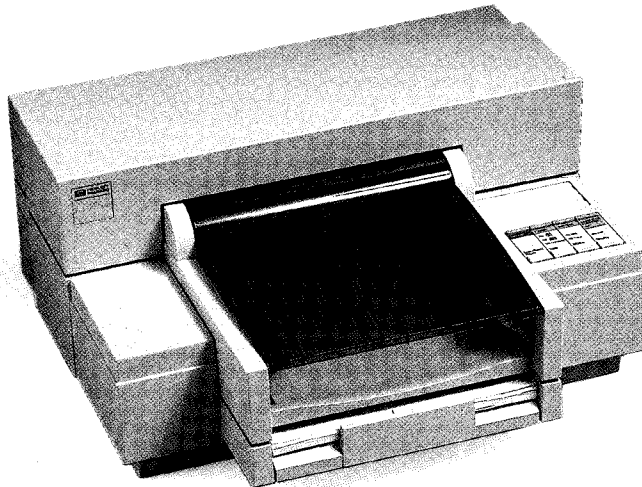


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English

 **HP DeskJet 520**  
Printer for IBM and compatible computers



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User's Guide



# **HP DeskJet 520 Printer**

## **User's Guide**

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Manual Part Number  
C2170-90011

**HP Computer Museum**  
**[www.hpmuseum.net](http://www.hpmuseum.net)**

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## ***Printing History***

Edition 1            December 1993

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## **Welcome**

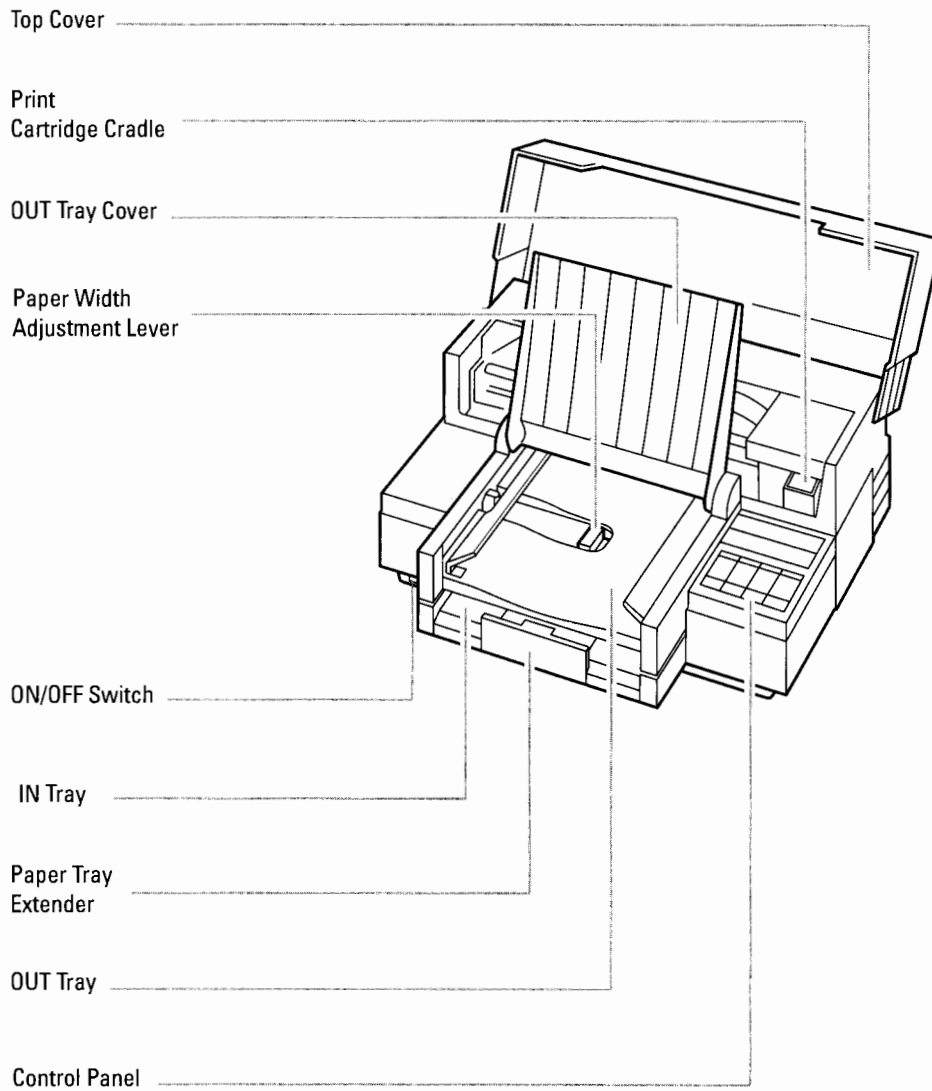
This chapter introduces you to the HP DeskJet 520 printer.

