive pages.

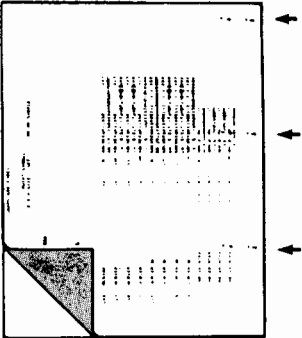
- The toner cartridge may be damaged. You may need to replace the toner cartridge.
- Clean the fuser area following the instructions in “Cleaning the Inside of Your Printer” on page 8-13.

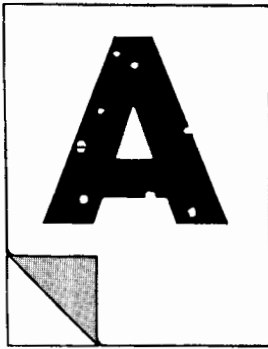


Horizontal Stripes

Sometimes horizontally aligned black streaks or smears can appear.

- The toner cartridge may not be seated properly. Remove the cartridge and re-insert it.
- The toner cartridge may be defective, and need replacing.
- If you still have problems the printer may require servicing. See chapter 10, “Service and Support.”

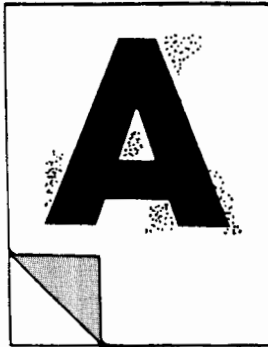
 A diagram showing a printed page with several lines of text. Three arrows point to specific areas of the page: the top line, a line in the middle, and a line near the bottom. The bottom-left corner of the page is folded over, showing a dark, textured area.	<p>Repetitive Defects</p> <p>Sometimes light character shadows or repetitive marks appear on the page.</p> <ul style="list-style-type: none">■ The paper path may be dirty. Follow the directions in “Cleaning the Printer” on page 8-13.■ If you are printing on overhead transparencies, use a different type of overhead transparency. Refer to appendix E, “Print Media Specifications”.■ Your paper texture may be too coarse. If these flaws occur 2.36 inches (60mm) apart from each other, and only on the top lines of the page, change to a lighter weight paper with a smoother finish or try moving the print down on the page (do not try to print in the top $\frac{2}{5}$ inch (10 mm) of the page). See appendix E, “Selecting Paper and Other Print Media.”■ The toner cartridge may be damaged, causing a repetitive black flaw on every printout. These flaws occur $1\frac{1}{2}$ inches (38 mm) or $3\frac{7}{10}$ inches (94 mm) from each other. Replace the toner cartridge.■ The photosensitive drum of the toner cartridge may have been over-exposed to bright light, causing repetitive defects. Replace the toner cartridge.
--	---



Character Voids

Character voids are white areas within the parts of characters that should be solid black.

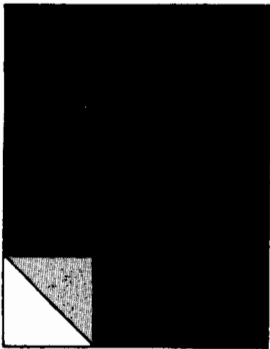
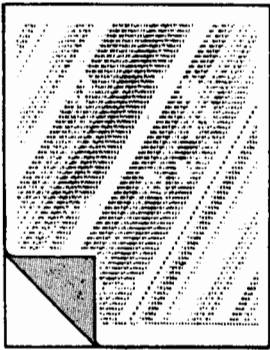
- If you are using transparencies when you experience this problem, you may need to try another type. Hewlett-Packard overhead transparencies have been designed to minimize this problem. See appendix E, "Selecting Paper and Other Print Media."
- You may be printing on the wrong side of the page. Remove the paper from the input paper tray and turn over the paper.
- Your paper may not meet the guidelines required for the printer. See appendix E, "Selecting Paper and Other Print Media".



Background Scatter

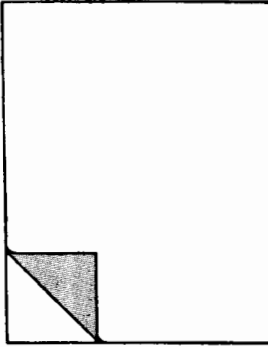
Background scatter results from bits of toner distributed on the front or back of a printed page. Background scatter is often isolated to a specific area of the page.

- Change the paper type, weight or surface finish. See appendix E, "Selecting Paper and Other Print Media".
- If background scatter occurs on an envelope, try moving the text to an area where there are no seams. Printing on seams can cause this problem.
- If background scatter covers the entire surface of an envelope, try adjusting the print density slide. See "Adjusting Print Density" on page 8-23.
- If this problem occurs on the back of a printed page, it may be caused by a toner buildup on the separation pad or rollers inside the printer. See "Cleaning the Printer" on page 8-13.

	<p>Black Page</p> <p>A black page is a page that is completely black.</p> <ul style="list-style-type: none"> ■ The toner cartridge may not be seated properly. Remove the cartridge and re-insert it. ■ The toner cartridge may be defective, and need replacing. ■ If you still have problems the printer may require servicing. See chapter 10, “Service and Support.”
	<p>Dropouts</p> <p>Dropouts are characters that are partially printed or not printed at all.</p> <ul style="list-style-type: none"> ■ A single sheet of paper may be defective. Try reprinting the job. ■ Try adjusting the print density slide. See “Adjusting Print Density” on page 8-23. ■ The moisture content of the paper may be inconsistent or the paper may have moist or wet spots on the surface. Try paper from a different paper manufacturer. ■ The paper may have been damaged by inconsistent manufacturing processes that can cause some areas of the paper to reject toner. Try paper from a different source.



Blank Page



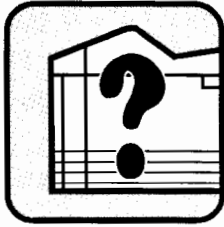
A blank page is a page that is completely white. If you get *occasional* blank pages:

- Make sure your page length is set correctly for the paper size you are using.
- Some sharing devices on networks may generate a blank page as a separator.
- Your printer may be feeding two or more pages at once because the paper is difficult to separate. Remove the paper from the paper tray, fan the edges of the paper to separate the pages, and re-insert the paper in the tray.
- Your software application may be sending an extra page eject command. Check your software's printing configuration information. If you are using a word-processing program, check for a natural page break and a forced page break that are so close to each other that they produce a blank page.
- If the blank pages are accompanied by data loss, your printer may need service. See chapter 10, "Service and Support."

If *all* you get are blank pages:

- Make sure you have removed the entire length of the sealing tape from the toner cartridge before you installed the cartridge.
- The toner cartridge may be completely out of toner. Replace the cartridge.
- If all you get is blank pages, the printer is not working correctly. Service is required. See chapter 10, "Service and Support."

Problem Solving Checklist



Printing problems come from one of three areas:

- Application software.
- Computer hardware.
- Printer hardware.

Follow the troubleshooting steps in this section to identify the source of the problem and to learn about possible solutions. Starting with question 1, answer **YES** or **NO** to each question to narrow the possible causes of the problem.

1. Is there any message on the control panel display?

YES - Go to question 2.

NO - Check the following:

- a. Is the power cord plugged into both the power outlet and the printer?
- b. Turn off the printer for 10-15 minutes, then turn it back on.
- c. Is the printer's power switch in the **ON** position?
- d. Is the power outlet working?
- e. Does the line voltage from the power outlet match the printer's correct power requirements? (See the label next to the power cord receptacle.)

90V to 126.5V

198V to 264V

2. Is there a **READY message on the display?**

YES - Go to question 3.

NO - Check the following:

- a. Is the display language set to the correct language?

- b. Is there another message on the display? If so check the tables at the front of this chapter and perform the recommended response. If you are using a personality cartridge, such as the PostScript personality cartridge, refer to the documentation shipped with the cartridge for message explanations.
- c. If the display message is not found in the Printer Messages tables, your printer requires service (see chapter 10).

3. Can your printer print a self test?

YES - Go to question 4.

NO - Check the following:

- a. Is the printer off-line before you try to perform a self test?
- b. Does either the Multi-Purpose tray or the Optional Lower Cassette tray contain paper of the correct size matching the selected control panel JOB SIZE?
- c. Is the Optional Lower Cassette tray installed properly?
- d. Is the printer paper path door closed securely?
- e. Is there a paper jam? If **yes**, go on to “Clearing Jams” in this chapter.
- f. Is there a message appearing on the display? If **yes**, see “Printer Messages,” in this chapter. If no message is displayed, and the self test still will not print, you should call your nearest HP authorized dealer.

4. Can you send print data to the printer from your computer? Type DIR>PRN from your DOS prompt to print a list of the directory. While the printer is receiving data, the receiving data icon in the lower-right corner of the display flashes, and the form-feed indicator lights up. Click the **ON LINE** key to take the printer off line. The green On-Line indicator should be off. Then click the **FORM FEED** key to print the stored data. Click the **ON LINE** key to return the printer on-line.

YES - Go to question 5.

NO - Check the following:

- a. Is there a message (other than READY) on the control panel display? Check the Printer Messages (table 9-1) earlier in this chapter.
- b. Is the printer on-line before you send the data? The green On-Line indicator should be lit.
- c. Are you using the correct interface cable, is it undamaged, and is it connected securely at both ends? See appendix D for more information. The Centronics Parallel interface cable must be “rocked firmly” into the printer’s parallel port to ensure a secure connection.
- d. Are you using a Hewlett-Packard cable, or one of comparable quality?
- e. Is the interface configuration correct (both the Configuration Menu items and the DOS MODE statement)? See *HP LaserJet IIPplus Printer Getting Started Guide* for more information.
- f. Perform a self test. Does the interface configuration shown on a self test printout match the configuration of your computer?

- g. Is the computer working properly? Try to display your DOS directory on your screen. (Type DIR at your DOS prompt.)
- h. Is the computer's interface port working properly? If available, try replacing the printer interface cable, then the parallel (Centronics) port, then using the printer with another PC.
- i. If the printer is not connected directly to the printer (in other words, if it is shared through a network or by a printer sharing device), try connecting the printer directly to your computer and see if the problem persists.
- j. If you still can not identify the problem, contact your nearest authorized HP dealer.

5. Do your control panel settings work as expected?

YES - Go on to question 6.

NO - Check the following:

- a. Is your software application overriding your control panel selections? Applications allow you to make printer selections. The selections you make using a software application override the selections made using your printer's control panel until the printer is reset. Sometimes these application overrides can be invisible to the user.
- b. Is the printer off-line when you attempt to change printer settings from the control panel?
- c. Are you using the control panel keys correctly? See chapter 2, "Using the Printer Control Panel."

Try changing the control panel settings again. If 1Ø RESET TO SAVE is displayed, save your changes by holding down the **Alt** key, and clicking the **Reset** key. (This will save your selections, but will also clear data

in the printer's buffer, including temporary fonts and macros.)

6. Is your printer printing all the data being sent to it?

YES - Go on to question 7.

NO - Check the following:

- a. If the Form Feed indicator is lit, take the printer off-line and click the **FORM FEED** key to print the remaining partial page stored in the printer.
- b. If no error message is observed, make sure the Configuration Menu (DEVICE CONFIG) item AUTOCONT is set to OFF.
- c. If you are losing print data, check your software application to ensure you have no mistakes in the file you are trying to print.
- d. Make sure your interface cable is the proper cable and is securely connected to your computer and printer.
- e. Try another interface cable to make sure the one you have been using is not defective.
- f. If an error message is displayed, see "Printer Messages" earlier in this chapter to learn more about the reasons for the message.

7. Are you having paper jams / print quality problems?

YES - Paper jams and print quality problems are discussed later in this chapter.

NO - If you are experiencing a printer problem that is not described in this checklist, and no message is displayed on the control panel, refer to chapter 8, "Maintenance and Adjustments." If you still cannot identify the problem after following the procedures in chapter 8, see chapter 10, "Service and Support."

Preventing Paper Jams

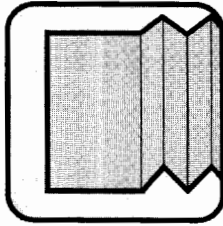
The following list explains some common causes of paper jams, and the best ways to avoid them.

1. Your printer is not level.

Note



The printer must be placed on a hard, flat, stable surface or frequent jams will occur. The printer must also sit completely on a single surface, never spanning two or more surfaces.



2. Your paper, envelopes, labels or overhead transparencies may not meet the guidelines set for the printer.

- Avoid very smooth and very coarse paper.
- If your printer is feeding two or more pages at once, you may have a type of paper that is difficult to separate. Remove the paper from the paper tray, and fan the edges of the paper to separate the pages.

For more information, refer to appendix E, “Selecting Paper and Other Print Media.”

3. You may be using your paper or print media incorrectly.

- Store your print media in a stable environment, avoiding extremes in temperature and humidity.
- Load paper into the paper tray carefully. If a page is folded or wrinkled, remove it. See “Preparing the Multi-Purpose Tray” in chapter 3, “Preparing the Optional Lower Cassette” in chapter 4, or appendix E, “Selecting Paper and Other Print Media.”
- Print on the correct side of the paper. Most paper manufacturers place an arrow on the end of the paper ream wrap to specify which side of the page is the correct side for printing. If you are having problems, remove the paper stack from the tray, rotate it 180°, turn it over, and then place it back in the tray.

4. Your printer's paper path may need to be cleaned. Check "Cleaning the Printer" on page 8-13, for detailed cleaning instructions.
 - Use cleaning paper every time the toner cartridge is replaced to prevent toner build-up.
 - Also use cleaning paper if your printer is experiencing frequent paper jams.
5. You may need to have your printer repaired. See chapter 10, "Service and Support."
 - Worn-out rollers can cause multiple-feed problems or paper jams.
 - High volume printing requires more frequent service.

Clearing Jams

If 13 PAPER JAM appears in the display window, paper has stopped in the printer. If a paper jam occurs, remove any paper from the Multi-Purpose tray, then open the paper path door and look inside. Carefully remove the paper jamming the printer. Avoid tearing the page to ensure you remove it all. **Keep your fingers away from the hot fuser roller.** If the page tears as you remove it, check inside the printer for small pieces of paper.

Note



The printer must be placed on a hard, flat surface or frequent jams will occur. The printer must also sit completely on a single surface, never spanning two or more surfaces.

It is possible for more than one sheet of paper to be caught in the printer during a paper jam, so check every area for paper (see figure 9-1).

Paper jams occur in either the fuser area (A), or the paper pickup area (B).

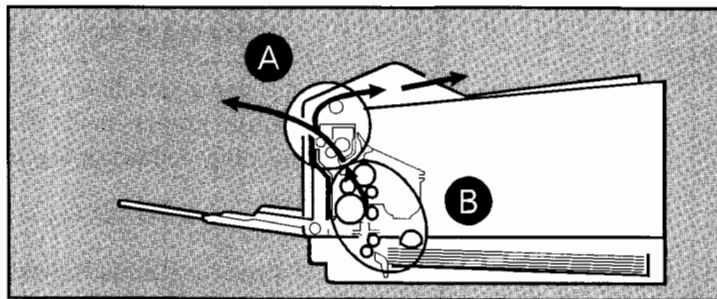


Figure 9-1. Paper Jam Locations

Paper Pick-Up Area

1. Remove any paper from the Multi-Purpose tray.
2. If paper is jammed in the paper pick-up area, open the paper path door and remove the jammed paper. Also remove any paper fragments. *If* paper fragments are left inside, printer jams will occur until they are removed.

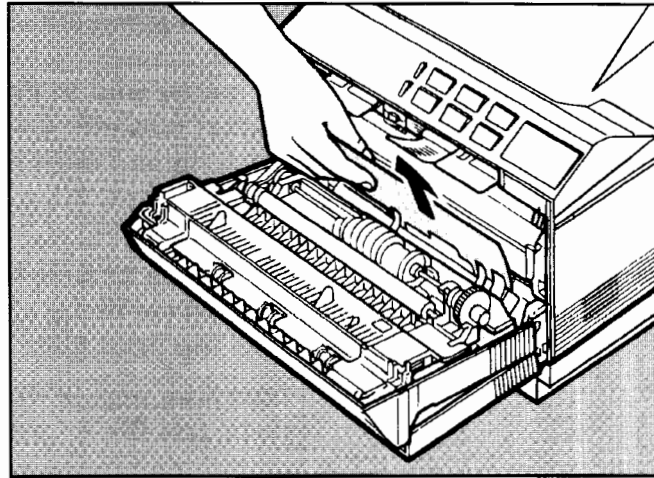


Figure 9-2.
Clearing a Paper Jam in the Paper Pick-up Area

Note



After a paper jam has occurred, toner may be left on the rollers and guides inside the printer. The pages printed immediately following the paper jam may pick up this toner.

3. If paper is jammed in the Optional Lower Cassette, you need to remove the paper tray to clear the jammed paper (see figures 9-3 and 9-4).

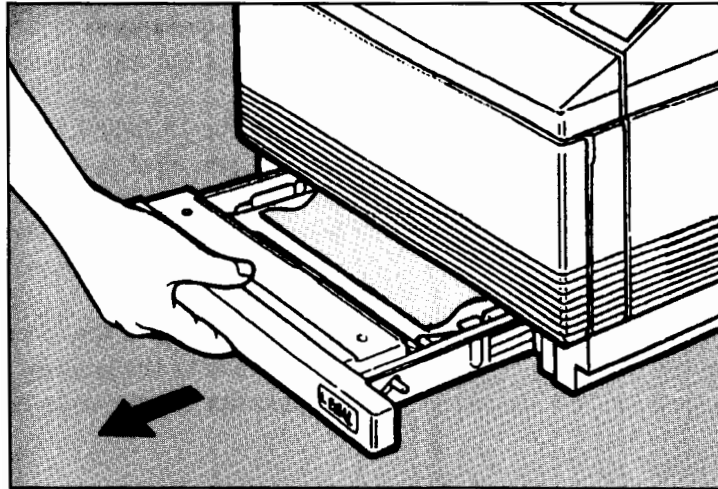


Figure 9-3. Clearing the Paper Tray

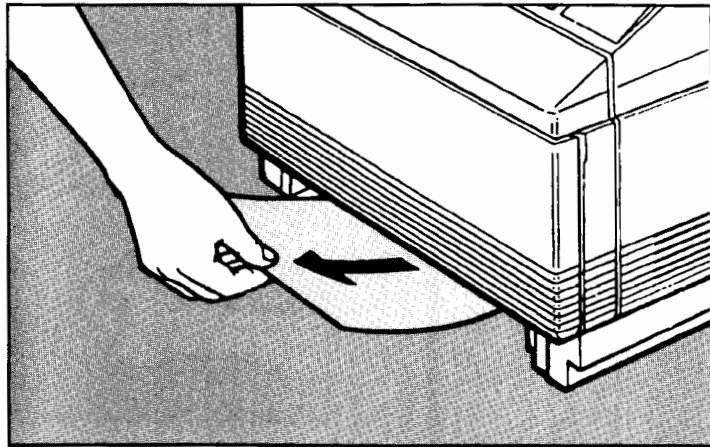


Figure 9-4.
Clearing Paper Jammed in Optional Lower Cassette Base

Check to make sure the paper in the Optional Lower Cassette paper tray is located and aligned properly before re-inserting the tray into the printer.

Note



To clear the 13 PAPER JAM message from the display window, you *must* open the paper path door, or the external fuser access door. *If* you remove a paper jam and do not open either door, the message will not be cleared.

Fuser Area

1. If paper jams in the fuser roller area, open the printer and remove the jammed paper, pulling it firmly away from the printer using two hands.

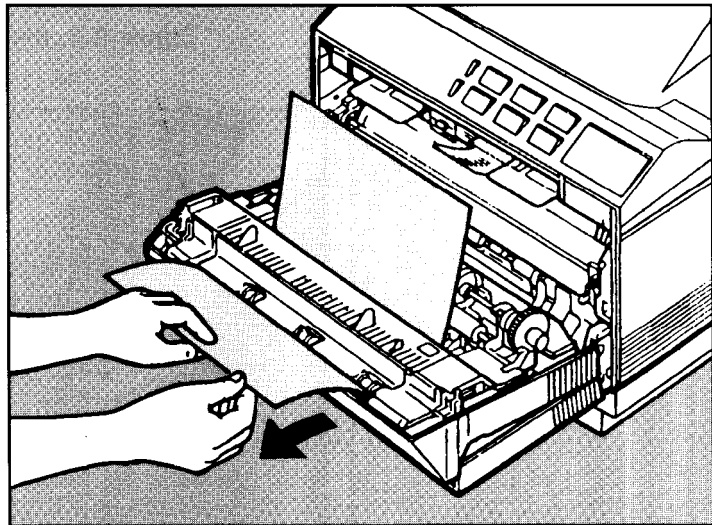


Figure 9-5. Clearing a Paper Jam in the Fuser Roller Area

2. Open the internal fuser access door and check for jammed paper.

Warning



The fuser area is HOT. Do not touch the fuser rollers or injury may result.