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# The Parts of the Printer

Before you use your printer, identify these parts.





---

# Printer Features

Your new HP DeskJet 520 printer is a quiet, professional-quality, desktop printer with many unique features. Some of the printer's features include:

- |                 |                                                                                                                                                                                                                                                                                                      |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Quality</b>  | Supports high-quality plain paper printing with 600 x 300 dots per inch (dpi) for text and graphics.                                                                                                                                                                                                 |
| <b>Media</b>    | Supports many media types and sizes, including plain paper, glossy paper, transparency films, European A4 size, U.S. letter and legal sizes, and executive size. Also supports U.S. No. 10 size or European DL size envelopes. See chapter 2 to learn more about media and its use with the printer. |
| <b>Fonts</b>    | Supports a wide range of fonts, including internal fonts, scalable fonts, cartridge fonts, and soft fonts. See chapter 5 to learn more about fonts.                                                                                                                                                  |
| <b>Graphics</b> | The graphics support is limited by the support provided by your software application. See your software application manual to learn how to print graphics.                                                                                                                                           |
| <b>Software</b> | Supports software control from Microsoft Windows 3.1 applications, DOS applications, and OS/2 applications when using the appropriate printer drivers.                                                                                                                                               |

# The Printer Control Panel

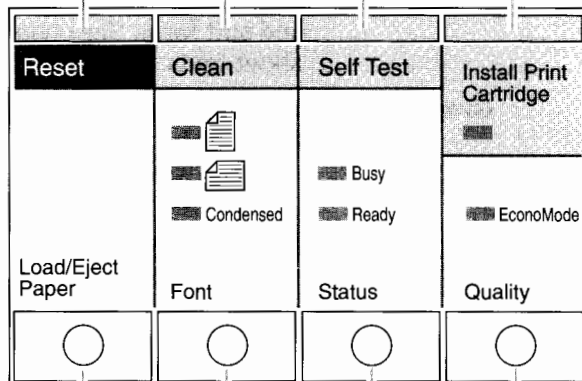
The buttons on the printer control panel allow you to control the operations and mechanics of the printer. Any settings you make with your application software override settings made with the printer control panel. The lights on the printer control panel show the printer's status and report error conditions.

**Reset** — Returns printer to default settings.

**Clean** — Begin print cartridge cleaning process.

**Self Test** — Begin printer self-test.

**Install Print Cartridge** — Move print cartridge cradle for access to the print cartridge. This indicator lights when the print cartridge is missing.



**Load/Eject Paper** — Advance media into or ejects media from printer.

**Font** — Select internal fonts, font cartridges, and orientation.

**Status** — Toggle between offline and online. Press button during printing to pause; press again to resume.

**Quality** — Toggle between economode and letter quality printing. Letter quality is the default.

**NOTE**

The lights blink in different combinations, to indicate printer errors. See chapter 4 to solve printer errors.