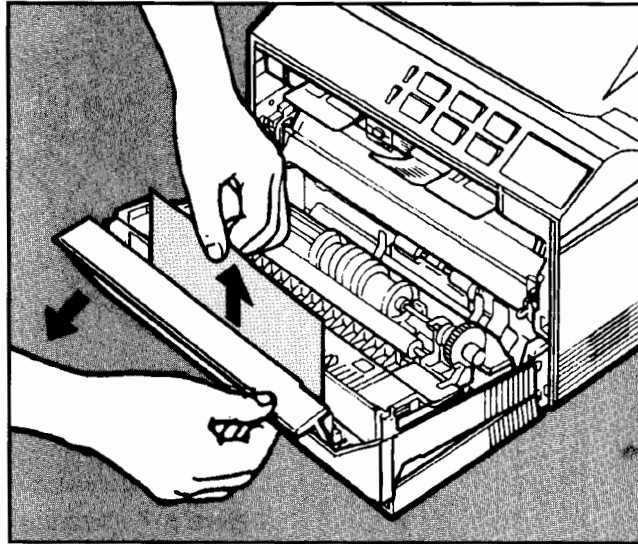


Figure 9-6.
Clearing a Paper Jam from the Internal Fuser Access Door

3. After checking inside the printer for jammed paper, close the paper path door. Open the external fuser access door ① and check for paper ②.

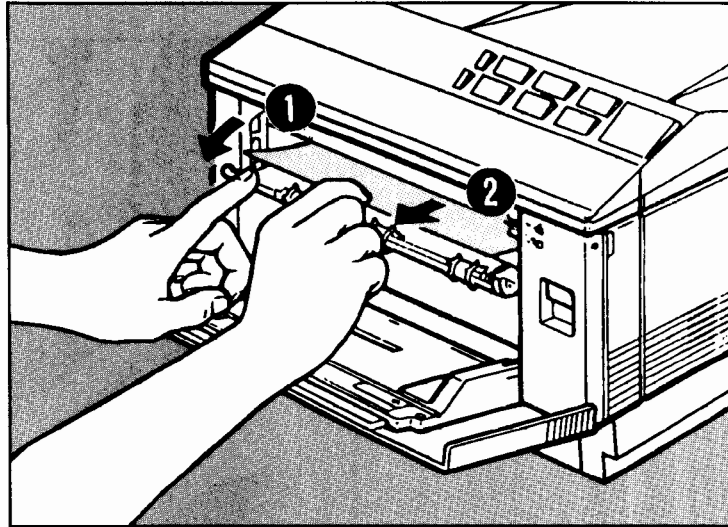


Figure 9-7. Clearing the External Fuser Access Door

Pick-Up and Fuser Areas

If paper jams in both the pick-up area and the fuser area, use two hands when removing the paper to avoid tearing it (see figure 9-8).

Warning



The fuser area is **HOT**. Do not touch the fuser rollers or injury may result. (See **A** in figure 9-8 for fuser roller location.)

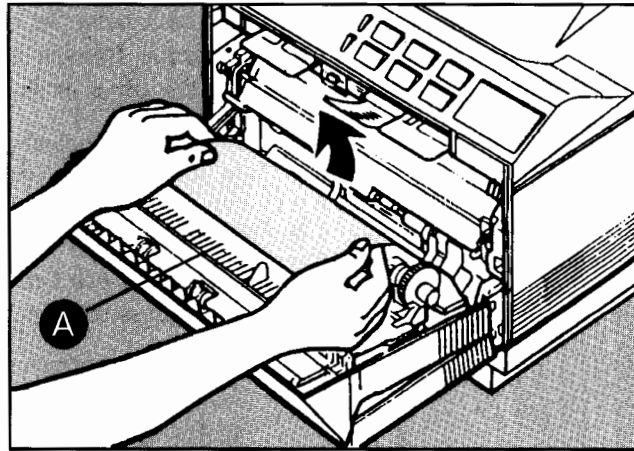


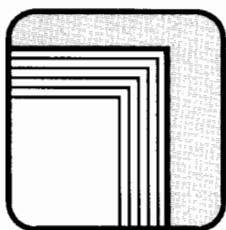
Figure 9-8. Clearing the Pick-Up/Fuser Area

Caution



Remove the paper jam carefully. Toner from the jammed paper can stain your clothes. If your clothes get toner on them, wipe the toner off with a dry cloth, and wash the clothes in **cold** water. Hot water sets toner into fabric.

Preventing Multiple Feeds



The following list explains some common causes of printer multiple feeds (two or more pieces of media picked up at a time), and the best way to avoid them.

1. Your paper, envelopes, labels or overhead transparencies may not meet the guidelines set for the printer.
 - Avoid very smooth and very coarse paper.
 - If your printer is feeding two or more pages at once, you may have the type of paper that is difficult to separate. Remove the paper from the paper tray, and fan the edges of the paper to separate the pages.

For more information, refer to appendix E, “Selecting Paper and Other Print Media”.

2. You may be using your paper or print media incorrectly.
 - Store your print media in a stable environment, avoiding extremes in temperature and humidity.
 - Load paper into the paper tray carefully. If a page is folded or wrinkled, remove it. See “Preparing the Multi-Purpose Tray” in chapter 3, “Preparing the Optional Lower Cassette” in chapter 4, or appendix E, “Selecting Paper and Other Print Media.”

Caution



Never add paper or other print media to the top of an existing stack in the Multi-Purpose tray while the printer is printing or a severe paper jam may occur.

Troubleshooting Font Problems



Check the following if you are having trouble selecting a font using software commands:

1. The font you are trying to use may not be available.
 - Make sure by printing a Font printout (see Figure 6-11).
 - If you are selecting a font from a cartridge, make sure you have first installed that cartridge properly.
 - If you are selecting a soft font, make sure you have downloaded the font to the printer.
2. Make sure you are using the correct font selection commands. Review “Selecting Fonts Using Printer Commands” on page 6-24.
3. Make sure your software printer driver supports the font cartridges or soft fonts you are trying to use. Check the printer set-up instructions in your software documentation.
4. Make sure your font cartridge is firmly seated in the slot.
 - Click the **ON LINE** key to take the printer off-line. The green On-Line indicator will go out.
 - Reseat the font cartridge by pulling it out then pushing the cartridge all the way in until it clicks. You should feel and hear it snap into place. **Do not be afraid to push very hard.**
5. You may be using the wrong symbol set if some of your characters are printing while others are not.
 - Your software may not support some symbol sets.
 - Remember that your printer’s default symbol set may not match your software’s default symbol set (for example, the default DOS symbol set is PC-8).

- You may be using an early font cartridge that does not have six of the Roman-8 characters, which are necessary for ISO symbol sets. These characters are:

Ý ý · μ ¶ ¾

If you need to print one of these characters, use one of the printer's internal fonts.

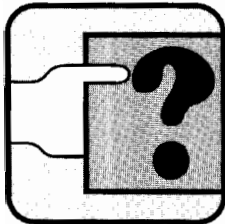
Check the following if you are having trouble selecting your default font using the control panel:

- The message 1Ø RESET TO SAVE appears in the display.
 - Hold down the **Alt** key and click the **Reset** key.
 - The message Ø7 RESET appears. **Remember**, this will erase any temporary fonts, macros, and page data stored in the printer's memory.
- Make sure you selected the correct font from the control panel.
 - Check by printing a Font Printout and comparing the Font # information with the control panel selection.
- Are you using the control panel's Printing Menu correctly?
 - Review the instructions in chapter 2 for correct operation.

- Check to see that the font cartridge or the downloaded soft font is available in the printer.
- Check by printing a Font List printout.
- Also, make sure that any installed font cartridges are properly seated.



Troubleshooting Manual Feed



If you are having trouble manually feeding paper into the printer, check the following:

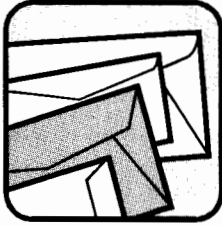
- Are the printer commands entered correctly?
- Is your software overriding the manual feed selection you entered at the control panel?
- If your software is not sending printer commands, is the printer control panel set up correctly?
- Is the paper, transparency, or envelope inserted far enough into the machine?
- If the envelope has a gray background, try setting the print density to a different setting.
- Did you select the detachable front output tray for envelopes, labels and overhead transparencies?
- If your envelopes are jamming, did you try backing off the paper width adjuster, leaving a slight gap?
- Try inserting only one envelope at a time.

Note



The HP LaserJet IIP *plus* printer automatically feeds any remaining paper or other print media in the Multi-Purpose tray when the TRAYS menu item is set to TRAYS LC ONLY *. Refer to "Using MP Priority Feed" on page 4-11 for more information on MP priority feed.

Solving Typical Envelope Problems



Check your software documentation if the envelope problem is caused by your software.

The following information addresses problems that may occur in the day-to-day process of printing envelopes. Because envelopes are composed of multiple layers of paper, print quality on envelopes may not be as high as printing on regular paper. Also a higher jam rate may occur when printing envelopes. See “Envelopes” in appendix E for specific information.

Print your envelope data on plain paper to determine if the problem is attributed to the printer or the envelope.

MP LOAD Message

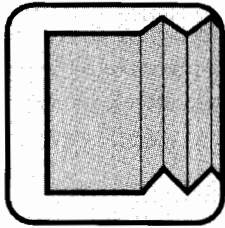
If you get an MP LOAD message in the first line of the control panel display, the front panel’s MP SIZE setting does not match the job size request sent from your software. Change the front panel MP SIZE setting to match the desired size, or hold down the **Alt** key and click the **Continue** key to override the MP LOAD message.

Multiple Feeds

If two or more envelopes are fed at once, check the following.

- **Do not** use envelopes that have been previously run through any laser printer.
- Load envelopes neatly.
- Loosely stack envelopes in the Multi-Purpose or Envelope tray. Do not compress the envelopes or stack them above the limit marks of either tray.
- Make sure the envelope flaps are not interlocked.
- Try a new box of envelopes or try changing to another type of envelope.
- Try backing off the media width adjuster slightly, leaving a small gap between it and the envelopes.

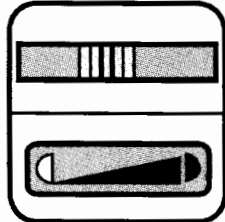
Frequent Jamming



Frequent jams while printing envelopes may be caused by one of the following:

- The envelopes are not well constructed. Consult your envelope supplier. Purchase envelopes that are manufactured for use in laser printers.
- The envelopes do not meet the media guidelines because they are too stiff, too heavy or too smooth. You may need to use a lighter weight envelope; basis weight should not exceed 24 pound (90 gm/m²).
- The envelopes have been stored or handled improperly; the edges are curled, wrinkled or “dog-eared.” **Do not** use envelopes that have been damaged or jams will occur.
- Too many envelopes are loaded into the envelope tray. Make sure the envelopes are not compressed or loaded past the limit marks in the envelope tray.
- The guides are adjusted too tightly, causing the envelopes to buckle before they enter the paper path. Make sure the envelope width and length guides are not too tight against the envelopes (allow a small gap between the guides and the envelope stack).

Print Quality



If your print is distorted, partially missing or poor in quality, or if gray shading appears in the non-printed area of the envelope, follow these guidelines.

- Try adjusting the print density slide to minimize background scatter. See “Adjusting Print Density” in chapter 8.
- Avoid printing on the seams of the envelope because inconsistent and irregular print occurs.
- Try changing the envelope paper type, weight or surface finish. See “Envelopes” in appendix E.

Blank Envelopes

If the envelope feeds into the printer properly but comes out blank, follow these guidelines to find out why:

- Check the software margin settings, and check the envelope size you selected. The address may be printing off the envelope. Try printing your envelope data on a regular sheet of paper to see if it is printing where you do not expect it.
- If you enter printer commands to select the envelope, check to see they are entered properly. Printer commands must be entered exactly as shown, paying careful attention to uppercase and lowercase letters.

When entering printer commands, be careful to distinguish between the lowercase letter *l* and the number 1, and between the number 0 and an uppercase letter O.

Wrong Margins

If the print is in the wrong position on the envelope, follow these guidelines:

- Try adjusting the margin and tab settings in your software.
- Check the control panel Printing Menu to see what envelope size you selected. You may be using COM-10 while your printer is set up to print on DL.

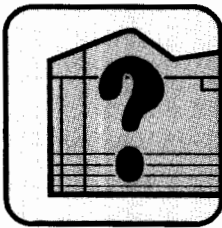
Wrinkling

If wrinkles appear in the envelopes after printing, follow these guidelines:

- Use the **Front** output path and ensure that the Output tray selector button is in the down position. The printer's paper path is simplified and shortened when the front output path is used.

- Use envelopes with tight construction (not baggy), and check the edges for sharp creases. If the creases are not sharp, you may have to crease them yourself to prevent wrinkling.
- Store envelopes in the proper environment. Do not store them in an extremely cold, hot, humid or dry environment.

Commonly Asked Questions



Hewlett-Packard has support services available to help you in case you have questions about your LaserJet printer. Before you call for help, read the following list of questions our customers commonly ask:

Q: How can I reduce the curl on my printed pages?

A: If the paper on which you are printing tends to curl as it passes through the printer, turn the paper stack over and print on the reverse side. You may also want to try printing from the front output path. See chapter 3 for information on the front output path.

Q: Why do I get a printer error message on my computer screen after 3 or 4 pages have printed?

A: You may have a problem with your computer's configuration, such as with the MODE statement found in your AUTOEXEC.BAT file. Refer to the HP LaserJet IIPplus Printer Getting Started Guide for more information.

Q: Is there any way that I can create a document on my IBM PC that uses the IBM Line-drawing set, and have it print correctly on my printer?

*A: Yes, the printer contains the PC-8 symbol set, which you can access using your software or the control panel Printing Menu selection SYM SET PC-8 *.*

Q: I am using a proportionally spaced font. How do I get an even right margin?

A: Right justification with proportionally spaced fonts is a feature of the software package. Determine if your software provides right justification of proportionally spaced fonts.

Q: How do I access the two levels of control panel menu options – the Printing Menu and the Configuration Menu?

*A: To access the Printing Menu, click the **ON LINE** key to take the printer off-line. Then click the **MENU** key repeatedly to step through the Printing Menu selections that control the printed output.*

*To access the Configuration Menu, first take the printer off-line, then repeatedly click the **MENU** key until DEVICE CONFIG appears. Click the **ENTER** key and AUTO CONT appears in the first line of the display. Then continue to click the **MENU** key to move through the Configuration Menu.*

Q: Why do I get garbled text when I print?

A: If you get garbled text when printing directly from DOS (DIR>PRN), check to make sure your interface cable is attached securely to your printer and your computer. If you do not get garbled text when printing from DOS, the problem probably is with your software package or the software driver.

*You should also check to make sure you do not have a defective printer interface cable. In addition, make sure the correct symbol set is selected. Try performing a **Ø9 MENU RESET** to return the printer to its factory default settings.*



Q: I have printed a Font Printout and am trying to access the internal font for Courier bold, #I05. When I use the printer command E_C (#X for accessing a font by its ID number, the printer does not recognize that command. What am I doing wrong?

A: You cannot access the internal or cartridge fonts using the above escape sequence. You can use this sequence only to access fonts that you have previously assigned an ID number. Don't confuse the font # and the font ID; they are not the same.

Q: What kind of paper should I use with my LaserJet printer?

A: The HP LaserJet IIP plus printer works well with most types of paper. Variables in paper composition and manufacturing may affect print quality and paper handling. Refer to appendix E for more detailed paper guidelines.

Q: I replaced my toner cartridge and now nothing is printing. Why?

A: Make sure you removed the sealing tape from the toner cartridge.

Q: Can my toner cartridge be refilled when it runs out of toner or do I have to purchase a new one?

A: HP does not recommend the use of refilled toner cartridges. The electrophotographic drum (located in the toner cartridge) is nearing the end of its designed life when the toner runs out. Damage to the printer resulting from the use of a refilled cartridge will not be covered by Hewlett-Packard's warranty and service agreements.

Q: Why do I get a MP, LC or LE LOAD message on the display of my printer?

A: Your software is requesting a size of paper for which your printer is not currently configured. Check the MP SIZE setting, and make sure the appropriate paper is loaded in the requested source tray.

Q: Why does the first page of my document print with the correct top margin, but then following pages start printing lower and lower, with a larger top margin?

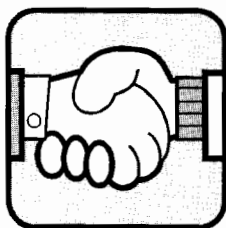
A: So-called “creeping text” occurs when the number of lines per page (page length) in your software application exceeds the number of lines per page set for the printer. The printer has a default unprintable region at both the top and bottom of the page, and by default prints 64 lines per page (A4 paper). Most software applications default to 54 or 66 lines per page. Set your application software to send only 64 lines per page for A4 paper. You may try changing the lines of text to 66 on the control panel Printing Menu. However, your software may still override the new setting.

Q: I do not have a LaserJet IIP or IIP plus printer driver available with my software. What should I use?

A: If a LaserJet IIP printer driver is not available, select the driver definition that is the closest to the printer’s features that you want to use. A LaserJet IID printer driver should provide paper handling support (dual trays). Call your application manufacturer for information concerning LaserJet printer support. If a LaserJet IIP driver is not available, any LaserJet driver will provide minimal feature support.

Service and Support

Introduction



Hewlett-Packard and its authorized dealers stand behind the HP product you have purchased. Depending on how you purchase and use your equipment, the best source of support may be your own organization, your HP dealer, or the Hewlett-Packard Company. Your warranty statement is included in this chapter (see “Warranty”). Please read it carefully and retain it for your records.

Assistance from Your Organization

If your organization has many HP printers, the best source of assistance may be within your own company. Many companies designate central support personnel to help you when you have problems with your printer or when you need consumable items such as EP-L (toner) cartridges or paper. These support personnel, in turn, can call special resources within HP when necessary.

Assistance from Your Local Dealer

If you purchased your printer from an HP dealer or large system vendor, your dealer may be the best source of assistance. The salesperson is familiar with your needs, equipment, configuration and software, and should be able to provide you with the information you need. Your dealer can also access special support resources and programs within HP. Contact your dealer for details on available support options.

Hardware Repairs

Recognizing that mechanical parts do wear, and that electronic devices do occasionally need service, high-quality, professional hardware support is provided through *Service Authorized HP Dealer* centers and the world-wide network of *HP Sales and Service Offices*. These offices are listed in this manual following the index.

Note

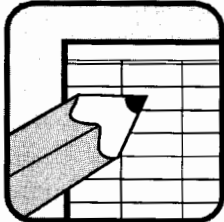


To have your printer serviced by a Hewlett-Packard authorized technician, you must make arrangements to have it serviced in the country of purchase.

HP Maintenance Agreements

HP has several types of maintenance agreements that meet a wide range of support needs. The following paragraphs describe these services.

On-Site Service Agreements



To provide you with the support level best suited to your system usage and support budget, HP has on-site service agreements with three response times.

Priority On-Site Service is designed for production-critical applications, giving you four-hour service response to your site for calls made during normal HP business hours.

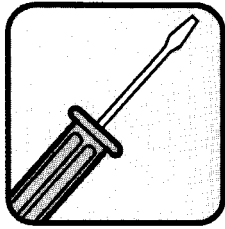
Next Day On-Site Service provides on-site support by the next working day following your service request. Extended coverage hours and extended travel beyond HP designated service zones are available for additional charges on most on-site service agreements.

Weekly (Volume) On-Site Service Agreement, for organizations with many HP LaserJet printers, provides economical, scheduled on-site coverage. Designated for customer sites using 25 or more workstation products, this service provides scheduled weekly repair visits to your central location. HP can write an agreement for any combination of 25 or more workstation products including printers, plotters, computers and disk drives.

Customer Return Service

With *Customer Return Service*, you send the printer to a nearby HP Customer Service Center, where your product will be repaired, tested, and return-shipped within three working days of receipt. This agreement is the most economical service, and you get higher-priority service than per-incident repairs. An additional benefit is that you can accurately budget support costs with no unexpected expenses.

Per-Incident Repair Services



In addition to contractual services, HP offers per-incident services. A fixed, Standard Repair Price (STREP) is available at HP Customer Service centers. Your product will be repaired at a fixed price regardless of the time and parts required to accomplish the task. Repairs are typically completed within five working days of receipt at the HP Customer Service Centers.

Time-and-materials service is also available and generally applies to per-incident repairs provided on-site.

Dealer Sponsored Service Agreements

Your local, service-authorized HP dealer may offer service options in addition to those offered by Hewlett-Packard. Please contact your particular dealer for more information.

Warranty

This warranty gives you specific legal rights. You may also have other rights which vary from state to state or province to province.

One-Year Limited Warranty

Hewlett-Packard warrants its LaserJet hardware products against defects in materials and workmanship for a period of one year from the date of purchase by the end user. During the warranty period, Hewlett-Packard will, at its option, either repair or replace products which prove to be defective.