**Portrait Font** — Indicates a portrait font is selected.



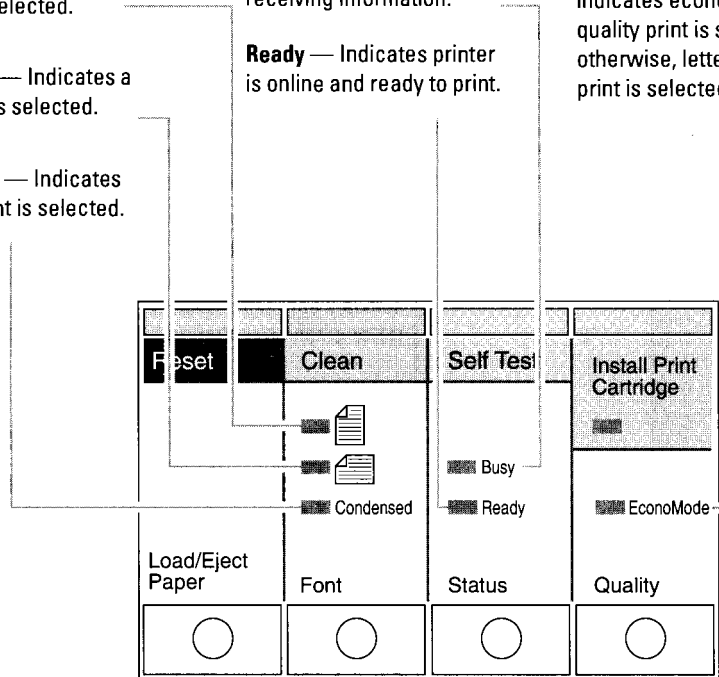
**Landscape Font** — Indicates a landscape font is selected.

**Condensed Font** — Indicates a condensed font is selected.

**Busy** — Indicates printer is receiving information.

**Ready** — Indicates printer is online and ready to print.

**EconoMode** — When lit, indicates economode quality print is selected; otherwise, letter quality print is selected.



2170003

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# Managing Printer Features

You select and control the printing features of the HP DeskJet 520 printer with your software application in conjunction with a printer driver, with printer commands, with the printer's control panel, or with the printer's configuration switches. As shown, each method allows you to set some or all of the printing features that control the appearance of your printed documents.

## Your Software Application

Your software application, when used with the appropriate printer driver, can control all aspects of printer features. This is the easiest method for controlling the look of your printed documents including typeface style and size; placement of text, graphics, and margins; and so on. In general, settings made with your software application supersede those made with other control methods.

## Printer Commands

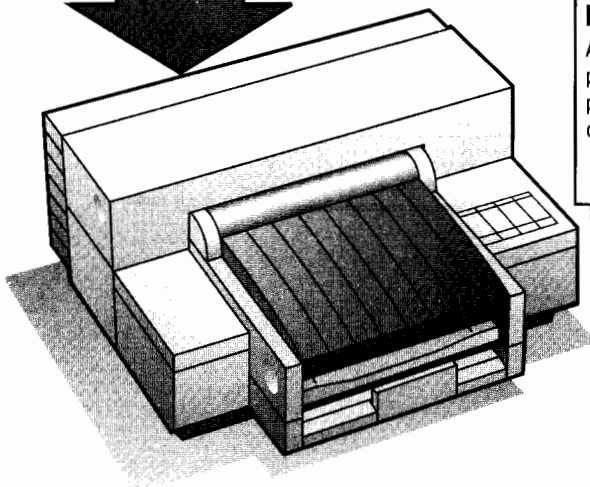
Allow you to select settings not usually available in your software application such as stroke weight, cursor position, raster graphics control, and so on. See chapter 5 for details.

## Printer Control Panel Buttons

Allow you to select basic printing modes, start a printer self-test, clean the print cartridge, put the printer online, and take the printer offline. See chapter 4 for details.

## Configuration Switches

Allow you to set the default printer settings such as paper/envelope size, text lines per page, and so on. See chapter 5 for details.



2170008

## ***A Word About Printer Drivers***

When using a software application, selecting the correct printer driver can mean the difference between being able to use all of the printer's features or only some of them. The best printer driver to use is always the one that most closely matches the name of your printer. Before you can print documents from your software application, install the appropriate printer driver on your computer.

### **If you use Microsoft Windows 3.1 applications:**

For best results, use the printer driver for the HP DeskJet 520 printer provided on the diskette with the printer. Refer to the *HP DeskJet 500 Series Printer Software Guide for Microsoft Windows* for information on installing the printer driver.

### **If you use OS/2 applications:**

Use the HP DeskJet 520 or DeskJet 510 printer driver supplied by IBM and installed with the instructions provided by IBM. If an HP DeskJet 520 or DeskJet 510 printer driver is not listed contact your IBM representative.

### **If you use DOS applications:**

For each DOS software application that you intend to use with the HP DeskJet 520 printer, you must install a printer driver. Your DOS software application supplies you with printer drivers for many printer models. A printer driver that supports the HP DeskJet 520 printer features may already be available through your software application.

To determine if your software application provides a printer driver appropriate for your printer, check your software application's printer selection or printer setup menu for a list of printer model names. The next table identifies recommended printer driver selections and the type of support available with each.

**Printer Driver Selection****Type of Printer Support**

HP DeskJet 520 printer

Supports all printer features.

HP DeskJet 510 printer

Supports all printer features.

HP DeskJet 550C printer

Supports all printer features.

HP DeskJet Portable printer

Supports all printer features except envelope printing.

HP DeskJet 500 printer

Supports all printer features except for some fonts and envelope printing.

**NOTE**

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If your application software does not provide the appropriate printer driver, contact your software manufacturer or distributor and request one. The instructions for installing a printer driver vary depending on the application software. See your software application manual for instructions.

---



## Using Paper and Other Media

This chapter explains how to select, load, and store paper, envelopes, and other media.

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---

## Selecting and Storing Media

The HP DeskJet 520 printer prints on plain paper and other media, such as HP LX JetSeries Glossy Paper and HP LX JetSeries Transparency Film. All three media types are available in U.S. letter size and European A4 size. Chapter 5 lists the media part numbers.

### *Selecting Paper*

Most plain paper manufactured for photocopying yields good printing results. Because cotton bond paper yields excellent printing results, you should use it for your letterhead stationery. Use these guidelines to select paper:

- Print on both sides of a few sheets of paper before you purchase large quantities.
- Choose paper in the 60 to 135 g/m<sup>2</sup> (16 to 36 lb) range.
- Be sure that your paper does not have tears, dust, wrinkles, or curled or bent edges.

### *Selecting Envelopes*

Use these guidelines to select envelopes:

- Print on a few envelopes before you purchase large quantities.
- Choose envelopes within the 75 to 90 g/m<sup>2</sup> (20 to 24 lb) range.
- Use high-quality envelopes that are thin and sharply creased.
- Use only U.S. No. 10 (104 x 241.3 mm) (4 1/8 x 9 1/2 in.) or European DL (220 x 110 mm) size envelopes.
- Do not use envelopes with thick or crooked edges, or envelopes that are damaged, curled, wrinkled, or irregularly shaped.
- Do not use envelopes that are extremely shiny or embossed, or envelopes with clasps or windows.



## ***Selecting Transparencies and Other Media***

Use these guidelines to select transparencies and other media:

- Use the media sizes listed in Chapter 5.
- Choose media within the 60 g/m<sup>2</sup> to 135 g/m<sup>2</sup> (16 lb to 36 lb) range.
- Do not use media that is damaged, curled, or wrinkled.
- Use HP LX JetSeries Transparency Film.
- Do not use media with cutouts or perforations.
- Do not use multiple-part forms or adhesive labels.
- Do not use media that is heavily textured or embossed.

## ***Storing Media***

Store your media in its packaging until you use it. Protect media from temperature and humidity extremes by wrapping it tightly in plastic.

---

## **Adding Media**

To add media, remove all remaining media from the IN tray and combine it with a new stack of the same media type. The stack should not exceed 1 cm (1/2 in.).

---

## **Loading Media**

Insert all media and envelopes *print side down* into the IN tray of the printer. The printer advances media around the paper feed rollers and delivers it print side up in the OUT tray.