Should Hewlett-Packard be unable to repair or replace the product within a reasonable amount of time, a refund of the purchase price may be given upon return of the product.

Exclusions

The warranty on your LaserJet printer shall not apply to defects resulting from:

- Improper or inadequate maintenance by the customer.
- Customer supplied software or interfacing.
- Unauthorized modification or misuse.
- Operation outside of the environmental specifications for the product.
- Operation using non-supported printing media.
- Duty cycle abuse (see note on next page).
- Operating the printer from a mechanical switchbox without a designated surge protector.
- Improper site preparation and maintenance.
- Use of non-HP EP-L (toner) cartridges, font/personality cartridges, memory boards or interface boards.
- Use of refilled EP-L (toner) cartridges.

Note



Operation of the printer beyond the limit of its **duty cycle** (printing greater than the equivalent of 8,000 single-sided pages per month) shall be deemed printer abuse and all repairs thereafter will be billed on a time and materials basis.

If you are using a mechanical switchbox, ensure that it is equipped with a surge protector. Damage to your printer could occur from the use of unprotected mechanical switchboxes.

The warranty period begins either on the date of customer purchase or, if the purchase price includes installation by Hewlett-Packard, on the date of installation.

If your hardware fails during the warranty period, contact only a service-authorized HP dealer or an HP Customer Service Center.

Warranty Limitations

The warranty set forth above is exclusive and no other warranty, whether written or oral, is expressed or implied. Hewlett-Packard specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

Some states or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation or exclusion may not apply to you. However, any implied warranty of merchantability or fitness is limited to the one-year duration of this written warranty.

Service During the Warranty Period

If your hardware should fail during the warranty period, contact a service-authorized HP dealer, or an HP Customer Service Center.

When sending equipment to an HP Customer Service Center or service-authorized HP dealer, follow the repacking guidelines listed below. Also, complete and enclose a copy of the Service Information Form at the end of this chapter, and enclose a copy of your proof of purchase. Insuring the equipment for shipment is recommended.

Warning



Shipping damage as a result of inadequate packaging is the customer's responsibility. Use the original packing materials whenever possible.

Service After the Warranty Period

If your hardware fails after the warranty period, and you have an HP Maintenance Agreement, request service as specified in that agreement. If you do not have an HP Maintenance Agreement, contact a service-authorized HP dealer or an HP Customer Service Center to obtain service.

When sending equipment to an HP Customer Service Center, follow the repacking guidelines listed on the next page. Also, complete and enclose a copy of the Service Information Form (at the end of this chapter). Insuring the equipment for shipment is recommended.

Repacking Guidelines for Returning Your Printer

- Remove and retain any font cartridges installed in the printer.
- Remove and retain the toner cartridge.
- Remove and retain the Optional Lower Cassette.
- Use the original shipping container and packing materials, if possible.

Note



If you have already disposed of your printer's packaging material and are unable to locate another package, call the nearest Hewlett-Packard Sales and Service office (see the listing at the back of the manual).

Ask for part number 33471-00908. The proper packaging material (box and inserts) will be sent to you for a charge.

- Include the completed copy of the Service Information Form. Include print samples which illustrate the problems you are having, if applicable.
- Include 50-100 sheets of any problem paper or forms, if possible.

Service Information Form (For HP Customer Service Center or a Service-Authorized HP Dealer)

When requesting service, please fill out this Service Information Form. This form needs to be shipped with your equipment. Service cannot begin until we have this information.

Who is returning this equipment?

Company/Institution _____ Date _____

Person to Contact _____ Phone _____

Alternate Contact _____ Phone _____

Return Shipping Address

Special Shipping Instructions

_____	_____
_____	_____
_____	_____

What is being sent?

Model No. _____ Serial No. _____

Be sure that you have followed the procedures for troubleshooting in the user's manual before returning equipment. Do not ship accessories which are not required to complete the repair (manuals, cleaning supplies, etc.).

What needs to be done?

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 failure is intermittent, how much time elapses between failures?

3. Is unit connected to any of the following? (Give manufacturer and model #.)

Personal Computer _____ Modem _____

Other _____

4. Additional Comments:

5. Please attach any relevant printouts when returning equipment.

How will you pay for the repair? (Fill in the appropriate information.)

Warranty: Purchased/Received Date _____

Enclose proof of purchase or receiving document with original received date.

Maintenance Contract: Contract No. _____

Order: Purchase Order No. _____

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 authorized Repair Center.

Authorized Signature _____ Phone _____

Billing Address

Special Billing Instructions

10-10 Service and Support

Printer Commands

Introduction



This appendix lists the HP LaserJet IIP *plus* printer commands. Table A-1 lists the PCL context printer commands in hierarchical order and gives the decimal and hexadecimal equivalents of each.

Table A-1.HP LaserJet IIPplus Printer Commands – PCL

FUNCTION	PARAMETER	COMMAND	DECIMAL VALUE	HEXADECIMAL VALUE
JOB CONTROL COMMANDS				
Reset				
Reset	—	⌘E	027 089	1B 45
Number of Copies	# of Copies (1–99)	⌘' X (x)	027 038 108 #...# 088	1B 26 6C #...# 58 (78)
Long-Edge (Left) Offset Registration	# of Decipoints (1/720")	⌘' U (u)	027 038 108 #...# 085	1B 26 6C #...# 55 (75)
Short-Edge (Top) Offset Registration	# of Decipoints (1/720")	⌘' Z (z)	027 038 108 #...# 090	1B 26 6C #...# 5A (7A)
PAGE CONTROL COMMANDS				
Page Length and Size				
Paper Source	Eject Page	⌘' H (h)	027 038 108 048 072	1B 26 6C 30 48 (68)
	MP Tray	⌘' 1H (h)	027 038 108 049 072	1B 26 6C 31 48 (68)
	Manual Feed	⌘' 2H (h)	027 038 108 050 072	1B 26 6C 32 48 (68)
	Manual Envelope Feed	⌘' 3H (h)	027 038 108 051 072	1B 26 6C 33 48 (68)
	Lower Tray	⌘' 4H (h)	027 038 108 052 072	1B 26 6C 34 48 (68)
	Lower Cassette Tray	⌘' 6H (h)	027 038 108 054 072	1B 26 6C 36 48 (68)
Job Size (page size)	Executive	⌘' 1A (a)	027 038 108 049 065	1B 26 6C 31 41 (61)
	Letter	⌘' 2A (a)	027 038 108 050 065	1B 26 6C 32 41 (61)
	Legal	⌘' 3A (a)	027 038 108 051 065	1B 26 6C 33 41 (61)
	A4	⌘' 26A (a)	027 038 108 050 054 065	1B 26 6C 32 36 41 (61)
	Monarch	⌘' 8H A (a)	027 038 108 056 048 065	1B 26 6C 38 30 41 (61)
Envelope	COM 10	⌘' 81A (a)	027 038 108 056 049 065	1B 26 6C 38 31 41 (61)
	DL	⌘' 9H A (a)	027 038 108 057 048 065	1B 26 6C 39 30 41 (61)
	C5	⌘' 91A (a)	027 038 108 057 049 065	1B 26 6C 39 31 41 (61)
	Page Length	# of Lines (5–128)	⌘' P (p)	027 038 108 #...# 080	1B 26 6C #...# 050 (70)
Orientation				
Orientation	Portrait	⌘' O (o)	027 038 108 048 079	1B 26 6C 30 4F (6F)
	Landscape	⌘' 1 O (o)	027 038 108 049 079	1B 26 6C 31 4F (6F)
Margins and Text Length				
Top Margin	# of Lines	⌘' E (e)	027 038 108 #...# 069	1B 26 6C #...# 45 (65)
Text Length	# of Lines	⌘' F (f)	027 038 108 #...# 070	1B 26 6C #...# 46 (66)
Left Margin	# of Columns	⌘' L (l)	027 038 097 #...# 076	1B 26 61 #...# 4C (6C)
Right Margin	# of Columns	⌘' M (m)	027 038 097 #...# 077	1B 26 61 #...# 4D (6D)
Clear Horizontal Margins	—	⌘9	027 057	1B 39

Values in the parentheses "(x)" identify the lower case of the termination character. This value is used if the printer command is combined.

Printer Commands A-2

Table A-1.LaserJet IIPplus Printer Commands-PCL(Cont)

FUNCTION	PARAMETER	COMMAND	DECIMAL VALUE	HEXADECIMAL VALUE
Perforation Skip Mode				
Perforation Skip	Disable	⌘ & l 0 L //	027 038 108 048 076 (108)	1B 26 6C 30 4C (6C)
	Enable	⌘ & l 1 L //	027 038 108 049 076 (108)	1B 26 6C 31 4C (6C)
Horizontal Column Spacing				
Horizontal Motion Index (HMI)	# of 1/120" Increments	⌘ & k # H (h)	027 038 107 #...# 048 072 (104)	1B 28 6B #...# 48 (68)
Vertical Line Spacing				
Vertical Motion Index (VMI)	# of 1/48" Increments	⌘ & l # C (c)	027 038 108 #...# 048 076 (99)	1B 26 6C #...# 43 (63)
Line Spacing (Lines per inch)	1 line/inch	⌘ & l 1D (d)	027 038 108 049 068 (100)	1B 26 6C 31 44 (64)
	2 lines/inch	⌘ & l 2D (d)	027 038 108 050 068 (100)	1B 26 6C 32 44 (64)
	3 lines/inch	⌘ & l 3D (d)	027 038 108 051 068 (100)	1B 26 6C 33 44 (64)
	4 lines/inch	⌘ & l 4D (d)	027 038 108 052 068 (100)	1B 26 6C 34 44 (64)
	6 lines/inch	⌘ & l 6D (d)	027 038 108 054 068 (100)	1B 26 6C 38 44 (64)
	8 lines/inch	⌘ & l 8D (d)	027 038 108 058 068 (100)	1B 26 6C 38 44 (64)
	12 lines/inch	⌘ & l 12D (d)	027 038 108 049 050 068 (100)	1B 26 6C 31 32 44 (64)
	16 lines/inch	⌘ & l 16D (d)	027 038 108 049 054 068 (100)	1B 26 6C 31 36 44 (64)
	24 lines/inch	⌘ & l 24D (d)	027 038 108 050 052 068 (100)	1B 26 6C 32 34 44 (64)
48 lines/inch	⌘ & l 48D (d)	027 038 108 052 056 068 (100)	1B 26 6C 34 38 44 (64)	
CURSOR POSITIONING				
Vertical and Horizontal				
Vertical Position	# of Rows	⌘ & a # R (r)	027 038 097 #...# 082 (114)	1B 26 61 #...# 52 (72)
	# of Dots	⌘ * p # Y (y)	027 042 112 #...# 089 (121)	1B 2A 70 #...# 59 (79)
	# of Decipoints	⌘ & a # V (v)	027 038 097 #...# 086 (118)	1B 26 61 #...# 56 (76)
Horizontal Position	# of Columns	⌘ & a # C (c)	027 038 097 #...# 067 (99)	1B 26 61 #...# 43 (63)
	# of Dots	⌘ * p # X (x)	027 042 112 #...# 088 (120)	1B 2A 70 #...# 58 (78)
	# of Decipoints	⌘ & a # H (h)	027 038 097 #...# 072 (104)	1B 26 61 #...# 48 (68)
Half Line Feed		⌘ =	027 061	1B 3D
End-of-Line Termination				
Line Termination	CR=CR; LF=LF; FF=FF	⌘ & k 0 G (g)	027 038 107 048 071 (103)	1B 26 6B 30 47 (67)
	CR=CR+LF; LF=LF; FF=FF	⌘ & k 1 G (g)	027 038 107 049 071 (103)	1B 26 6B 31 47 (67)
	CR=CR; LF=CR+LF; FF=CR+FF	⌘ & k 2 G (g)	027 038 107 050 071 (103)	1B 26 6B 32 47 (67)
	CR=CR+LF; LF=CR+LF; FF=CR+FF	⌘ & k 3 G (g)	027 038 107 051 071 (103)	1B 26 6B 33 47 (67)
Push/Pop Position				
Push/Pop Position	Push	⌘ & f 0 S (s)	027 038 102 048 083 (115)	1B 26 66 30 53 (73)
	Pop	⌘ & f 1 S (s)	027 038 102 049 083 (115)	1B 26 66 31 53 (73)

Values in the parentheses "(x)" identify the lower case of the termination character. This value is used if the printer command is combined.



Table A-1.LaserJet IIPplus Printer Commands-PCL(Cont)

FUNCTION	PARAMETER	COMMAND	DECIMAL VALUE	HEXADECIMAL VALUE	
FONT SELECTION					
Symbol Set Selection					
Primary Symbol Set	ISO 80: Norwegian 1	Esc(Ø D	027 040 048 088	1B 28 30 44	
	ISO 4: United Kingdom	Esc(1E	027 040 049 088	1B 28 31 45	
	ISO 89: French	Esc(1F	027 040 048 070	1B 28 31 46	
	ISO 21: German	Esc(1G	027 040 049 071	1B 28 31 47	
	ISO 15: Italian	Esc(Ø I	027 040 048 073	1B 28 30 49	
	Microsoft Publishing DeskTop	Esc(6 J	027 040 054 074	1B 28 36 4A	
	PS Text	Esc(7 J	027 040 055 074	1B 28 37 4A	
	Ventura International	Esc(1Ø J	027 040 048 048 074	1B 28 31 30 4A	
	Ventura US	Esc(13 J	027 040 049 051 074	1B 28 31 33 4A	
	Ventura ITC Zapf Dingbats	Esc(14 J	027 040 048 052 074	1B 28 31 34 4A	
	PS ITC Zapf Dingbats	Esc(9 L	027 040 057 078	1B 28 39 4C	
	ITC Zapf Dingbats Series 100	Esc(1Ø L	027 040 048 048 078	1B 28 31 30 4C	
	ITC Zapf Dingbats Series 200	Esc(11 L	027 040 049 049 078	1B 28 31 31 4C	
	ITC Zapf Dingbats Series 300	Esc(12 L	027 040 049 050 078	1B 28 31 32 4C	
	PS Math	Esc(13 L	027 040 049 051 078	1B 28 31 33 4C	
	Ventura Math	Esc(5 M	027 040 053 077	1B 28 35 4D	
	Math-8	Esc(6 M	027 040 054 077	1B 28 36 4D	
	ECMA-94 Latin 1	Esc(8 M	027 040 056 077	1B 28 38 4D	
	ISO 11: Swedish	Esc(Ø N	027 040 048 078	1B 28 30 4E	
	ISO 17: Spanish	Esc(Ø S	027 040 048 083	1B 28 30 53	
	ISO 8: ASCII	Esc(2 S	027 040 050 083	1B 28 32 53	
	Legal	Esc(Ø U	027 040 048 085	1B 28 30 55	
	Roman8	Esc(1U	027 040 048 085	1B 28 31 55	
			Esc(8 U	027 040 058 085	1B 28 38 55
	Symbol Set Selection				
	Primary Symbol Set (continued)	Windows	Esc(9 U	027 040 057 085	1B 28 39 55
PC-8		Esc(1Ø U	027 040 048 048 085	1B 28 31 30 55	
PC-8 DIN		Esc(11 U	027 040 049 049 085	1B 28 31 31 55	
PC 850		Esc(12 U	027 040 049 050 085	1B 28 31 32 55	
Pi Font		Esc(15 U	027 040 049 043 085	1B 28 31 35 55	
Spacing					
Primary Spacing	Fixed	Esc(sØ P (p)	027 040 115 048 080 (112)	1B 28 73 30 50 (70)	
	Proportional	Esc(s1P (p)	027 040 115 049 080 (112)	1B 28 73 31 50 (70)	
Pitch					
Primary Pitch	# Characters/inch	Esc(s# H (h)	027 040 115 #...# 072 (104)	1B 28 73 #...# 48 (68)	
Point Size					
Primary Height	# Points	Esc(s# V (v)	027 040 115 #...# 088 (118)	1B 28 73 #...# 56 (76)	

Values in the parentheses "(x)" identify the lower case of the termination character. This value is used if the printer command is combined.

Table A-1.LaserJet IIPplus Printer Commands-PCL(Cont)

FUNCTION	PARAMETER	COMMAND	DECIMAL VALUE	HEXADECIMAL VALUE
Style				
Primary Style	Upright (Solid)	⌘(s) S (s)	027 040 115 048 083 (115)	1B 28 73 30 53 (73)
	Italic	⌘(s) I (s)	027 040 115 048 083 (115)	1B 28 73 31 53 (73)
Stroke Weight				
Primary Font Stroke Weight	Light	⌘(s) B (b)	027 040 115 045 051 088 (98)	1B 28 73 2D 33 42 (62)
	Medium (book or text)	⌘(s) B (b)	027 040 115 048 088 (98)	1B 28 73 30 42 (62)
	Bold	⌘(s) B (b)	027 040 115 051 088 (98)	1B 28 73 33 42 (62)
Primary Typeface Family				
Typeface Family	Courier	⌘(s) T (t)	027 040 115 051 084 (116)	1B 28 73 33 54 (74)
	LinePrinter	⌘(s) T (t)	027 040 115 048 084 (116)	1B 28 73 30 54 (74)
Font Default				
Font Default	Primary Font	⌘(3) @	027 040 051 084	1B 28 33 40
	Secondary Font	⌘(3) @	027 041 051 084	1B 29 33 40
Underline				
Underline	Enable Fixed	⌘& d ⌘ D (d)	027 038 100 048 088 (100)	1B 26 64 30 44 (64)
	Enable Floating	⌘& d ⌘ D (d)	027 038 100 051 088 (100)	1B 26 64 33 44 (64)
	Disable	⌘& d @	027 038 100 084	1B 26 64 40
Transparent Print				
Transparent Print Data	# of Bytes	⌘& p # X [Data]	027 038 112 #...# 088	1B 26 70 #...# 58
FONT MANAGEMENT				
Assign Font ID	Font ID #	⌘*c # D (d)	027 042 099 #...# 088 (100)	1B 2A 63 #...# 44 (64)
Font and Character Control	Delete all Fonts	⌘*c ⌘ F (f)	027 042 099 048 070 (102)	1B 2A 63 30 46 (66)
	Delete all temporary fonts	⌘*c } F (f)	027 042 099 048 070 (102)	1B 2A 63 31 46 (66)
	Delete last font ID specified	⌘*c 2 F (f)	027 042 099 050 070 (102)	1B 2A 63 32 46 (66)
		⌘*c 3 F (f)	027 042 099 051 070 (102)	1B 2A 63 33 46 (66)
	Make font temporary	⌘*c 4 F (f)	027 042 099 052 070 (102)	1B 2A 63 34 46 (66)
	Copy/Assign the currently invoked font as temporary	⌘*c 6 F (f)	027 042 099 054 070 (102)	1B 2A 63 36 46 (66)
Font Selection by ID Number				
Select font (with ID #)	ID # primary font	⌘(# X	027 040 #...# 088 (120)	1B 28 #...# 58 (78)
	ID # secondary font	⌘(# X	027 041 #...# 088 (120)	1B 29 #...# 56 (78)

Values in the parentheses "(x)" identify the lower case of the termination character. This value is used if the printer command is combined. The primary font printer commands in this table can be specified as secondary by replacing the left parenthesis "(" in the command with a right parenthesis ")".
(Decimal Value = 41; Hexadecimal = 29).