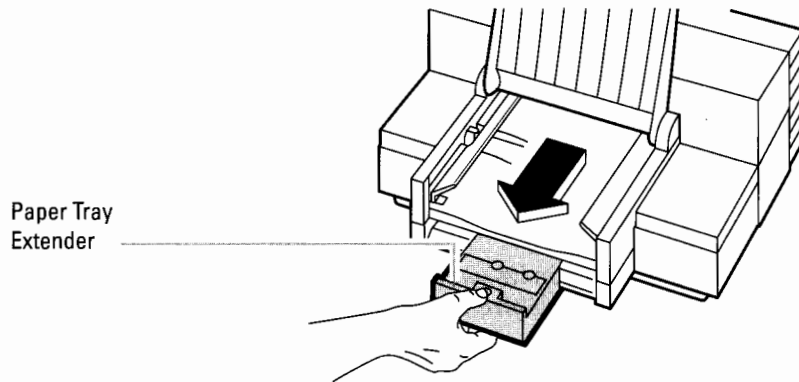
Use these guidelines while loading media:

- Load only one media type at a time in the IN tray, and make sure the media sits evenly in the tray.
- Make sure the OUT tray is in the printer.
- Always load media print side down for best print quality.
- Never load more than 1 cm (1/2 in.) of media into the IN tray at one time.

## ***Loading Full Size Paper***

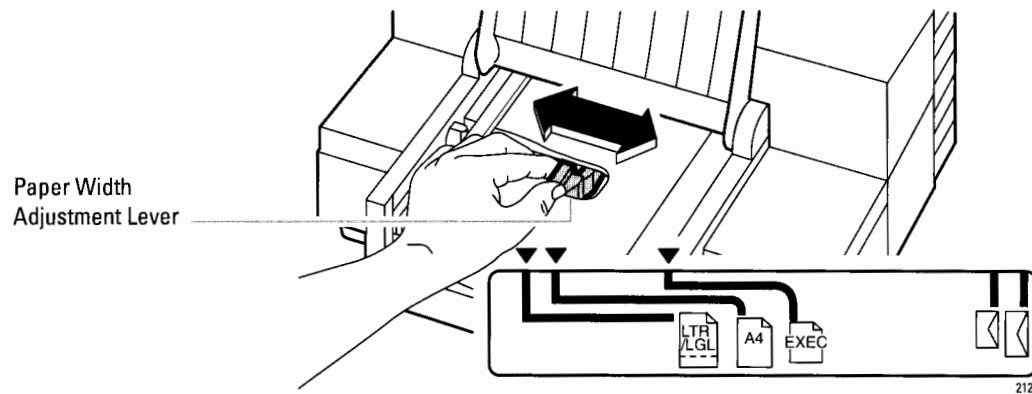
To load U.S. letter, U.S. legal size, or European A4 size paper in your printer:

1. Open the OUT tray cover.
2. Pull out the paper tray extender and remove all remaining media from the IN tray.



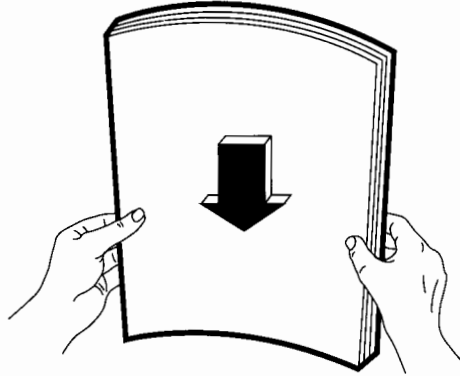
2128600

3. Slide the paper width adjustment lever to the appropriate size setting.



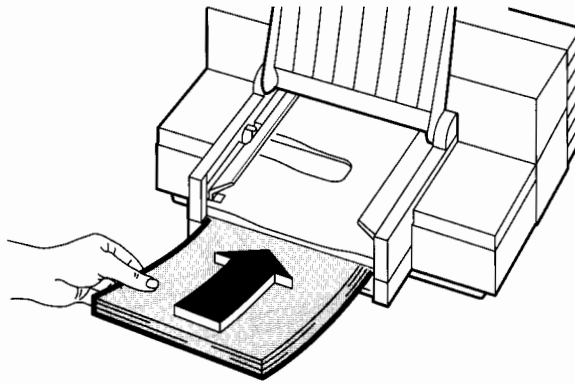
2128018

4. Remove a 1 cm ( $\frac{1}{2}$  in.) stack of media from its packaging and tap the short edge of the stack on a flat surface to even the stack.