Table A-1.LaserJet IIPplus Printer Commands-PCL(Cont)

FUNCTION	PARAMETER	COMMAND	DECIMAL VALUE	HEXADECIIMAL VALUE
SOFT FONT CREATION				
Font descriptor (font header)	# of bytes	⌘s# W [data]	027 041 115 #...# 087	1B 29 73 #...# 57
Download character	# of bytes	⌘(s# W [data]	027 040 115 #...# 087	1B 28 73 #...# 57
Character code	Character code # (decimal)	⌘*c# E (e)	027 042 089 #...# 089 (101)	1B 2A 63 #...# 45 (65)
GRAPHICS				
Raster Graphics				
Raster Resolution	75 dots/inch	⌘*r75 R (r)	027 042 118 055 053 082 (114)	1B 2A 74 37 35 52 (72)
	100 dots/inch	⌘*r100 R (r)	027 042 118 049 048 048 082 (114)	1B 2A 74 31 30 30 52 (72)
	150 dots/inch	⌘*r150 R (r)	027 042 118 049 053 048 082 (114)	1B 2A 74 31 35 30 52 (72)
	300 dots/inch	⌘*r300 R (r)	027 042 116 051 048 048 082 (114)	1B 2A 74 33 30 30 52 (72)
Raster Graphics Presentation				
Raster Graphics Presentation	Follows orientation	⌘*r F (f)	027 042 114 048 070 (102)	1B 2A 72 30 46 (66)
	Follows physical page	⌘*r 3F (f)	027 042 114 051 070 (102)	1B 2A 72 33 46 (66)
Start Raster Graphics	Left Raster Graphics Margin	⌘*r A (a)	027 042 114 048 065 (97)	1B 2A 72 30 41 (61)
	Current Cursor	⌘*r 1A (a)	027 042 114 049 065 (97)	1B 2A 72 31 41 (61)
Raster Y Offset	# of Raster Lines of vertical movement	⌘*b # Y (y)	027 042 098 #...# 089 (121)	1B 2A 62 #...# 59 (79)
Set Raster Compression Mode	Unencoded	⌘*b M (m)	027 042 098 048 077 (109)	1B 2A 62 30 4D (6D)
	Run-Length Encoded	⌘*b 1M (m)	027 042 098 049 077 (109)	1B 2A 62 31 4D (6D)
	Tagged Image File Format	⌘*b 2M (m)	027 042 098 050 077 (109)	1B 2A 62 32 4D (6D)
Transfer Raster Data	# of Bytes	⌘*b # W [data]	027 042 098 #...# 087	1B 2A 62 #...# 57
End Raster Graphics	—	⌘*r B (b)	027 042 114 066 (98)	1B 2A 72 42 (62)
Raster Height	# Raster Rows	⌘*r # T (t)	027 042 114 #...# 084 (116)	1B 2A 72 #...# 54 (74)
Raster Width	# Pixels of the Specified Resolution	⌘*r # S (s)	027 042 114 #...# 083 (115)	1B 2A 72 #...# 53 (73)
Rectangle Dimensions				
Rectangle Width (Horizontal Size)	# of dots	⌘*c # A (a)	027 042 099 #...# 065 (97)	1B 2A 63 #...# 41 (61)
	# of decipoints	⌘*c # H (h)	027 042 099 #...# 072 (104)	1B 2A 63 #...# 48 (68)
Rectangle Height (Vertical Size)	# of dots	⌘*c # B (b)	027 042 099 #...# 066 (98)	1B 2A 63 #...# 42 (62)
	# of decipoints	⌘*c # V (v)	027 042 099 #...# 086 (118)	1B 2A 63 #...# 56 (76)

Values in the parentheses "(x)" identify the lower case of the termination character. This value is used if the printer command is combined. The primary font printer commands in this table can be specified as secondary by replacing the left parenthesis "(" in the command with a right parenthesis ")"
 (Decimal Value = 41; Hexadecimal = 29).

Table A-1.LaserJet IIPplus Printer Commands-PCL(Cont)

FUNCTION	PARAMETER	COMMAND	DECIMAL VALUE	HEXADECIMAL VALUE
Rectangular Area Fill				
Fill Rectangular Area	Solid Black	⌘ c Ⓟ P	(p) 027 042 089 048 080	(112) 1B 2A 83 30 50 (70)
	Erase (solid white fill)	⌘ c 1P	(p) 027 042 089 049 080	(112) 1B 2A 83 31 50 (70)
	Shaded Fill	⌘ c 2P	(p) 027 042 089 050 080	(112) 1B 2A 83 32 50 (70)
	Cross-hatched Fill	⌘ c 3P	(p) 027 042 089 051 080	(112) 1B 2A 83 33 50 (70)
	Current Pattern	⌘ c 5P	(p) 027 042 089 053 080	(112) 1B 2A 83 35 50 (70)
Shading	2% Gray	⌘ c 2G	(g) 027 042 089 050 071	(103) 1B 2A 83 32 47 (67)
	10% Gray	⌘ c 1ⓅG	(g) 027 042 089 049 048 071	(103) 1B 2A 83 31 30 47 (67)
	15% Gray	⌘ c 1 5G	(g) 027 042 089 049 053 071	(103) 1B 2A 83 31 35 47 (67)
	30% Gray	⌘ c 3ⓅG	(g) 027 042 089 051 048 071	(103) 1B 2A 83 33 30 47 (67)
	45% Gray	⌘ c 4 5G	(g) 027 042 089 052 053 071	(103) 1B 2A 83 34 35 47 (67)
	70% Gray	⌘ c 7ⓅG	(g) 027 042 089 055 048 071	(103) 1B 2A 83 37 30 47 (67)
	90% Gray	⌘ c 9ⓅG	(g) 027 042 089 057 048 071	(103) 1B 2A 83 39 30 47 (67)
	100% Gray	⌘ c 1Ⓟ Ⓟ G	(g) 027 042 089 049 048 048 071	(103) 1B 2A 6 331 30 30 47 (67)
Pattern	1 Horiz.Line	⌘ c 1 G	(g) 027 042 089 049 071	(103) 1B 2A 83 31 47 (67)
	2 Vert. Lines	⌘ c 2G	(g) 027 042 089 050 071	(103) 1B 2A 83 32 47 (67)
	3 Diagonal Lines	⌘ c 3G	(g) 027 042 089 051 071	(103) 1B 2A 83 33 47 (67)
	4 Diagonal Lines	⌘ c 4G	(g) 027 042 089 052 071	(103) 1B 2A 83 34 47 (67)
	5 Square Grid	⌘ c 5G	(g) 027 042 089 053 071	(103) 1B 2A 83 35 47 (67)
	6 Diagonal Grid	⌘ c 6G	(g) 027 042 089 054 071	(103) 1B 2A 83 36 47 (67)
MACROS				
Macro ID	Macro ID #	⌘ & f # Y	(y) 027 038 102 #...# 089	(121) 1B 28 66 #...# 59 (79)
Macro Control	Start Macro Def.	⌘ & f Ⓟ X	(x) 027 038 102 048 088	(120) 1B 28 66 30 58 (78)
	Stop Macro Def.	⌘ & f 1X	(x) 027 038 102 049 088	(120) 1B 28 66 31 58 (78)
	Execute Macro	⌘ & f 2X	(x) 027 038 102 050 088	(120) 1B 28 66 32 58 (78)
	Call Macro	⌘ & f 3X	(x) 027 038 102 051 088	(120) 1B 28 66 33 58 (78)
	Enable Overlay	⌘ & f 4X	(x) 027 038 102 052 088	(120) 1B 28 66 34 58 (78)
	Disable Overlay	⌘ & f 5X	(x) 027 038 102 053 088	(120) 1B 28 66 35 58 (78)
	Delete Macros	⌘ & f 6X	(x) 027 038 102 054 088	(120) 1B 28 66 36 58 (78)
	Delete All Temp. Macros	⌘ & f 7X	(x) 027 038 102 055 088	(120) 1B 28 66 37 58 (78)
	Delete Macro ID	⌘ & f 8X	(x) 027 038 102 056 088	(120) 1B 28 66 38 58 (78)
	Make Temporary	⌘ & f 9X	(x) 027 038 102 057 088	(120) 1B 28 68 39 58 (78)
	Make Permanent	⌘ & f 1Ⓟ X	(x) 027 038 102 049 048 088	(120) 1B 28 66 31 30 58 (78)
PROGRAMMING HINTS				
End-of-Line Wrap	Enabled	⌘ & s Ⓟ C	(c) 027 038 115 048 087	(99) 1B 26 73 30 43 (63)
	Disabled	⌘ & s 1C	(c) 027 038 115 049 087	(99) 1B 26 73 31 43 (63)
Display Functions	ON	⌘ Y	027 089	1B 59
	OFF	⌘ Z	027 090	1B 5A

Values in the parentheses "(x)" identify the lower case of the termination character. This value is used if the printer command is combined.

Printer Commands A-8

Symbol Sets

Symbol Set Tables



Symbol sets are unique groupings of characters designed to match the requirements of software applications, specific languages and occupations. To help you choose and use the proper symbol set, this appendix contains:

- The control panel display names and PCL language values for symbol sets.
- The individual symbol set tables showing character locations and ASCII character code positions.
- A substitution table for accessing ISO symbols from the Roman-8 symbol set.
- Information about special control codes to be used with symbol sets.
- Conversion tables for hexadecimal, decimal and octal characters.

Shaded Areas

The light shaded areas in these tables denote printer control code areas. Math composite characters are shown with medium shades, and line-draw composite characters are shown with dark shades. Composite characters are made by combining individual character elements into a large character. Refer to your computer or software manuals for information on printing the characters shown in the right half of the tables (code numbers 128-255).

The International Standards Organization (ISO) symbol sets and the HP German and HP Spanish symbol sets are represented by a character substitution table based on the Roman-8 symbol set (see page B-8).

Software Support

Although all of the characters and symbols shown on these charts are printable, your software might not support some of them. Check your software manual to see which symbol sets are supported.

Control Panel Display and PCL Symbol Set Values

Table B-1 is provided to help you select symbol sets using the HP LaserJet IIP *plus* printer's control panel or through your software application using PCL language printer commands.

Table B-1.

Symbol Set	Control Panel Display	PCL Symbol Set ID
Roman-8	ROMAN-8	8U
ECMA-94 Latin 1	EC94-L1	ØN
PC-8	PC-8	1ØU
Danish/Norwegian	PC-8 DN	11U
PC-850	PC-850	12U
ISO IRV*	ISO 2	2U
ISO United Kingdom*	ISO 4	1E
ASCII*	ISO 6	ØU
ISO Swedish/Finnish*	ISO 10	3S
ISO Swedish: names*	ISO 11	ØS
JIS ASCII*	ISO 14	ØK
ISO Italian*	ISO 15	ØI

B-2 Symbol Sets

Table B-1. (continued)

Symbol Set	Control Panel Display	PCL Symbol Set ID
ISO Portuguese*	ISO 16	4S
ISO Spanish*	ISO 17	2S
ISO German*	ISO 21	1G
ISO French*	ISO 25	øF
ISO Chinese*	ISO 57	2K
ISO Norwegian v1*	ISO 60	øD
ISO Norwegian v2*	ISO 61	1D
ISO French*	ISO 69	1F
ISO Portuguese*	ISO 84	5S
ISO Spanish*	ISO 85	6S
HP German*	GERMAN	øG
HP Spanish*	SPANISH	1S

B Symbol Sets

* These symbol sets represent a variation of characters from the Roman-8 symbol set (see page B-9).

Note



For the Roman-8 symbol set on page B-8, characters 0 through 127 represent the ASCII symbol set. Characters 161 through 255 represent the Roman Extension symbol set. ISO symbol sets are based on a variation of the characters in the Roman-8 symbol set.

Table B-2. ECMA-94 Latin 1 Symbol Set

NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	^ 96	p 112			° 160	À 176	Ð 192	à 208	ð 224	240
SOH 1	DC1 17	!	1 49	À 65	Q 81	a 97	q 113			ì 161	± 177	Á 183	Ñ 209	á 225	ñ 241
STX 2	DC2 18	"	2 50	B 66	R 82	b 98	r 114			ç 162	² 178	Â 184	Ò 210	â 226	ò 242
ETX 3	DC3 19	#	3 51	C 67	S 83	c 99	s 115			£ 163	³ 179	Ã 185	Ó 211	ã 227	ó 243
EOT 4	DC4 20	\$	4 52	D 68	T 84	d 100	t 116			¤ 164	´ 180	Ä 186	Ô 212	ä 228	ô 244
ENQ 5	NAK 21	%	5 53	E 69	U 85	e 101	u 117			¥ 165	µ 181	Å 187	Õ 213	å 229	õ 245
ACK 6	SYN 22	&	6 54	F 70	V 86	f 102	v 118			| 166	¶ 182	Æ 188	Ö 214	æ 230	ö 246
BEL 7	ETB 23	'	7 55	G 71	W 87	g 103	w 119			§ 167	· 183	Ç 189	× 215	ç 231	÷ 247
BS 8	CAN 24	(	8 56	H 72	X 88	h 104	x 120			¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
HT 9	EM 25	)	9 57	I 73	Y 89	i 105	y 121			© 169	¹ 185	É 201	Ù 217	é 233	ù 249
LF 10	SUB 26	*	: 58	J 74	Z 90	j 106	z 122			ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
VT 11	ECS 27	+ 43	; 59	K 75	[91	k 107	{ 123			« 171	» 187	Ë 203	Û 219	ë 235	û 251
FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	| 124			¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125			­ 173	½ 189	Í 205	Ý 221	í 237	ý 253
SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126			® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	 127			¯ 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

B-4 Symbol Sets



Table B-3. PC-8 Symbol Set

NUL 0	▶	SP 32	0 48	@ 64	P 80	˘ 96	p 112	Ç 128	É 144	á 160	⌘ 176	⌘ 192	⌘ 208	α 224	≡ 240
☺ 1	◀	! 33	1 49	A 65	Q 81	a 97	q 113	ü 129	æ 145	í 161	⌘ 177	⌘ 193	⌘ 209	β 225	± 241
● 2	↑	" 34	2 50	B 66	R 82	b 98	r 114	é 130	Æ 146	ó 162	⌘ 178	⌘ 194	⌘ 210	Γ 226	≥ 242
♥ 3	!!	# 35	3 51	C 67	S 83	c 99	s 115	â 131	ô 147	ú 163	⌘ 179	⌘ 195	⌘ 211	π 227	≤ 243
♦ 4	¶	\$ 36	4 52	D 68	T 84	d 100	t 116	ä 132	ö 148	ñ 164	⌘ 180	⌘ 196	⌘ 212	Σ 228	∫ 244
♣ 5	§	% 37	5 53	E 69	U 85	e 101	u 117	à 133	ò 149	Ñ 165	⌘ 181	⌘ 197	⌘ 213	σ 229	∫ 245
♠ 6	-	& 38	6 54	F 70	V 86	f 102	v 118	â 134	û 150	à 166	⌘ 182	⌘ 198	⌘ 214	μ 230	÷ 246
● 7	‡	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	ù 151	ρ 167	⌘ 183	⌘ 199	⌘ 215	τ 231	≈ 247
◻ 8	†	(40	8 56	H 72	X 88	h 104	x 120	ê 136	ÿ 152	¿ 168	⌘ 184	⌘ 200	⌘ 216	Φ 232	° 248
○ 9	↓	) 41	9 57	I 73	Y 89	i 105	y 121	ë 137	Ö 153	— 169	⌘ 185	⌘ 201	⌘ 217	Θ 233	· 249
■ 10	→	* 42	: 58	J 74	Z 90	j 106	z 122	è 138	Ü 154	— 170	⌘ 186	⌘ 202	⌘ 218	Ω 234	· 250
♂ 11	←	+ 43	; 59	K 75	[91	k 107	{ 123	ÿ 139	Ç 155	½ 171	⌘ 187	⌘ 203	⌘ 219	δ 235	√ 251
♀ 12	└	, 44	< 60	L 76	\ 92	l 108	| 124	î 140	£ 156	¼ 172	⌘ 188	⌘ 204	⌘ 220	∞ 236	∞ 252
♪ 13	↔	- 45	= 61	M 77	] 93	m 109	} 125	ï 141	¥ 157	ı 173	⌘ 189	⌘ 205	⌘ 221	φ 237	² 253
♪ 14	▲	. 46	> 62	N 78	^ 94	n 110	~ 126	Ä 142	Ŕ 158	« 174	⌘ 190	⌘ 206	⌘ 222	ε 238	■ 254
✳ 15	▼	/ 47	? 63	O 79	_ 95	o 111	◊ 127	Å 143	f 159	» 175	⌘ 191	⌘ 207	⌘ 223	∩ 239	SP 255

B
Symbol Sets

Table B-4. PC-8 D/N (Danish/Norwegian) Symbol Set

NUL 0	▶	SP	0	@	P	`	p	Ç	É	á	☄	⊥	⊥	α	≡
16	17	32	48	64	80	96	112	128	144	160	176	192	208	224	240
☺	◀	!	1	A	Q	a	q	ü	æ	í	☄	⊥	⊥	β	±
17	33	49	65	81	97	113	129	145	161	177	193	209	225	241	
●	‡	"	2	B	R	b	r	é	Æ	ó	☄	⊥	⊥	Γ	≥
18	34	50	66	82	98	114	130	146	162	178	194	210	226	242	
♥	!!	#	3	C	S	c	s	â	ô	ú	☄	⊥	⊥	π	≤
19	35	51	67	83	99	115	131	147	163	179	195	211	227	243	
♦	¶	§	4	D	T	d	t	ä	ö	ñ	☄	⊥	⊥	Σ	∫
20	36	52	68	84	100	116	132	148	164	180	196	212	228	244	
♣	§	%	5	E	U	e	u	à	ò	Ñ	☄	⊥	⊥	σ	J
21	37	53	69	85	101	117	133	149	165	181	197	213	229	245	
♠	-	&	6	F	V	f	v	å	û	õ	☄	⊥	⊥	μ	÷
22	38	54	70	86	102	118	134	150	166	182	198	214	230	246	
●	‡	'	7	G	W	g	w	ç	ù	õ	☄	⊥	⊥	τ	≈
23	39	55	71	87	103	119	135	151	167	183	199	215	231	247	
◻	↑	(	8	H	X	h	x	ê	ÿ	¿	☄	⊥	⊥	Φ	°
24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	
○	↓	)	9	I	Y	i	y	ë	ö	ā	☄	⊥	⊥	Θ	·
25	41	57	73	89	105	121	137	153	169	185	201	217	233	249	
◼	→	*	:	J	Z	j	z	è	ü	Ã	☄	⊥	⊥	Ω	·
26	42	58	74	90	106	122	138	154	170	186	202	218	234	250	
♂	←	+	;	K	[	k	{	ÿ	ø	ℓ	☄	⊥	⊥	δ	√
27	43	59	75	91	107	123	139	155	171	187	203	219	235	251	
♀	└	,	<	L	\	l	|	î	é	ñ	☄	⊥	⊥	∞	n
28	44	60	76	92	108	124	140	156	172	188	204	220	236	252	
♪	↔	-	=	M	]	m	}	ï	ø	;	☄	⊥	⊥	φ	²
29	45	61	77	93	109	125	141	157	173	189	205	221	237	253	
♪	▲	.	>	N	^	n	~	Ä	Ł	³	☄	⊥	⊥	€	■
30	46	62	78	94	110	126	142	158	174	190	206	222	238	254	
✳	▼	/	?	O	_	o	△	Å	ł	¤	☄	⊥	⊥	∩	SP
31	47	63	79	95	111	127	143	159	175	191	207	223	239	255	

B-6 Symbol Sets

Table B-5. PC-850 Symbol Set

NUL	▶	SP	0	@	P	`	p	Ç	É	á	☐	L	ø	ó	-
0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
☺	◀	!	1	A	Q	a	q	ü	æ	í	☐	↓	Ð	β	±
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
☉	↑	"	2	B	R	b	r	é	Æ	ó	☐	↑	Ê	Ô	=
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
♥	!!	#	3	C	S	c	s	â	ô	ú	|	↑	Ë	Ò	¾
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
♦	¶	\$	4	D	T	d	t	ä	ö	ñ	|	↑	È	ø	¶
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	↑	ı	Õ	§
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
♠	=	&	6	F	V	f	v	â	û	ª	Â	ã	ı	μ	÷
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
●	‡	'	7	G	W	g	w	ç	ù	º	À	Ã	ı	p	,
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
☐	↑	(	8	H	X	h	x	ê	ý	¿	©	☐	ı	p	°
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
○	↓	)	9	I	Y	i	y	ë	ö	®	☐	☐	ı	ú	¨
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
■	→	*	:	J	Z	j	z	è	ü	¬	☐	☐	☐	ı	·
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
♂	←	+	;	K	[	k	{	ï	ø	½	☐	☐	☐	ı	1
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
♀	↔	/	<	L	\	l	|	ı	£	¼	☐	☐	☐	ı	3
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
♪	↔	-	=	M	]	m	}	î	ø	ı	Ç	☐	☐	ı	2
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
♪	▲	.	>	N	^	n	~	Ä	x	«	¥	☐	ı	-	■
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
※	▼	/	?	O	_	o	△	Å	f	»	☐	☐	☐	-	SP
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

B
Symbol Sets

Table B-6. Roman-8 Symbol Set

NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	\ 96	p 112			— 160	â 176	Å 192	Á 208	À 224	Þ 240
SOH 1	DC1 17	!	1 49	À 65	Q 81	a 97	q 113			À 181	ý 177	ê 193	î 209	Ã 225	þ 241
STX 2	DC2 18	"	2 50	B 66	R 82	b 98	r 114			Â 182	ÿ 178	ô 194	ø 210	ä 226	· 242
ETX 3	DC3 19	#	3 51	C 67	S 83	c 99	s 115			È 183	° 179	û 195	Æ 211	Ð 227	µ 243
EOT 4	DC4 20	\$	4 52	D 68	T 84	d 100	t 116			Ê 184	Ç 180	á 196	â 212	ö 228	¶ 244
ENQ 5	NAK 21	%	5 53	E 69	U 85	e 101	u 117			Ë 185	ç 181	é 197	í 213	ï 229	¾ 245
ACK 6	SYN 22	&	6 54	F 70	V 86	f 102	v 118			Î 186	Ñ 182	ó 198	ø 214	ì 230	— 246
BEL 7	ETB 23	'	7 55	G 71	W 87	g 103	w 119			Ï 187	ñ 183	ú 199	æ 215	ó 231	½ 247
BS 8	CAN 24	(	8 56	H 72	X 88	h 104	x 120			˘ 188	ı 184	à 200	Ä 216	ò 232	½ 248
HT 9	EM 25	)	9 57	I 73	Y 89	i 105	y 121			˙ 189	ı̇ 185	è 201	ï 217	õ 233	à 249
LF 10	SUB 26	*	: 58	J 74	Z 90	j 106	z 122			ˆ 170	ı̂ 186	ò 202	ö 218	õ 234	Ω 250
VT 11	ECS 27	+ ;	: 59	K 75	[91	k 107	{ 123			˚ 171	£ 187	ù 203	ü 219	š 235	« 251
FF 12	FS 28	, <	: 60	L 76	\ 92	l 108	| 124			˛ 172	¥ 188	ä 204	é 220	š 236	■ 252
CR 13	GS 29	- =	: 61	M 77	] 93	m 109	} 125			Û 173	₡ 189	ë 205	ï 221	ú 237	» 253
SO 14	RS 30	. >	: 62	N 78	^ 94	n 110	~ 126			Û 174	f 190	ö 206	ß 222	ÿ 238	± 254
SI 15	US 31	/ ?	: 63	O 79	_ 95	o 111	• 127			£ 175	ç 191	ü 207	ô 223	ÿ 239	255

B-8 Symbol Sets

ISO Substitution Table

This table provides a quick reference for the values of special characters contained in ISO (International Standards Organization) symbol sets. ISO symbol sets contain the same characters as the ASCII symbol set, except for the character positions listed in this table. For example, within the ISO 4 (United Kingdom) symbol set, the British pound sign (£) replaces the # sign used in decimal position 35 of the ASCII symbol set.