2124025

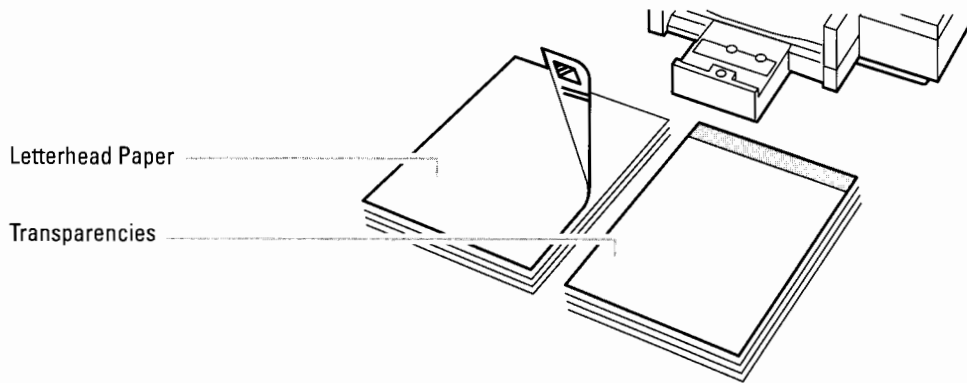
5. Insert the media evenly into the IN tray, *print side down*, until it stops.



2128601

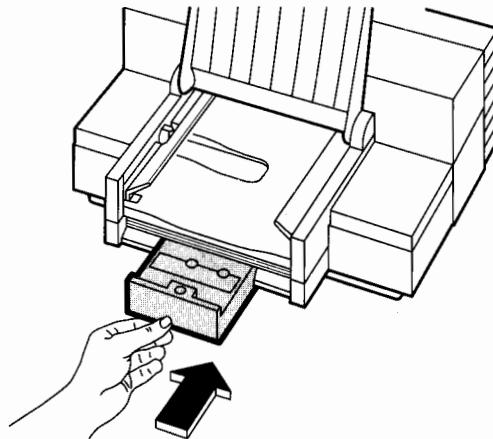
- For plain paper, the print side is identified by a symbol or word on the packaging. Load the *print side down*.
- For HP LX JetSeries Glossy Paper load the *glossy side down*.

- For letterhead paper, load the *letterhead side down and forward*.
- For HP LX JetSeries Transparency Film, load the *rough side down with the adhesive strip forward*.



2128602

- 6.** Push the paper tray extender in toward the printer, making sure the paper does not bend in the IN tray.



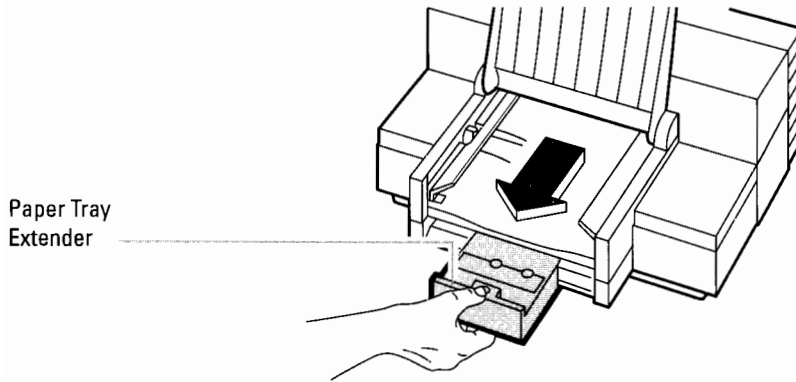
2128606

- 7.** Close the OUT tray cover.