ISO	Name	ID	Decimal Character Equivalents											
			35	36	64	91	92	93	94	96	123	124	125	126
6	ASCII	0U	#	\$	@	[	\	\]	^	'	{	|	}	~
4	United Kingdom	1E	£	\$	@	[	\	\]	^	'	{	|	}	-
69	French	1F	£	\$	à	°	ç	§	^	μ	é	ù	è	..
21	German	1G	#	\$	§	Ä	Ö	Ü	^	'	ä	ö	ü	ß
15	Italian	0I	£	\$	§	°	ç	é	^	ù	à	ò	è	ì
11	Swedish for Names	0S	#	□	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
17	Spanish	2S	£	\$	§	í	Ñ	¿	^	'	°	ñ	ç	-
60	Norwegian version 1	0D	#	\$	@	Æ	Ø	Å	^	'	æ	ø	å	-
2	Int'l. Ref. Version*	2U	#	□	@	[	\	\]	^	'	{	|	}	-
25	French*	0F	£	\$	à	°	ç	§	^	'	é	ù	è	..
	German*	0G	£	\$	§	Ä	Ö	Ü	^	'	ä	ö	ü	ß
14	JIS ASCII*	0K	#	\$	@	[	¥	]	^	'	{	|	}	-
57	Chinese*	2K	#	¥	@	[	\	\]	^	'	{	|	}	-
10	Swedish*	3S	#	□	@	Ä	Ö	Å	^	'	ä	ö	å	-
	Spanish*	1S	#	\$	@	í	Ñ	¿	^	'	{	ñ	}	-
85	Spanish*	6S	#	\$	·	í	Ñ	Ç	¿	'	ñ	ç	..	
16	Portuguese*	4S	#	\$	§	Ä	Ç	Õ	^	'	ä	ç	õ	°
84	Portuguese*	5S	#	\$	'	Ä	Ç	Õ	^	'	ä	ç	õ	-
61	Norwegian version 2*	1D	§	\$	@	Æ	Ø	Å	^	'	æ	ø	å	|

* Not recommended for future use.

Control Codes

Many symbol sets contain a PCL language command called a *Control Code*. A control code is a special nonprintable mnemonic command that initiates a printer function. Definitions of a few of the widely used control codes are listed below.

Table B-7. Control Codes

Backspace	B_S	Move one column left unless at left margin, in which case no action is taken	Shift In	S_I	Select characters that follow from the current primary font until receipt of a Shift Out.
Line Feed	L_F	Move to next print line while maintaining current column position.	Escape	E_C	Indicates the beginning of a special control sequence (escape sequence).
Form Feed	F_F	Move to first line at top of the next page while maintaining current column position.	Horizontal Tab	H_T	Move to next horizontal tab stop. The tab stops are at the left margin and every eight columns to the right of the left margin.
Carriage Return	C_R	Move to the left margin on the current print line.	Space	S_P	Move one column to the right unless already at the right margin, in which case no action is taken.
Shift Out	S_U	Select characters that follow from the current secondary font until receipt of a Shift In.			

Conversion Table

Table B-7 gives the hexadecimal, decimal, and octal equivalent of each character in the Roman-8 symbol set (see pages B-12 through 18). Use this table when your software requires you to enter hexadecimal, decimal, or octal values in place of printer command characters.

Table B-8. Roman-8 Character Conversion

Graphic	Hex	Dec	Oct	Description
	00	0	000	NUL (null)
	01	1	001	SOH (start of heading)
	02	2	002	STX (start of text)
	03	3	003	ETX (end of text)
	04	4	004	EOT (end of transmission)
	05	5	005	ENQ (enquiry)
	06	6	006	ACK (acknowledge)
	07	7	007	BEL (bell)
	08	8	010	BS (backspace)
	09	9	011	HT (horizontal tabulation)
	0A	10	012	LF (line feed)
	0B	11	013	VT (vertical tabulation)
	0C	12	014	FF (form feed)
	0D	13	015	CR (carriage return)
	0E	14	016	SO (shift out)
	0F	15	017	SI (shift in)
	10	16	020	DLE (data link escape)
	11	17	021	DC1 (device control 1 or X-ON)
	12	18	022	DC2 (device control 2)
	13	19	023	DC3 (device control 3 or X-OFF)
	14	20	024	DC4 (device control 4)
	15	21	025	NAK (negative acknowledge)
	16	22	026	SYN (synchronous idle)
	17	23	027	ETB (end of transmission block)
	18	24	030	CAN (cancel)
	19	25	031	EM (end of medium)
	1A	26	032	SUB (substitute)
	1B	27	033	ESC (escape)
	1C	28	034	FS (file separator)
	1D	29	035	GS (group separator)
	1E	30	036	RS (record separator)
	1F	31	037	US (unit separator)
	20	32	040	SP (space)
!	21	33	041	Exclamation point
"	22	34	042	Quotation mark
#	23	35	043	Number sign
\$	24	36	044	Dollar sign
%	25	37	045	Percent sign
&	26	38	046	Ampersand
'	27	39	047	Closing single quote (apostrophe)

B Symbol Sets

Table B-8. Roman-8 Character Conversion (continued)

Graphic	Hex	Dec	Oct	Description
(	28	40	050	Opening parenthesis
)	29	41	051	Closing parenthesis
*	2A	42	052	Asterisk
+	2B	43	053	Plus
,	2C	44	054	Comma
-	2D	45	055	Hyphen
.	2E	46	056	Period (point)
/	2F	47	057	Slant (solidus)
0	30	48	060	Zero
1	31	49	061	One
2	32	50	062	Two
3	33	51	063	Three
4	34	52	064	Four
5	35	53	065	Five
6	36	54	066	Six
7	37	55	067	Seven
8	38	56	070	Eight
9	39	57	071	Nine
:	3A	58	072	Colon
;	3B	59	073	Semicolon
<	3C	60	074	Less than sign
=	3D	61	075	Equals sign
>	3E	62	076	Greater than sign
?	3F	63	077	Question mark
@	40	64	100	Commercial At
A	41	65	101	Uppercase A
B	42	66	102	Uppercase B
C	43	67	103	Uppercase C
D	44	68	104	Uppercase D
E	45	69	105	Uppercase E
F	46	70	106	Uppercase F
G	47	71	107	Uppercase G
H	48	72	110	Uppercase H
I	49	73	111	Uppercase I
J	4A	74	112	Uppercase J
K	4B	75	113	Uppercase K
L	4C	76	114	Uppercase L
M	4D	77	115	Uppercase M
N	4E	78	116	Uppercase N
O	4F	79	117	Uppercase O

B-12 Symbol Sets

Table B-8. Roman-8 Character Conversion (continued)

Graphic	Hex	Dec	Oct	Description
P	50	80	120	Uppercase P
Q	51	81	121	Uppercase Q
R	52	82	122	Uppercase R
S	53	83	123	Uppercase S
T	54	84	124	Uppercase T
U	55	85	125	Uppercase U
V	56	86	126	Uppercase V
W	57	87	127	Uppercase W
X	58	88	130	Uppercase X
Y	59	89	131	Uppercase Y
Z	5A	90	132	Uppercase Z
[	5B	91	133	Opening square bracket
\	5C	92	134	Reverse slant
]	5D	93	135	Closing bracket
^	5E	94	136	Caret (circumflex)
_	5F	95	137	Underscore (low line)
'	60	96	140	Opening Single Quote
a	61	97	141	Lowercase a
b	62	98	142	Lowercase b
c	63	99	143	Lowercase c
d	64	100	144	Lowercase d
e	65	101	145	Lowercase e
f	66	102	146	Lowercase f
g	67	103	147	Lowercase g
h	68	104	150	Lowercase h
i	69	105	151	Lowercase i
j	6A	106	152	Lowercase j
k	6B	107	153	Lowercase k
l	6C	108	154	Lowercase l
m	6D	109	155	Lowercase m
n	6E	110	156	Lowercase n
o	6F	111	157	Lowercase o
p	70	112	160	Lowercase p
q	71	113	161	Lowercase q
r	72	114	162	Lowercase r
s	73	115	163	Lowercase s
t	74	116	164	Lowercase t
u	75	117	165	Lowercase u
v	76	118	166	Lowercase v
w	77	119	167	Lowercase w

Table B-8. Roman-8 Character Conversion (continued)

Graphic	Hex	Dec	Oct	Description
x	78	120	170	Lowercase x
y	79	121	171	Lowercase y
z	7A	122	172	Lowercase z
{	7B	123	173	Opening brace (curly bracket)
|	7C	124	174	Vertical line
}	7D	125	175	Closing brace (curly bracket)
~	7E	126	176	Approximate (tilde)
⌘	7F	127	177	DEL (delete, rubout)
	80	128	200	--undefined control code--
	81	129	201	--undefined control code--
	82	130	202	--undefined control code--
	83	131	203	--undefined control code--
	84	132	204	--undefined control code--
	85	133	205	--undefined control code--
	86	134	206	--undefined control code--
	87	135	207	--undefined control code--
	88	136	210	--undefined control code--
	89	137	211	--undefined control code--
	8A	138	212	--undefined control code--
	8B	139	213	--undefined control code--
	8C	140	214	--undefined control code--
	8D	141	215	--undefined control code--
	8E	142	216	--undefined control code--
	8F	143	217	--undefined control code--
	90	144	220	--undefined control code--
	91	145	221	--undefined control code--
	92	146	222	--undefined control code--
	93	147	223	--undefined control code--
	94	148	224	--undefined control code--
	95	149	225	--undefined control code--
	96	150	226	--undefined control code--
	97	151	227	--undefined control code--
	98	152	230	--undefined control code--
	99	153	231	--undefined control code--
	9A	154	232	--undefined control code--
	9B	155	233	--undefined control code--
	9C	156	234	--undefined control code--
	9D	157	235	--undefined control code--
	9E	158	236	--undefined control code--
	9F	159	237	--undefined control code--

Table B-8. Roman-8 Character Conversion (continued)

Graphic	Hex	Dec	Oct	Description
	A0	160	240	--undefined--
À	A1	161	241	Uppercase A grave
Á	A2	162	242	Uppercase A circumflex
Ê	A3	163	243	Uppercase E grave
Ë	A4	164	244	Uppercase E circumflex
Ï	A5	165	245	Uppercase I dieresis
Î	A6	166	246	Uppercase I circumflex
Ï	A7	167	247	Uppercase I dieresis
·	A8	168	250	Lowercase acute accent
˘	A9	169	251	Lowercase grave accent
ˆ	AA	170	252	Lowercase circumflex accent
¨	AB	171	253	Lowercase dieresis accent
˜	AC	172	254	Lowercase tilde accent
Ù	AD	173	255	Uppercase U grave
Û	AE	174	256	Uppercase U circumflex
£	AF	175	257	Italian lira (pound sterling)
—	B0	176	260	Overscore (high line)
Ý	B1	177	261	Uppercase Y acute
ý	B2	178	262	Lowercase y acute
°	B3	179	263	Degree
Ç	B4	180	264	Uppercase C cedilla
ç	B5	181	265	Lowercase c cedilla
Ñ	B6	182	266	Uppercase N tilde
ñ	B7	183	267	Lowercase n tilde
¡	B8	184	270	Inverted exclamation mark
¿	B9	185	271	Inverted question mark
¤	BA	186	272	General currency symbol
£	BB	187	273	Pound sterling sign
¥	BC	188	274	Yen sign
§	BD	189	275	Section mark
ƒ	BE	190	276	Dutch guilder symbol
¢	BF	191	277	Cent sign
â	C0	192	300	Lowercase a circumflex
ê	C1	193	301	Lowercase e circumflex
ô	C2	194	302	Lowercase o circumflex
û	C3	195	303	Lowercase u circumflex
á	C4	196	304	Lowercase a acute
é	C5	197	305	Lowercase e acute
ó	C6	198	306	Lowercase o acute
ú	C7	199	307	Lowercase u acute

Table B-8. Roman-8 Character Conversion (continued)

Graphic	Hex	Dec	Oct	Description
à	C8	200	310	Lowercase a grave
è	C9	201	311	Lowercase e grave
ò	CA	202	312	Lowercase o grave
ù	CB	203	313	Lowercase u grave
â	CC	204	314	Lowercase a dieresis
ë	CD	205	315	Lowercase e dieresis
ö	CE	206	316	Lowercase o dieresis
ü	CF	207	317	Lowercase u dieresis
À	D0	208	320	Uppercase A bolle
î	D1	209	321	Lowercase i circumflex
Œ	D2	210	322	Uppercase O oblique
Æ	D3	211	323	Uppercase AE diphthong
á	D4	212	324	Lowercase a bolle
í	D5	213	325	Lowercase i acute
ø	D6	214	326	Lowercase o oblique
æ	D7	215	327	Lowercase ae diphthong
Ä	D8	216	330	Uppercase A dieresis
ï	D9	217	331	Lowercase i grave
Ö	DA	218	332	Uppercase O dieresis
Û	DB	219	333	Uppercase U dieresis
É	DC	220	334	Uppercase E acute
ï	DD	221	335	Lowercase i dieresis
ß	DE	222	336	Lowercase es-zet ligature
Ï	DF	223	337	Uppercase O circumflex
Á	E0	224	340	Uppercase A acute
Ã	E1	225	341	Uppercase A tilde
ã	E2	226	342	Lowercase a tilde
Ð	E3	227	343	Uppercase Eth
ð	E4	228	344	Lowercase eth Icelandic
Í	E5	229	345	Uppercase I acute
Ì	E6	230	346	Uppercase I grave
Ó	E7	231	347	Uppercase O acute
Ò	E8	232	350	Uppercase O grave
Õ	E9	233	351	Uppercase O tilde
õ	EA	234	352	Lowercase o tilde
Š	EB	235	353	Uppercase S hacek
š	EC	236	354	Lowercase s hacek
Ú	ED	237	355	Uppercase U acute
ÿ	EE	238	356	Uppercase Y dieresis
ÿ	EF	239	357	Lowercase y dieresis

B-16 Symbol Sets

Table B-8. Roman-8 Character Conversion (continued)

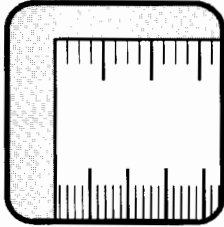
Graphic	Hex	Dec	Oct	Description
Þ	F0	240	360	Uppercase Thorn
þ	F1	241	361	Lowercase thorn
·	F2	242	362	Lowercase Catalan middle dot
μ	F3	243	363	Lowercase mu (micro)
¶	F4	244	364	Pilcrow (paragraph sign)
¾	F5	245	365	Vulgar fraction: three fourths
–	F6	246	366	Minus sign
¼	F7	247	367	Vulgar fraction: one fourth
½	F8	248	370	Vulgar fraction: one half
ª	F9	249	371	Female ordinal
º	FA	250	372	Male ordinal
«	FB	251	373	Left pointing guillemets (quotes)
■	FC	252	374	Medium solid box
»	FD	253	375	Right pointing guillemets (quotes)
±	FE	254	376	Plus over minus
	FF	255	377	--undefined--

B Symbol Sets



Printer Specifications

Location Guidelines



This appendix provides physical and environmental specifications for the HP LaserJet IIP *plus* printer. Observe the following guidelines when you install your printer:

- Install the printer in a well-ventilated area.
- Install the printer on a sturdy and level surface.
- Install your printer where the temperature or humidity does not change abruptly. Do not position the printer near water sources, humidifiers, air conditioners, refrigerators, or other major appliances.
- Do not expose the printer to direct sunlight, dust, open flames, or ammonia fumes. If you install the printer near a window, make sure the window has a curtain or blind on it to block any direct sunlight.
- Install your printer with sufficient clearance from walls or other objects. There must be enough space around the printer for proper access and operation of the printer (see figure C-1).

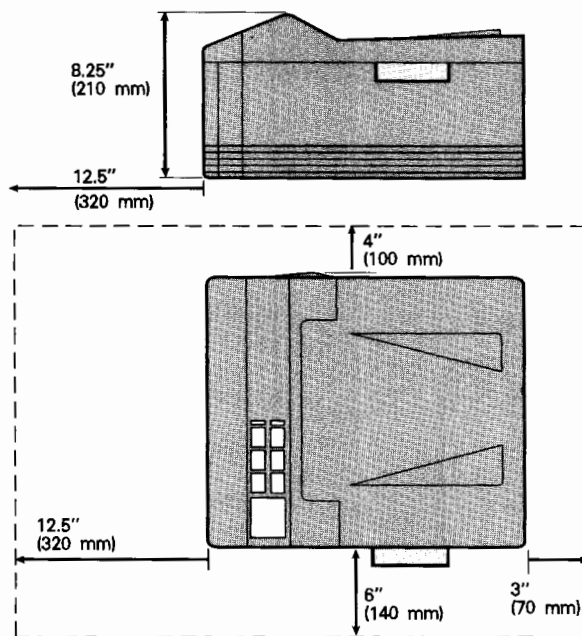


Figure C-1. HP LaserJet IIPplus Printer Space Requirements

Physical Dimensions

Printer Dimensions

Width:	14 inches (35.0 cm)
Depth:	16 inches (40.5 cm)
Height: standard	8 $\frac{1}{4}$ inches (20.8 cm)
Height: with optional cassette base	10 $\frac{1}{4}$ inches (26.1 cm)
Weight: standard	22 pounds (10.0 kg)
Weight: with optional cassette base	25 pounds (11.3 kg)

C-2 Printer Specifications

Electrical Requirements

Line Voltages and Frequencies

Source	100 to 115 volts ($\pm 10\%$)	220 to 240 volts ($\pm 10\%$)
Frequency	50 - 60 Hz (± 2 Hz)	50 Hz (± 2 Hz)
Power Consumption		
Printing	574 watts (typical)	507 watts (typical)
Standby	44 watts (typical)	44 watts (typical)
Amperage		
Printing	5.0 amperes	2.3 amperes
Standby	.36 amperes	0.2 amperes

Environmental Specifications

Operating (Printer & EP-L Cartridge)

TEMPERATURE	HUMIDITY	ALTITUDE
50 to 91°F (10 to 32.5°C)	20 to 80% RH	0 to 10,000 feet (0 to 3100 meters)

In Storage (Printer & EP-L Cartridge)

TEMPERATURE	HUMIDITY	ALTITUDE
32 to 95°F (0 to 35°C)	10 to 80% RH	0 to 15,000 feet (0 to 4,600 meters)

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 and, if not installed and used in accordance with the instructions, 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:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate this equipment.

Note



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

The Federal Communications Commission has prepared a booklet entitled *Interference Handbook* (1986), which may be helpful to you. This booklet (stock number 004-000-004505-7) may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Safety Information

The C2007AB printer is UL 478 listed, CSA 22.2 No. 220 certified, and GS licensed to EN 60950 9.87 (IEC 950).




Laser Safety

This 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. This means that the printer does not produce hazardous laser radiation. Since radiation emitted inside the printer is completely confined within protective housings and external covers, the laser beam cannot escape from the machine during any phase of user operation.

CDRH Regulations

The Center of Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States. The label shown in the following figure indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

Printer Specifications

 HEWLETT PACKARD <i>LaserJet IIP plus</i>	HEWLETT-PACKARD 11311 CHINDEN BLVD. BOISE, IDAHO 83714 U.S.A.	Made in Japan	CE 92	FI	SPLA 91:75
MODEL NO.: C2007AB	This product conforms with CDRH radiation performance standard 21 CFR Chapter 1, sub-chapter 1.	MANUFACTURED:			This device complies with Part 15 of 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.

Warning



Use of controls and adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

Finnish Laser Statement

The following notice applies to printer operation and servicing in Finland.

LASERTURVALLISUUS

LUOKAN 1 LASERLAITE KLASS 1 LASER APPARAT

HPC2007AB laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalisissa käytössä kirjoittimen suojakoteloINTI estää lasersäteen pääsyn laitteen ulkopuolelle.

Kirjoittimen on tarkastanut Suomessa laserturvallisuuden osalta Työterveyslaitos. Tarkastuksessa laitteen turvallisuusluokka on määritetty valtioneuvoston päätöksen N:o 472/1985 ja standardin SFS-IEC 825 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

HPC2007AB kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutet henkilö. Tällaiseksi huoltotoimenpiteeksi ei katsota

väriainekasetin vaihtamista, paperiradan puhdistusta tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehtäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suorittaa ilman erikoistykäluja.

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 770-795 nm

Teho 5 mW

Luokan 3B laser

German Regulations

ZZF Declaration Statement

The following notice is required to be printed in German and applies to printer operation and servicing in Germany.

According to West German Standard VDE 0836, printer servicing requires at least two servicemen. The following notice is required to be printed in German and applies to printer operations and servicing in Germany.

Funkenstörung Deutschland

Herstellerbescheinigung

Hiermit wird bescheinigt, daß das Gerät HP C2007AB in Übereinstimmung mit den Bestimmungen von *Postverfügung 1046/84* funkenstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Wird das Gerät innerhalb einer Anlage betrieben,

- so muß bei Inanspruchnahme der *Allgemeinen Genehmigung FTZ 1046/84* die gesamte Anlage der oben genannten Genehmigung entsprechen.
- die mit einer *FTZ-Serienprüfnummer* gekennzeichnet ist, und für die eine Betriebsgenehmigung vorliegt oder beantragt wird, so sind in der Regel keine weiteren Schritte notwendig.

Ozone Emission

The high voltage supplies found in laser printers and photocopiers generate ozone gas (O₃) as a by-product of the electrophotographic process. Ozone is only generated while the printer is printing.

UL Standards for Ozone

The only existing standard for ozone emissions has been established by Underwriters Laboratory (UL). All HP LaserJet family printers meet this standard when shipped from the factory to our customers.

Employer Responsibilities

Because ozone can be an irritant, various regulatory agencies have established limits to the amount of ozone to which employees may be exposed. The work place specifications are:

- A person may not be exposed to an average concentration of greater than 0.1 part per million (PPM) of ozone for a period of eight hours.
- At this time, the ACGIH has proposed a ceiling limit of 0.1 PPM for ozone.

The employer is responsible for providing a work environment that meets these standards.

The HP LaserJet IIP *plus* printer produces unmeasurable quantities of ozone, far below the 0.1 PPM figure proposed by the UL/ACGIH.



Toner Safety and Care

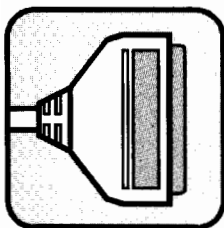
Toner is a nontoxic substance composed of plastic, iron, and a small amount of pigment. If toner comes in contact with skin or clothing, remove as much toner as possible with a vacuum or dry tissue wipes, and then wash with **cold** water. Hot water causes toner to be more difficult to remove. Because toner tends to be degraded by vinyl materials, contact with vinyl should be avoided.

Toner Cartridge Recycling Program

Hewlett-Packard has implemented a program to recycle HP LaserJet toner cartridges. The cartridges returned under this program will be completely disassembled with some of the parts recycled and reused in the manufacturing of new toner cartridges, and other parts melted for reuse as a raw material. By recycling our toner cartridges, we can help provide a solution to the problem of disposing in landfills (the box, foam ends and cleaning pad are also sent to recyclers). This program is currently available in the United Kingdom. For further information contact your dealer or local HP Sales and Service office.

Configuration

Introduction



The HP LaserJet IIP *plus* printer supports a Centronics parallel interface.

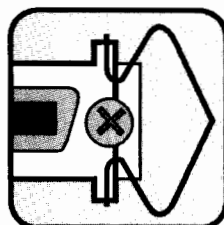
Use the control panel Device Config Menu to configure the interface. The printer stores configuration information in permanent memory, which means the printer saves the configuration even when you turn off the printer. For more detailed information, see the *LaserJet IIP Printer Technical Reference Manual*.

Caution



Hewlett-Packard assumes no liability for any damage resulting from the use of a non-HP interface. Before replacing the standard interface with a non-HP interface, you may want to ensure that the interface manufacturer or supplier will assume the potential risks involved.

Parallel Interface



A parallel interface sends data to the printer faster than does a serial interface. The parallel interface is recommended if you use many soft fonts in your documents or if you want to print complex graphics. However, the parallel printer cable cannot be more than 10 feet long.

Your printer's control panel is configured with the parallel interface as the factory default.

To configure your printer for parallel I/O operation, use the Device Config Menu and the instructions in *HP LaserJet IIP plus Printer Getting Started Guide*. When you

configure your printer for parallel operation, you can send data to the printer using the standard Centronics parallel communication protocol. Table D-1 lists the signals and pin designations used for parallel communication. For more detailed information, see the *HP LaserJet IIP Printer Technical Reference Manual*.

Table D-1. Parallel Pin Assignments

Signal	Pin #	Pin#	Signal
STROBE (Input)	1	19	GND
DATA 1 (Input)	2	20	GND
DATA 2 (Input)	3	21	GND
DATA 3 (Input)	4	22	GND
DATA 4 (Input)	5	23	GND
DATA 5 (Input)	6	24	GND
DATA 6 (Input)	7	25	GND
DATA 7 (Input)	8	26	GND
DATA 8 (Input)	9	27	GND
$\overline{\text{ACK}}$ (Output)	10	28	GND
BUSY (Output)	11	29	GND
Paper error (Output)	12	30	GND
Select	13	31	NC
NC	14	32	$\overline{\text{fault}}$ (Output)
NC	15	33	Auxout1 (Output)
0 VDC	16	34	NC
Chassis GND	17	35	Auxout2 (Output)
+5 VDC (Output)	18	36	NC

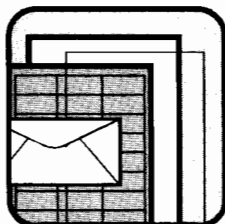
D Configuration

The bar above (-) some signals indicates that the signal is negative true (active LOW). GND means the connection is grounded. NC indicates that the pin has no connection.

D-4 Configuration

Selecting Paper and Other Print Media

Introduction



Several types of paper and other print media can be used with the HP LaserJet IIP *plus* printer, provided certain guidelines are met. Using paper that does not meet the guidelines outlined in this chapter may increase the incidence of paper jams, cause premature wear to the printer, and contribute to repair costs.

Before purchasing any quantity of media or specialized forms, make sure your paper supplier obtains and understands the paper and print media requirements specified in *HP LaserJet Printer Family Paper Specification Guide* (HP part number 5002-1801). (available in English only.)

Note



It is possible that paper could meet all of the guidelines in this appendix and still not print satisfactorily because of abnormal characteristics of the printing environment or other variables over which Hewlett-Packard has no control.

For this reason we recommend testing any paper before buying large quantities.

Caution



Use of media outside these specifications may cause problems with your printer, requiring service. Such service will not be covered by Hewlett-Packard warranty or service agreements.

Paper and Pre-printed Forms

For best results, use conventional white photocopy paper for most of your print jobs (such as Xerox 4024 or Canon NP paper). The paper should be of good quality. It should be free of cuts, nicks, tears, spots, loose particles, dust, wrinkles, voids, and curled or bent edges.

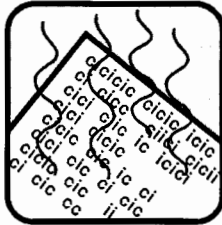
Colored Paper with Heat Resistant Pigments

Colored paper should be of the same high quality as white photocopy paper. Pigments used must be able to withstand the printer's fusing temperatures of 392° F (200° C) for 0.1 second without deterioration. Do not use paper with a colored coating that has been added after the paper is produced.

Heavy Paper Stock

Use paper that falls within the 16 to 28 pound (60 to 105 g/m²) range. DO NOT use extremely heavy paper stock; misfeeds, mis-stacking problems, paper jams, poor toner fusing, poor print quality and excessive mechanical wear can result. DO NOT attempt to print on paper that has a weight greater than 28 pound (105 g/m²).

Forms Pre-printed with Heat-Resistant Ink



To avoid problems with pre-printed forms, observe the following guidelines:

- Forms must be printed with heat-resistant inks that will not melt, vaporize, or release hazardous emissions when subject to the printer's approximately 200° C (392° F) fusing temperature for 0.1 second.
- The inks used must be non-flammable and should not have adverse effects on any printer rollers.
- Forms should be sealed in a moisture-proof wrapping to prevent moisture changes during storage.

Papers to Avoid

Follow these guidelines to avoid poor print quality or damage to your printer:

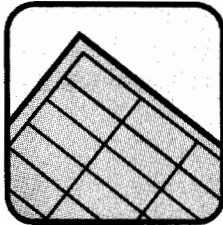
- Too Rough or Too Smooth, or with Embossed Letterheads
- Paper with Cutouts or Perforations

Adhesive Labels

Use only labels recommended for use in laser printers.

When printing on labels, *always use the front output path* to avoid excessive curling of the sheets, severe paper jams, and to avoid potential damage to the printer.

Label Construction



When you select your labels, you must consider the quality of each of the components:

- **Adhesives:** The adhesive should be stable at the 200° C (392° F) temperatures encountered in the printer's fusing process. No adhesive should be exposed between the labels.
- **Label arrangement:** Labels should be arranged on the carrier sheet so that they cover the entire page, *with the only exposed spaces being lengthwise down the sheet*. Using label stock with spaces between labels often results in labels peeling off during the printing cycle, causing serious jamming problems.
- **Label curl:** Labels must lie flat with no more than 13 mm of curl in any direction.
- **Poorly manufactured labels:** Do not use labels having wrinkles, bubbles or other indications of delamination.

See the *HP LaserJet Accessory Catalog* for ordering information and label part numbers.

Overhead Transparencies

Use only overhead transparencies recommended for use in laser printers.

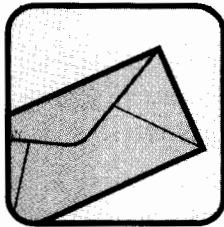
Use the Front Output Path

When printing on overhead transparencies, *always use the front output path.*

Ordering Transparency Film

Order A4 transparency, HP part number 92296U, either from your dealer or from Hewlett-Packard's Direct Marketing Operations.

Envelopes



Note

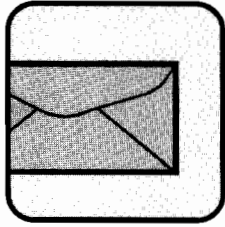


Hewlett-Packard Company neither warrants nor recommends the use of a particular brand of envelope. Envelope properties are subject to change by envelope manufacturers and Hewlett-Packard Company has no control over such changes.

Note

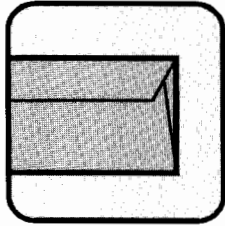


The basis weight of the envelope paper should not exceed a 24 pound rating (90 grams/m²) or jamming may result. Envelopes should lie flat with less than 0.25 inch (6 mm) of curl, and not be wrinkled, nicked, or otherwise damaged.



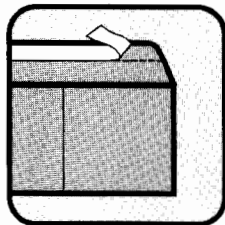
Business Envelopes

Commercial or *Office* envelopes (also called Business or Regular), with diagonal seams and standard gummed flaps, are the most widely used type of envelope. This style performed the most reliably in Hewlett-Packard testing.



Double Side Seam Envelopes

Double side seam construction has vertical seams at both ends of the envelope, rather than diagonal seams. A variety of double side seam envelopes were tested and most performed acceptably.



Envelopes with Adhesive Strips

Envelopes using a peel-off adhesive strip, or more than one flap that folds over to seal, must use adhesives compatible with the heat and pressure of the fusing rollers in the printer. The extra flaps and strips may result in wrinkling or creasing and may cause more frequent jamming.

Sizes

Use only envelopes within the following sizes:

- Minimum: $3\frac{1}{2}$ x 7 inches / 86 x 178 mm
- Maximum: $7\frac{2}{5}$ x $10\frac{1}{2}$ inches / 188 x 267 mm

Envelopes to Avoid

Caution

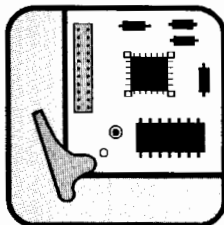


Under no circumstances should you use envelopes having clasps, snaps, windows, or synthetic materials. These items can cause severe damage to the printer.

E-6 Selecting Paper and Other Print Media

Memory Board Installation

General



Installation of the HP 33474B one-megabyte or HP 33475B two-megabyte RAM memory board allows you to expand the HP LaserJet IIP *plus* printer's standard memory by an additional four megabytes. There are two memory expansion slots. You can install any combination of one- or two-megabyte boards. Four megabytes is the maximum expanded memory the printer can use.

When you add printer memory, the printer can print full-page 300 dpi graphics, store more data in the page buffer, download more soft fonts, and run more macros.

Protect Yourself and the Board

Since the memory board contains electrical components that are easily damaged by small amounts of static electricity, you should observe the following cautions:

Warning



Hazardous voltages are present in the printer. Never remove any access cover or work near exposed electrical parts when power is connected.

Caution



- If possible, use an anti-static wrist strap and a grounding mat, such as those included in the Electrically Conductive Field Service Grounding Kit (HP 9300-0933).

OR

- Before removing the board from its anti-static bag, touch the surface of the bag and touch any bare sheet metal surface on the rear of the printer.
 - To prevent static electricity buildup, avoid activities such as moving about the work area, especially if it is carpeted.
 - Handle the board carefully at all times. Never flex or put excessive pressure on it. Avoid touching board components.
-

Install The Board

First, read all instructions carefully. Make sure you understand all installation procedures before beginning installation. You will need a small Phillips screwdriver.

1. Identify the board (see figure F-1). In the table below, "xxxxx" indicates that the last five digits are manufacturer's part numbers that may change. Refer to the circle in figure F-1 for part number location.

Part Number	Size
33474-xxxxx	1 Megabyte
33475-xxxxx	2 Megabyte

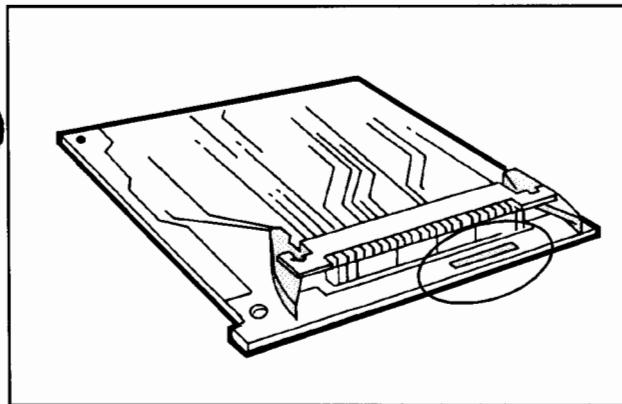


Figure F-1. Identifying the Memory Board

If you are not going to install the board immediately, place it in a cool, dry place in its original packaging. If you have not received the correct board, notify your local Hewlett-Packard Sales and Service Office or authorized dealer immediately.

2. Turn off your computer.
3. Turn off the printer and unplug the power cord (see figure F-2). Disconnect the parallel printer interface cable from the rear of the printer.

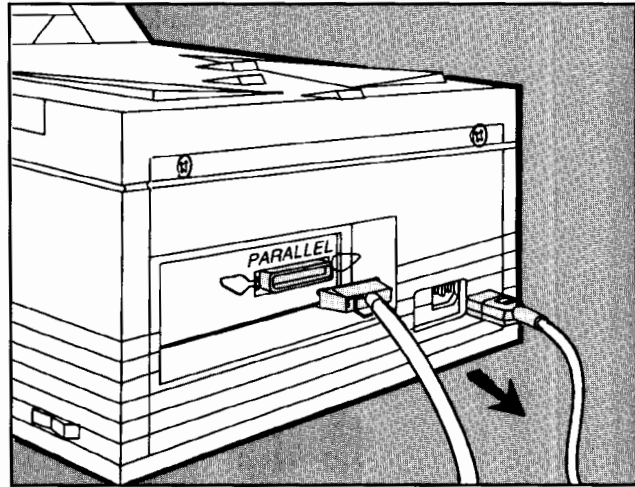


Figure F-2. Removing Cables

F-4 Memory Board Installation

4. Open the hinged rear access panel by loosening the two captive screws. Be careful to loosen only these two screws (see the left half of figure F-3).
5. Discharge any built-up static electricity by touching any bare sheet metal surface on the rear of the printer.
6. Remove the interface plate by removing the three screws that are indicated on the plate by asterisks (see the right half of figure F-3).

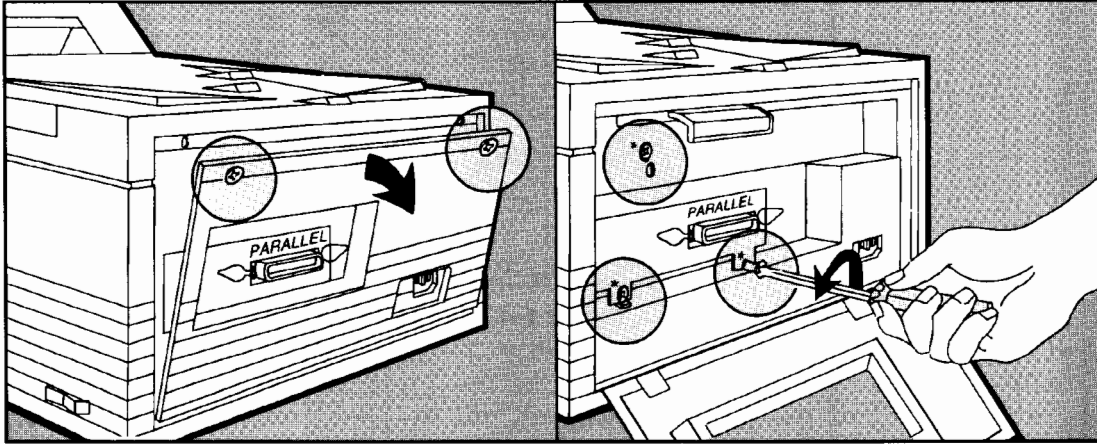


Figure F-3.
Opening the Rear Access Panel and
Removing the Interface Plate

7. Pull the interface plate out gently toward you and downward (see figure F-4). Disconnect the ribbon-cable pin connector (A), from the printer and set the interface plate aside.

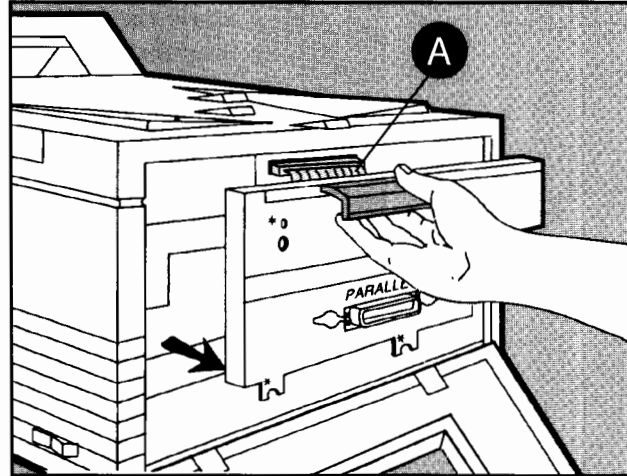


Figure F-4. Removing the Interface Plate

F-6 Memory Board Installation

8. To install the first board, remove the board from the anti-static packaging, holding it with green-tab-side up, and slide it into printer using the upper slot guide rails (see figure F-5).

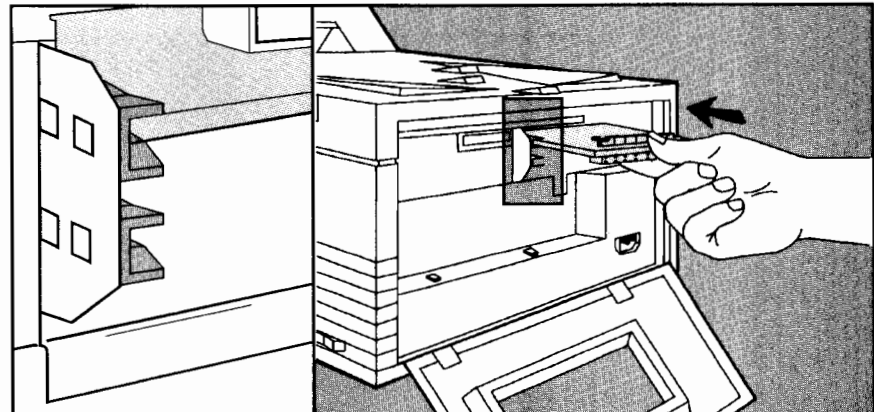


Figure F-5. Installing the First Board

9. Fully seat the board by holding the printer with your free hand and **firmly** pushing against the flat green plastic area (see figure F-6). When the board is fully seated, the green tabs on the memory board move from position **A** to position **B** and no longer move.

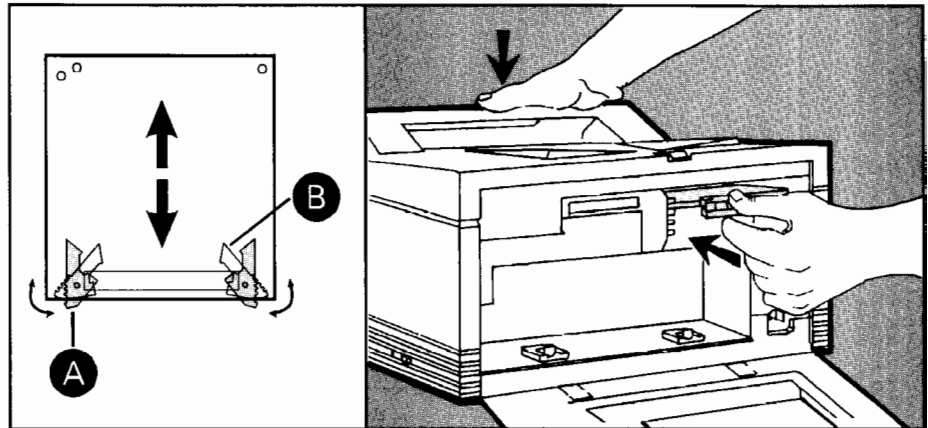


Figure F-6. Seating the First Board

F-8 Memory Board Installation

10. If you are installing a second board, insert it below the first board in the same manner (see figure F-7). The second board connects to the previously installed board. Be sure to **firmly** push against the green plastic area to properly seat the board pin connector. When the board is fully seated, the green tabs on the memory board do not move.

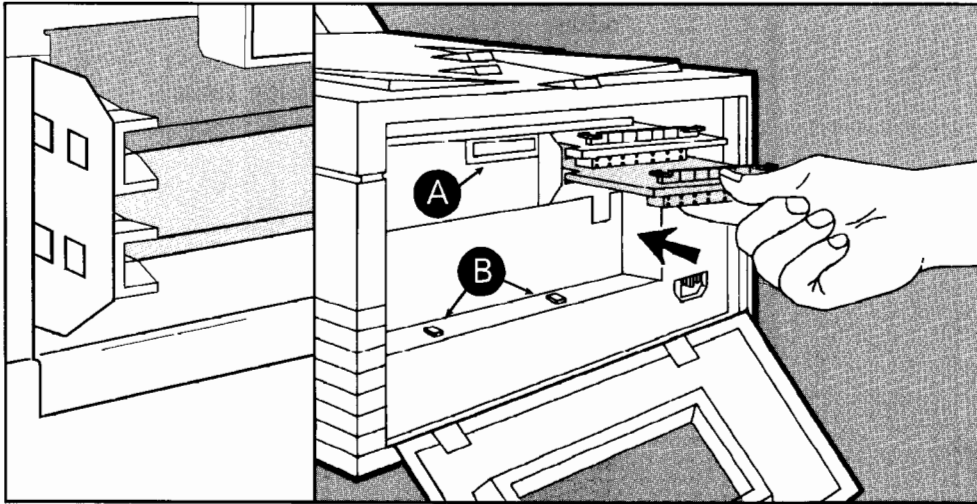


Figure F-7. Install the Second Board

11. Replace the interface plate by first inserting the ribbon-cable pin connector into connector slot **A** (Figure F-7). Ensure that the ribbon cable lies flat and is not twisted. Be sure the pin connector is **firmly** seated. Next, put the tabs into the slots **B** and rotate the plate into its upright position.
12. Replace the three screws removed in step 6.
13. Close the rear access panel and secure it with the two captive screws.

14. Plug in the power cord and the printer interface cable, then switch the printer and computer on.
15. Click the **ON LINE** key to take the printer off-line. The green On-Line indicator should be off.
16. Hold down the **Alt** key and click the **Test** key to print a self test. Wait for printout to appear.
17. If the memory board is operating correctly, the self test printout will show one of the messages in the table below.

Self Test Message Table

Upper Slot (in Megabytes)	Lower Slot (in Megabytes)	RAM Size Message
1M	None	RAM size 1536K bytes
2M	None	RAM size 2560K bytes
1M	1M	RAM size 2560K bytes
1M	2M	RAM size 3584K bytes
2M	1M	RAM size 3584K bytes
2M	2M	RAM size 4608K bytes

In Case Of Difficulty

If you have problems while installing additional memory, check the following:

- If the RAM size is incorrectly reported, access the memory board by repeating steps 2 through 8 and make sure the board pin connector is **FIRMLY** seated. **The green tabs on the memory board do not move when the board is fully seated.**
- 53 ERROR or 53 ERROR UNIT X: Indicates an error on one or more RAM expansion boards. The X value (1 or 2), if available, indicates which expansion board failed (1 is the top board). To resume printing, hold down the **Alt** key and click the **Continue** key. If this error persists after reseating the memory board, contact your local Hewlett-Packard Sales and Service Office or authorized dealer for assistance.
- 57 ERROR UNIT X: Indicates that more than four megabytes of expanded memory have been installed. The extra memory will be ignored. To resume printing, hold down the **Alt** key and click the **Continue** key.
- 63 SERVICE ERROR: If this message appears, the board may be defective or incorrectly installed. Check to be sure the board is seated properly. Attempt to clear the error by switching the printer off and then on again. If you still see this error, contact your local Hewlett-Packard Sales and Service Office or authorized dealer for assistance.
- If you lose data communication from your computer to the printer after installing additional printer memory, check that the ribbon cable inside the printer that connects the I/O plate is plugged in.

Memory Board Removal

To remove a memory board, first repeat steps 2 through 7 in the previous section. Then unseat the board by squeezing the green tabs together while pulling the board toward you (see figure F-8). Place the board in antistatic packaging, and close up the printer following steps 11 through 14.

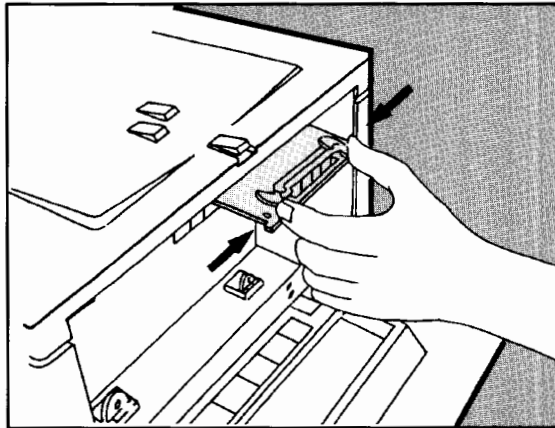


Figure F-8. Removing a Memory Board



Glossary

A4

The international standard paper size, (210 mm by 297 mm size paper).

Application

A software program or group of programs for solving common business tasks, for example, Lotus 1-2-3, Windows, or WordStar.

AutoFont Support

Hewlett-Packard's standard for supplying font width information (metrics) for both scalable typefaces and bitmapped fonts used by HP LaserJet printers.

Bitmapped Font

A particular collection of symbols with fixed character size and shape. Bitmapped fonts are made of dot-by-dot patterns in predefined point sizes.

C5

An international envelope size, also known as "ISO-C5" (162 mm by 229 mm).

Commercial #10 (COM-10)

A standard business envelope used primarily in the United States and Canada ($4\frac{1}{8}$ by $9\frac{1}{2}$ inches/105 x 241 mm).

Configuration

The process of changing certain printer settings to allow your computer to communicate properly with the printer.

Configuration Menu

Allows selection of printer configuration choices for communication with the computer. Also allows selection of Resolution Enhancement and Page protection choices from the control panel.

DL

An international envelope size, also known as “ISO-DL” (110 mm by 220 mm).

Default

A printer setting used in the absence of a printer command selection by the user.

Downloading

Transferring data or soft fonts from your computer to the printer.

DPI

Dots per inch. A measure of the resolution of a printed image.

Drivers

Files used by some software applications to access printer characteristics. Printer drivers convert software commands into printer language.

Embedded Printer Commands

Printer commands written by the user directly into a software file.

Escape Sequences

PCL software commands sent to the printer. The printer distinguishes these commands from regular text by the presence of an **escape character** (E_C), a special control code. Also known as PCL printer commands.

Executive (EXEC)

A smaller-sized paper, primarily used in the United States and Canada for corporate communications ($7\frac{1}{4}$ by $10\frac{1}{2}$ inch / 184 x 267 mm) size paper.

Factory Default

The settings that are programmed into the printer at the factory. These settings are in use until you override them from the control panel or by sending printer commands.

Fixed Spacing

Refers to uniform spacing of all characters and symbols in a font. Measured in characters per inch (pitch). Typewriter-like. Also called **fixed pitch**.

Font

A collection of characters and symbols of the same typeface design. A font is described by symbol set, spacing, pitch, point size (bitmapped fonts only), style, stroke weight and typeface family. Fonts can refer to the printer's internal fonts, or fonts stored in optional font cartridges and soft font disks. Fonts can either be bitmapped or scalable.

Font Cartridge

A plug-in device containing additional fonts. Cartridges are installed in the printer so that a greater variety of fonts can be selected for printing.

Font Characteristics

The symbol set, spacing, pitch, point size, style, stroke weight, and typeface family selections that determine what a printed font looks like.

Font Width

The measurement of the horizontal spacing of each character in a font. Software applications use this information to determine how many characters can fit on a given line. Also known as *font metric*.

Internal Fonts

The fonts resident in the printer when shipped from the factory.

Job Size

The printer formats data into an image before it physically picks up a sheet of paper. This image size is determined by the JOB SIZE setting. Your software application usually sends a command to tell the printer what size image to use for text. If no command is sent, the printer will default to the image size specified by the control panel JOB SIZE setting. Job size allows selection of one of four image sizes to fit four paper sizes, as well as four images sizes to fit four envelope sizes.

K-byte

One thousand twenty four (1024) bytes. A unit of measure for computer memory or data storage.

Legal

8½ by 14 inch/216 x 356 mm size paper, primarily used in the United States and Canada for printing legal documents.

Letter

8½ by 11 inch/216 x 279 mm size paper, commonly used in the United States and Canada.

Lower Cassette

The Lower Cassette is an optional base you can attach to your printer. It comes with either a letter-size or an A4-size paper tray. Additional paper trays and an envelope tray can be purchased. The Optional Lower Cassette (LC) provides increased print media capacity as well as adding versatility to your printer by converting it from single to dual bin capability.

Menu

A list of items presented for selection from the printer's control panel. The printer has two menus: The Printing Menu and the Configuration Menu.

Monarch

The standard letter envelope used primarily in the United States and Canada for personal correspondence ($3\frac{7}{8}$ by $7\frac{1}{2}$ inches/98 x 190 mm).

MP Priority Feed

A paper handling of feature available when an Optional Lower Cassette is installed and the TRAYS LC ONLY * menu setting is selected. Typically in this configuration, paper or other print media is fed only from the Optional Lower Cassette Tray and the Multi-Purpose tray is closed. However, if you put paper or other print media (such as overhead transparencies) in the Multi-Purpose tray, they will be immediately used for printing. It is not necessary to select the Multi-Purpose tray as a paper source or to select manual feed from either your software or from the printer control panel.

MP Size

MP SIZE is a control panel selection item that you must use to tell the printer the physical size of the paper you put into the Multi-Purpose (MP) tray because the printer does not have paper-size sensors.

MP Tray

A Multi-Purpose tray which supports several types and sizes of paper and other print media. This allows your printer to be very versatile without having to buy a separate tray for each size of media. Since the Multi-Purpose tray can handle various sizes of media, you must use the control panel MP SIZE menu item to tell the printer the physical size of the print media that you have loaded into the Multi-Purpose tray.

Off-Line

A status during which the printer will not accept data from the computer. Some errors automatically take the printer off-line. Pressing **ON LINE** switches the printer between on-line and off-line. The printer is off-line any time the On Line indicator is not lit.

On-Line

The state in which the printer will accept data from the computer. The printer is on-line when the On Line indicator is lit.

Orientation

The default direction of print across a page. The HP LaserJet IIP *plus* printer supports two orientations: portrait and landscape. (See *Print Direction*.)

Page Size

A term used by some software applications to specify the size of the paper or other print media to use. This term is equivalent to Job Size for the HP LaserJet IIP *plus* printer. (See *Job Size*.)

Paper Size

A term used by some previous LaserJet printers and some software applications to specify the size of the paper or other print media to use. This term is equivalent to Job Size for the HP LaserJet IIP *plus* printer. (See *Job Size*.)

PCL Language

Hewlett-Packard's page description language for printers. Used for defining a page, selecting fonts, etc.

Permanent Font

A font that resides in the printer's memory until the printer is powered off, memory is cleared, or the font is replaced via software command. (Resetting the printer does *not* clear a permanent font from memory.)

Pitch

The number of characters printed per horizontal inch. Pitch applies only to fonts with *fixed spacing*.

Point Size

The height of a font. Point size is measured from slightly above the top of uppercase letters to slightly below the bottom of lowercase descenders, such as the tail of the letter "y". There are approximately 72 points per inch.

Print Direction

The direction of print across a page. The HP LaserJet IIP *plus* printer supports two print directions at 90° angles, horizontal and vertical.

Printer Commands

Commands used for the PCL language. See **Escape Sequences**.

Printing Menu

Allows selections of job and page formatting choices from the control panel.

Proportional Spacing

Describes fonts for which character spacing varies. For example, a "w" can be three times wider than an "i".

RAM

Random Access Memory; the type of memory used by your printer to store downloaded fonts, macros, and print data.

Raster Graphics

Images composed of a pattern of dots. Graphics created in PCL language mode.

Set-Up Strings

PCL printer commands usually entered in a designated "field" of a software program. Set-up strings are sent to the printer prior to printable data.

Soft Font

Bitmapped or scalable fonts that can be transferred from disks on your computer to the printer's memory. Also known as *downloadable fonts*.

Spacing

The horizontal distance of individual printed characters. All fonts have either *fixed* or *proportional* spacing.

Stroke Weight

The thickness of the lines of the characters in a particular font, for example, light, medium, bold, semi bold.

Style

The shape of a font, for example, upright (normal text), italic.

Symbol Set

A unique grouping of all the available characters in a font. Each symbol set is defined with a specific set of applications in mind. Sometimes referred to as *character set*.

Temporary Font

A font that resides in printer memory until you print a Font Printout or Self Test, reset the printer, power the printer off, or clear or replace it using a software command.

Treatment

The emphasis placed on a font, such as italic or bold. Treatment describes both style and stroke weights.

Type

All letters of the alphabet and other characters, signs and symbols used to make words or sentences.

Typeface

The name of a *design* of characters and symbols. A variation in a typeface family. Univers Medium is one typeface and Univers Bold is another.

Typeface Family

A group of typefaces with strong design similarities, often differing only by their treatment (for example, medium, bold, italic, bold italic).

Vector Graphics

Lines or curves drawn point-to-point by the printer.

Width

See font width.

Index

A

- accessories, **1-4**
 - catalog, 1-12
 - listed, 1-12
 - Optional Lower Cassette, 4-13
- addressing envelopes, 3-18
- agreements, maintenance, 10-3
- Alt** key, **2-7**
- applications, 5-1
- ASCII
 - characters, 5-13
 - symbol set, B-8
- AutoFont Support, **5-7**

B

- background scatter, 9-15
- bar codes, 6-25
- bitmapped fonts, **6-3**
- black pages, 9-16
- blank
 - display, 9-9
 - envelopes, 9-38
 - pages, 7-16, 9-17
- BOTH tray selection, 4-2
- boxes and lines, 7-11

C

- cable, parallel pin assignments, D-3
- capacity
 - front output path, 3-11, 4-9
 - Multi-Purpose tray, 1-3
 - Optional Lower Cassette, 4-6

- top output path, 3-11, 4-10
- cartridge default fonts, 6-12
- cartridge, font, **6-10**, 6-12
 - cartridge slot, **6-10**
 - custom cartridges, 6-25
 - default cartridge, 6-12
 - installation verification, 6-11
 - installing, 6-10
- cartridge, toner
 - drum, 8-3
 - extending the life, 8-12
 - installing, 8-4
 - life of cartridge, 8-12
 - refilling, 8-3
 - recycling program, C-10
 - replacing, 8-4
 - rocking, 8-12
 - sealing tape, 8-9
 - storing, 8-3
 - tab, 8-9
 - toner distribution, 8-12
- cassette. *See* Optional Lower Cassette
- character
 - alignment, 6-5
 - conversion table, B-10
 - density, 6-6
 - height, 6-4
 - hollow, 9-15
 - printer command, 5-11
 - set, 6-7
 - size, 6-4
 - spacing, **6-5**

thickness, 6-7
 voids, 9-15
 weight, 6-7
 characters per inch (cpi), 6-6, 6-17
 characters, special, 7-10
 cleaning
 fuser rollers, 8-18
 inside printer, 8-20
 outside printer, 8-22
 cleaning paper, **8-13**
 generating, 8-13
 how to get, **8-13**
 code
 control codes, 7-12
 embedded commands, 7-12
 sending to printer, 7-12
 setup strings, 7-12
 command. *See* printer command
 commands, embedded, 7-12
 CONFIG LANGUAGE, 9-9
 configuration
 parallel, **D-1**
 printer, **D-1**
 Configuration Menu
 parallel, **D-1**
 selecting items, 2-11, **2-21**
 Continue key, **2-8**
 continuous self test, 2-7
 control codes, 7-12, **B-10**
 control panel, 2-1-28
 selecting fonts, 6-23
 selecting menu items, **2-11**
 troubleshooting, 9-21
 user-selected default settings, 2-25
 conventions
 manual, vii
 printer command, 5-11
 courier, 6-4
 typeface, 6-8
 cover, rear flap, 4-15
 cpi, characters per inch, 6-6

customer service, 10-1
 custom products, 6-25

D

darker print density, 8-23
 data transfer troubleshooting, 9-20
 dealer support, 10-1
 decimal
 character conversion, **B-10**
 characters, 5-12
 default
 font, 6-12, 6-19
 font (cartridge), 6-12
 font selection, 6-12
 form length setting, 2-18
 orientation, 6-17
 printer font, **6-4**
 user-selected settings, 2-25
 display
 blank, 9-9
 messages, **9-1-11**
 downloading, 6-12
 fonts, 6-12
 using Type Director, **6-13**
 drawing lines and boxes, 7-11
 driver, **5-2**
 menu, 5-3
 duty cycle, printer, 10-6

E

ECMA-94 Latin 1 symbol set, **B-4**
 electrical requirements, of printer,
 C-3
 embedded printer commands, 5-6
 EMPTY, 9-11
 EMPTY LC, 9-11
 EMPTY LE, 9-11
 EMPTY MP, 9-11
 ENTER key, **2-11**
 envelope
 addressing, 3-18

- blank, 9-38
- choosing size, 4-22
- configuring control panel for, 3-19, 4-23
- gray shading, 9-37
- jams, 4-20
- loading into tray, 4-19
- multiple feeding, 9-36
- printer preparation, 3-19, 4-18
- shading problem, 9-37
- sizes, 4-22
- sizes supported, 7-7
- stacking, 4-19
- tray, 4-18
- troubleshooting, **9-36**
- wrinkling, 9-38
- environmental specifications, 10-5, C-3
- EP-L cartridge. *See* toner cartridge
- ERROR 20, 7-17
- ERROR 21, 7-17
- ERROR (22), 9-5
- ERROR (41), 9-5
- ERROR (52), 9-6
- ERROR (53), 9-6
- ERROR (53) UNIT X, 9-6
- ERROR (55), 9-6
- ERROR (57), 9-7
- ERROR (57) UNIT X, 9-7
- ERROR (50), 9-6
- ERROR (68), 9-7
- ERROR (71), 9-8
- ERROR (70), 9-8
- error messages, **9-1-11**. *See also*
 - individual error messages
 - ERROR 20, 7-17
 - ERROR 21, 7-17
 - LC LOAD EXEC, 7-15
 - MP LOAD EXEC, 7-15
 - PRINTER NOT READY, 7-15
- escape character, 5-11-13

- entering using software, 5-12
- escape code, manual feed, 7-8
- escape sequence, 5-2, 6-16, 6-17
- example
 - combining printer commands, 5-14
 - embedded printer commands, 5-6
 - Executive MemoMaker, 5-6
 - point size, 6-4
 - selecting from control panel, 6-23
 - set-up strings, 5-4
- Executive MemoMaker, 5-6

F

- factory default settings, **2-24**, 2-10
- faded print, 9-12
- FCC regulations, C-4
- FC REMOVED, 9-9
- FE CARTRIDGE, 9-9
- field repair agreement, 10-3
- Finnish safety statement, C-6
- fixed spacing, **6-5**
- fixing
 - envelope jams, 9-37
 - envelope problems, 9-36
 - printing problems, 9-18
- fix/PS, 6-17
- flaws, print quality, 9-11
- font, **6-3**
 - #, 6-15, 6-16
 - bitmapped, **6-3**, 7-2
 - cartridge, **6-10**, 6-12
 - cartridge installation verification, 6-11
 - cartridge, installing, 6-10
 - cartridge slot, 6-10
 - characteristics, 6-3
 - characteristics commands, 6-22
 - custom cartridges, 6-25
 - default, 6-4, 6-12, 6-19
 - ID, 6-14, 6-16
 - incorrect, 7-14

- number, 6-14, 6-16
 - personality, 1-2
 - printer command, 6-17
 - printer default, 6-4
 - printout, 2-8, 6-16-18
 - problems, 9-33
 - products, 7-2
 - reset command, 6-19
 - rotation, 2-17, 6-9
 - scalable, 7-2
 - selecting, 6-19-23
 - selection commands, 6-21
 - selection priority, 6-20, 6-21
 - selection using control panel, 6-23
 - selection using software, 6-20
 - source, 6-3
 - special application, 6-25
 - troubleshooting, 9-33
 - width, 5-7
- FONT PRINTOUT (ø6), 9-3
- fonts
- installing, 7-4
 - selecting, 7-5
 - supported, 7-1-2
- form
- feed, 9-22
 - feed indicator, 2-5
 - FORM FEED** key, 2-5
 - length setting, 2-18
- form feed, 9-22
- function keys
- Alt**, 2-7
 - Continue**, 2-8
 - +/-**, 2-10
 - ENTER**, 2-11
 - FORM FEED**, 2-5
 - MENU**, 2-10
 - Minus (-)**, 2-10
 - ON LINE**, 2-6
 - Plus (+)**, 2-10
 - Print Fonts**, 2-8
 - Reset**, 2-9
 - Test**, 2-7
- G**
- German safety statement, C-8
- H**
- help
- common problems, 9-39
 - dealer, 10-1
 - fonts, 9-33
 - internal resources, 10-1
 - manual feed, 9-35
 - multiple feeds, 9-32
 - print quality, 9-11
 - repetitive marks, 9-14
 - sources available, 9-39
 - wrinkling, 9-38
- hexadecimal
- character conversion, B-10
 - characters, 5-12
 - codes, 5-13
- HP
- German symbol set, B-9
 - service support, 10-2
 - Spanish symbol set, B-9
- humidity, C-3
- I**
- image problem, envelopes, 9-37
- indicator
- Form Feed, 2-5
 - On-Line, 2-5
- initialization strings, 5-4
- input trays, 2-14
- Multi-Purpose, 3-1
 - Optional Lower Cassette, 4-1
- installation, printer, 7-3
- interface, Centronics parallel, D-1
- interference, radio, C-4
- internal font, 6-3

- printout, 6-16
- selecting using control panel, 6-23
- internal symbol sets, B-2-3

ISO

- 10 (Swedish) symbol set, B-9
- 11 (Swedish) symbol set, B-9
- 14 (JIS ASCII) symbol set, B-9
- 15 (Italian) symbol set, B-9
- 16 (Portuguese) symbol set, B-9
- 17 (Spanish) symbol set, B-9
- 21 (German) symbol set, B-9
- 25 (French) symbol set, B-9
- 2 symbol set, B-9
- 4 (United Kingdom) symbol set, B-9
- 57 (Chinese) symbol set, B-9
- 60 (Danish/Norwegian) symbol set, B-9
- 61 (Norwegian V2) symbol set, B-9
- 69 (French) symbol set, B-9
- 6 (US ASCII) symbol set, B-9
- 84 (Portuguese) symbol set, B-9
- 85 (Spanish) symbol set, B-9
- symbol sets, B-8

italic character style, 6-7

J

jams

- cleaning to prevent, 8-13
- clearing, 9-25
- envelope, 3-8, 4-18, 4-20
- fixing fuser access door, 9-29
- frequent, 9-37
- fusing assembly, 9-31
- high rate of, 9-37
- Multi-Purpose tray, 9-23
- Optional Lower Cassette, 9-23
- paper, 9-25
- pick-up area, 9-26
- preventing, 9-23

JOB SIZE

- described, 2-15
- selecting, 4-4

L

labels

- adhesive, E-3
- arrangement, E-3
- curl, E-3
- formatting, 7-8
- guidelines, E-3
- landscape orientation, 2-17, 5-13, 7-6
- LANGUAGE ENGLISH, 9-9
- LaserControl, 5-9
- laser safety, C-5
- LC EMPTY, 9-11
- LC LOAD, 9-10
- LC LOAD EXEC, 7-15
- LC ONLY tray selection, 2-14, 4-2
- LC TRAY tray selection, 2-15, 4-2
- LE EMPTY, 9-11
- legal
 - paper tray, 4-13-17
 - symbols, 6-25
 - tray rear cover, 4-15
 - tray set-up, 4-14
- LE LOAD, 9-10
- life, toner cartridge, 8-3, 8-12
- lighter print density, 8-23
- lights. *See* indicator
- limitations
 - lines per inch, 2-18
 - lines per page, 2-18
 - Multi-Purpose tray capacity, 3-11
 - Optional Lower Cassette tray capacity, 4-6-8
 - warranty, 10-5
- line draw composite characters, B-1
- line printer compressed internal font, 6-4
- lines

- horizontal, 9-13
- of text, 2-18
- vertical, 9-13
- lines and boxes, 7-11
- lines-per-inch, text, 2-18
- lines-per-page, text, 2-18
- LOAD, 9-10
- loading
 - Multi-Purpose tray, 3-8
 - Optional Lower Cassette tray, 4-5
- long edge (page length), 2-17
- Lotus 1-2-3, 5-5, 5-6, 5-13

M

- macro cartridge, custom, 6-25
- macros, temporary, 2-9
- maintenance
 - agreements, 10-3-4
 - keeping printer clean, 8-13
 - of print quality, 8-2
 - on-site, 10-3
- manual feed
 - attended, 3-15
 - example, 3-18
 - MP priority feed, 4-11
- margins
 - problems setting, 9-38
 - setting on envelopes, 3-18
 - troubleshooting, 9-38
- margin setting, 7-9
- marks
 - on page, 9-11
 - repeating, 9-14
 - scattered, 9-15
- math
 - composite characters, B-1
 - formulas, 6-25
 - symbol set, 6-8
- media
 - loading Multi-Purpose tray, 3-8

- loading Optional Lower Cassette tray, 4-5
- pigment, E-2
- specifications, E-1-2
- ME FEED, 9-10
- ME LOAD, 9-36
- memory, F-1
 - installation, F-1
 - part numbers, F-3
 - removing, F-12
 - troubleshooting, F-11
- MEM OVERFLOW (2Ø), 9-5
- MENU RESET, 2-9-10
- MENU RESET (Ø9), 9-4
- messages. *See* individual message display, 9-1-11
 - ERROR 2Ø, 7-17
 - ERROR 21, 7-17
 - LC LOAD EXEC, 7-15
 - line blank, 9-9
 - MP LOAD EXEC, 7-15
 - PRINTER NOT READY, 7-15
- MF FEED, 9-10
- MF READY, 9-10
- Microsoft Word, 5-3, 5-8, 6-20
- missing data, 2-9
- MP EMPTY, 9-11
- MP LOAD, 9-10, 9-36
- MP LOAD EXEC, 7-15
- MP tray. *See* Multi-Purpose tray
- MP TRAY, tray selection, 4-2
- MultiMate, 5-3, 6-20
- multiple
 - feeding envelopes, 9-36
 - feeds preventing, 9-32
- Multi-Purpose (MP) tray, 1-3, 1-6, 2-12, 2-14
 - closed door, 4-2
 - fill arrow, 3-9
 - fuser access door, 9-29
 - loading, 3-8

priority feed, 4-11

N

name, 6-17

NEEDS SERVICE (50), 9-6

NEEDS SERVICE (61 - 67), 9-7

NEEDS SERVICE (68), 9-7

NEEDS SERVICE (72), 9-8

NEEDS SERVICE (79-XXXX), 9-8

no display, 9-9

O

octal character conversion, B-10

ON LINE key, 2-6

on-site service, 10-3

OPEN OR NO EP-L (12), 9-4

Optional Lower Cassette, 2-14, 4-1

accessory trays, 4-13

fill arrow, 4-8

JOB SIZE setting, 4-4

loading paper, 4-5

paper jams, 9-23

paper specifications, 4-2

tray, 4-5

orientation, 2-17

default, 6-17

font rotation, 2-17, 6-9

landscape, 2-17

page, 7-6

portrait, 2-17

outlet, requirements, 9-18

ozone emission, C-9

P

page

direction, 7-6

orientation, 7-6

page problems

black, 9-16

blank, 9-17

horizontal stripes, 9-13

marks, 9-11

repetitive marks, 9-14

staining, 9-12

paper

jams, 9-22, 9-25-31

loading, 3-8, 4-5

manual feed, 7-8

Multi-Purpose tray capacity, 3-11

Optional Lower Cassette capacity,
4-6-8

Optional Lower Cassette
requirements, 4-2

pigment, E-2

printing cleaning paper, 8-13

removing jammed, 9-31

repetitive marks on, 9-14

sizes supported, 7-7

PAPER JAM (13), 9-4, 9-23, 9-25,
9-28

paper jams, 9-25

cleaning to prevent, 8-13, 9-24

fixing, 8-13

fuser access door, 9-29

fusing assembly, 9-31

high rate of, 9-37

pick-up area, 9-26

paper path door, 1-8

paper tray

Multi-Purpose tray, 3-1

Optional Lower Cassette, 4-3

parallel cable pin assignments, D-3

PC-850 symbol set, B-7

PC-8 D/N (Danish/Norwegian) symbol
set, B-6

PC-8 symbol set, B-5


PCL printer command explanation,
5-11


PCL5 personality, 1-2

permanent soft fonts, 6-14, 6-16

personality cartridges, 1-2, 9-8, 9-19

physical dimensions, printer, C-2

- pick-up area paper jam, 9-26
- pigment, E-2
- pin assignments, parallel, D-3
- pitch, **6-6**
 - (dpi) characters per inch, 6-17
 - sample, 6-6
- points, 6-4
- point size, **6-4**, 6-17
 - examples, 6-4
- portrait orientation, **2-17**, 7-6
- power consumption, C-3
- power, requirements, 9-18
- print
 - data clearing, 2-9
 - data transfer, 9-20
 - density, 6-6, **8-23**
 - density problem, 9-11
 - density slide, 8-24
 - direction, 2-17, 6-9
- printer
 - CDRH regulations, C-5
 - cleaning inside, 8-20
 - cleaning outside, 8-22
 - configuration, **D-1**
 - driver, 7-4
 - drivers, **5-3**
 - electrical requirements, 9-18, C-3
 - FCC regulations, C-4
 - installation, 7-3
 - internal fonts, 6-3
 - keeping clean, **8-13**
 - memory, 6-12, **F-1-12**
 - messages, **9-1-11**
 - ozone emission, C-9
 - physical dimensions, C-2
 - problems, 7-13
 - reset, 2-9-10
 - safety information, C-5
 - selecting port, 7-4
 - sending code, 7-12
 - service, 10-7
 - set-up, **D-1**
 - space requirements, C-2
 - storage requirements, C-3
 - toner cartridge storage requirements, C-3
- printer commands, **5-2**, 5-12, **A-1**
 - characters, 5-11
 - combining commands, 5-14-15
 - embedded, 5-6
 - embedded in text, 5-4
 - languages, 5-2
 - reset, 5-13
 - selecting font characteristics, 6-22
 - to select fonts, 6-21
 - using, 5-12
- printer fonts, internal, 6-16
- printer language modes, 5-2
- PRINTER NOT READY, 7-15
- printer port, selecting, 7-4
- printer reset, 2-9-10
 -  key, **2-8**
- printing
 - bin selection, 7-9
 - blank pages, 7-16
 - dual bin, 7-9
 - fixing blank pages, 9-17
 - labels, 7-8
 - manual feed, 7-8
 - margins, 7-9
 - special characters, 7-10
 - using the envelope tray, 4-18
 - using the Multi-Purpose tray, 3-3
 - using the Optional Lower Cassette tray, 4-1
 - with software, 5-1
 - wrong font, 7-14
- Printing Menu
 - default settings, 2-25
 - items, **2-11**
 - reset, 2-9

- selecting items using  key, 2-11
- printout
 - fonts, 2-8, 6-16-18
 - self test, 2-27-28
- PRINT OVERRUN (21), 9-5
- print quality
 - cleaning paper, 8-13
 - maintaining, 8-2
 - problems, 9-11, 9-22
- print sample, 6-18
- PRINT TEST (06), 9-3
- problems
 - background scatter, 9-15
 - black pages, 9-16
 - blank pages, 9-17
 - checklist, 9-18-22
 - clearing jams, 9-25
 - creeping text, 2-19
 - envelopes, 9-36
 - faded print, 9-12
 - font, 9-33
 - guide to solving, 9-18
 - hollow characters, 9-15
 - horizontal stripes, 9-13
 - manual feed, 9-35
 - margins, 9-38
 - multiple page feeds, 9-32
 - paper jams, 9-23, 9-25
 - printing envelopes, 9-36
 - print quality, 9-11
 - repetitive defects, 9-14
 - setting margins, 9-38
 - shading, envelope, 9-37
 - staining, 9-12
 - vertical lines, 9-13
 - wrinkling, 9-38
- problem solutions, 7-13-18
 - blank pages, 7-16
 - creeping text, 7-13
 - ERROR 20, 7-17


- ERROR 21, 7-17
- LC LOAD EXEC, 7-15
- MP LOAD EXEC, 7-15
- page ejection, 7-13
- PRINTER NOT READY, 7-15
- wrong font, 7-14

proportional spacing, 6-5

Q

- quality
 - ensuring good print, 8-2
 - solving problems, 9-22
- Quattro, 5-5, 5-6
- questions
 - commonly asked, 9-39
 - troubleshooting checklist, 9-18-22

R

- radio frequency, C-4
- READY (MF), 9-10
- READY (00), 9-3
- rear cover, printer, 4-14
- rear flap, printer, 4-15
- recycling program, C-10
- recycling, toner cartridge, C-10
- regulations, CDRH, C-5
- repacking the printer, 10-8
- requirements
 - electrical, C-3
 - environmental, C-3
 - power, 9-18
- reset printer command, 5-13
- RESET, 2-9
-  key, 2-9
- RESET TO SAVE (10), 9-4
- RESET (07), 9-3
- resident fonts, 6-3
- returning printer for service, 10-8
- rollers, worn, 9-24
- Roman-8 symbol set, 6-8, B-8
- rotating fonts, 6-9

S

safety

- CDRH regulations, C-5
- Finnish statement, C-6
- German statement, C-8
- information, C-5
- laser, C-5
- ozone emission, C-9
- toner, C-10

sample

- fonts, 6-3
- symbol set, 6-8

scalable typeface, 6-2

scatter, 9-15

screen fonts, 6-13

scroll, 2-10

sealing tape

- removing from toner cartridge, 8-9

self test

- cleaning paper, 8-13
- continuous, 2-7
- performing, 2-7
- printout, 2-27-28
- stopping continuous, 2-7
- trouble with, 9-19

SELF TEST (Ø4), 2-7, 9-3

SELF TEST (Ø5), 2-7, 9-3

service

- from your dealer, 10-1
- information, 10-7
- Information Form, 10-10
- on-site, 10-3
- warranty, 10-1-11
- within your organization, 10-1

SERVICE, NEEDS (50), 9-6

SERVICE, NEEDS (61 - 67), 9-7

SERVICE, NEEDS (68), 9-7

SERVICE, NEEDS (72), 9-8

SERVICE, NEEDS (79-XXXX), 9-8

set-up

- legal tray, 4-14

packages, 5-9

printer communication, D-1

strings, 5-4

setup strings, 7-12

shading, envelope problem, 9-37

short edge (page width), 2-17

size

envelope, 3-5, 4-22

JOB SIZE, 4-4

of printer, C-2

slide, print density, 8-24

soft font

custom, 6-25

identification numbers, 6-14

ID number, 6-16

permanent, 6-16

selecting using control panel, 6-23

status, 6-14

temporary, 2-9, 6-16

user hints, 6-15

soft fonts, 6-12

software, 5-1, 5-2, 5-12

drivers, 5-3

envelope address, 3-18

escape character commands, 5-12

screen, 5-3, 5-5, 5-6

utility packages, 5-9

solving problems, 9-18

space requirements

printer environment, C-1

spacing

fixed, 6-5

proportional, 6-5

sample, 6-6

special application fonts, 6-25

special characters, 7-10

specifications

environmental, C-3


labels, E-3

Optional Lower Cassette, 4-2

staining, 9-12

- static, C-4
- storage
 - printer, C-3
 - toner cartridge, 8-3
 - toner cartridge requirements, C-3
- streaks, 9-12
- stripes, 9-13
- stroke weight (character), 6-7, 6-17
- style (font, print, type), 6-7, 6-17
 - sample, 6-7
- support, fonts, 7-1-2
- switchboxes, 10-6
- symbol set, 6-8, 6-16
 - control panel display, 2-19, B-1
 - defined, 6-7-8
 - internal, B-2, B-3
 - on font printout, 6-16
 - PCL values, B-1
 - software support, B-2
 - tables, B-1-9
- Symphony, 5-5

T

- tab, toner cartridge, 8-9
- temperature, C-3
- temporary
 - macros, clearing, 2-9
 - soft fonts, 2-9, 6-14, 6-16
- test. *See* self test
-  key, 2-7
- TFM files, 5-7
- toner
 - cleaning from fuser rollers, 8-18
 - cleaning inside of printer, 8-22
 - low, 8-12
 - safety practices, C-10
 - scatter, 9-15
 - using cleaning paper to remove, 8-18
 - washing out of clothing, C-10
- toner cartridge, 9-13

- drum, 8-3
- duty cycle, 10-6
- extending the life, 8-12
- installing, 8-4
- life of cartridge, 8-3, 8-12
- preventing damage to, 8-3
- refilling, 8-3
- replacing, 8-4, 9-12
- rocking, 8-8, 8-12
- sealing tape, 8-9
- storage requirements, 8-3, C-3
- tab, 8-9
- toner distribution, 8-12
- tray. *See* Optional Lower Cassette and Multi-Purpose tray
 - combinations, 4-3
 - envelope, 3-18, 4-18
 - legal, 3-12, 4-13-17
 - loading, 3-8, 4-5
 - loading envelopes, 3-20, 4-19
 - selecting envelope, 3-4, 4-21

TRAYS

- configuring, 4-3
- control panel selection, 4-3
- TRAYS BOTH, 2-14, 4-2
- TRAYS LC ONLY, 2-14, 3-5, 4-2
- TRAYS LC TRAY, 2-15, 4-2
- TRAYS MP TRAY, 2-15, 4-2
- treatment, 6-7
- troubleshooting, 7-13. *See also*
 - problems
 - black pages, 9-16
 - blank envelopes, 9-38
 - blank pages, 9-17
 - checklist, 9-18-22
 - control panel settings, 9-21
 - creeping text, 2-19
 - curl, 3-11, 4-9
 - data transfer, 9-20
 - dropouts, 9-16
 - envelope problems, 9-36

fonts, **9-33**
horizontal stripes, 9-13
multiple feed envelopes, 9-36
paper jams, 9-37
print quality, 9-11
repetitive marks, 9-14
scatter, 9-15
vertical lines, 9-13
Type Director, **6-13**
typeface, **6-2**, 6-17
families, 6-2
sample, 6-2
symbol sets, 2-19
type, selecting, 6-19-23
typewriter-style, fonts, 6-5

U

Univers internal fonts, 6-2
upright character style, 6-7
user-selected default settings, 2-25
utilities, software, 5-9

V

Ventura Publisher, 5-3
vertical
fade, 9-12
lines, 9-13
voltage, **C-3**
requirements, 9-18
volume service agreement, 10-3

W

WARM UP (Ø2), 9-3
warranty, 10-4, 10-5, 10-6
washing toner out of clothing, C-10
watts, C-3
widths, character, **6-5**
Windows, 5-3
WordPerfect, 5-3, 5-8, 6-20
WordStar, 5-3, 5-9
2000 , 5-9
wrinkling, envelopes, 9-38

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