## ***Loading Executive Size Paper***

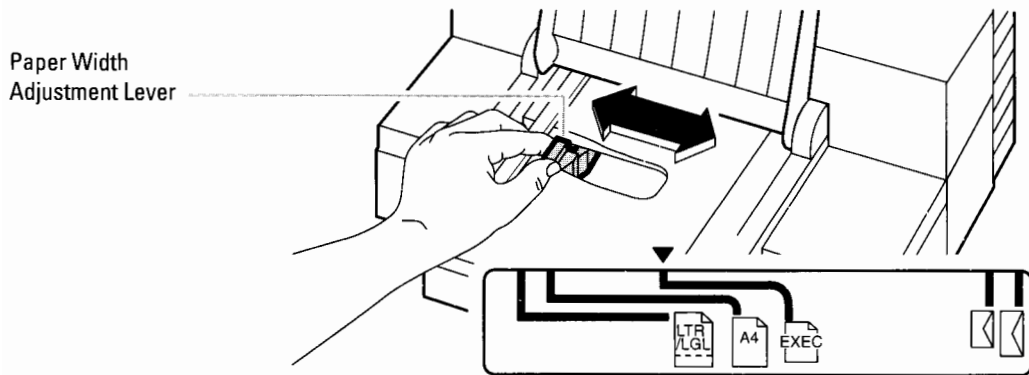
To load executive size paper in your printer follow these instructions:

1. Open the OUT tray cover.
2. Pull out the paper tray extender and remove all remaining media from the IN tray.



2128600

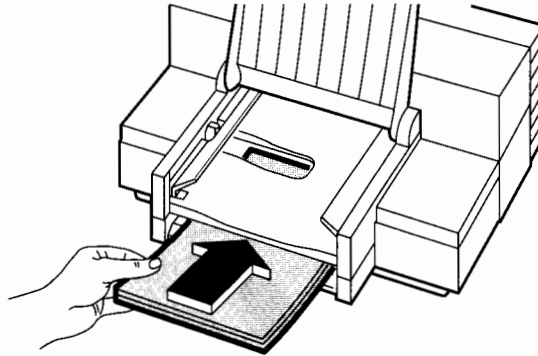
3. Slide the paper width adjustment lever to the executive paper size setting.



2128023

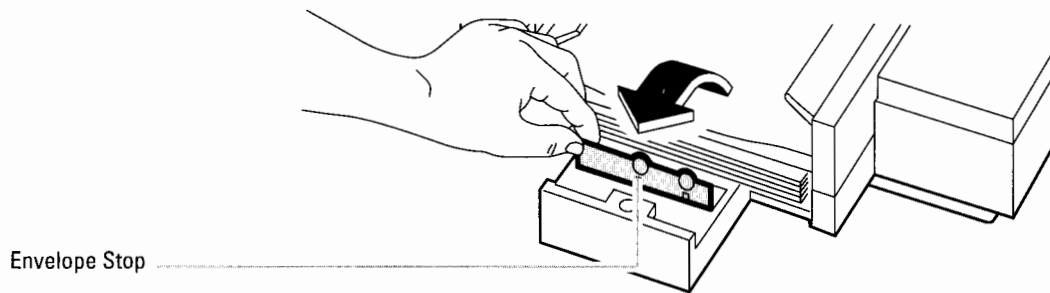
4. Remove a 1 cm ( $\frac{1}{2}$  in.) stack of media from its packaging and tap the short edge of the stack on a flat surface to even the stack.

5. Insert the paper into the IN tray past the green envelope stop. Align the right edge of the paper stack with the right side of the printer.



2128607

6. Raise the green envelope stop.



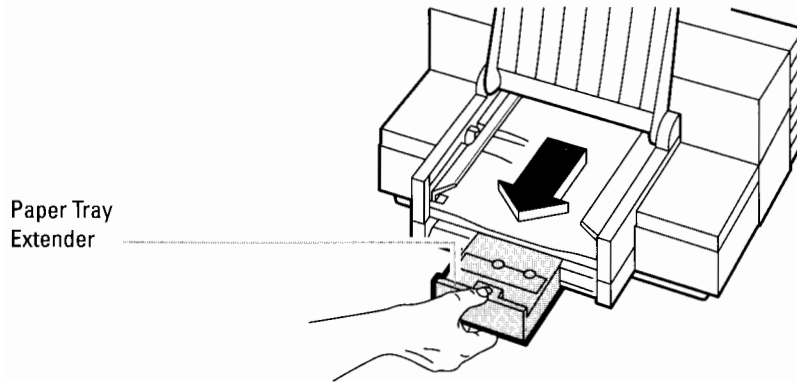
2128604

7. Push the paper tray extender in toward the printer until it stops. Make sure the paper does not bend in the IN tray.
8. Close the OUT tray cover.

## ***Loading Envelopes***

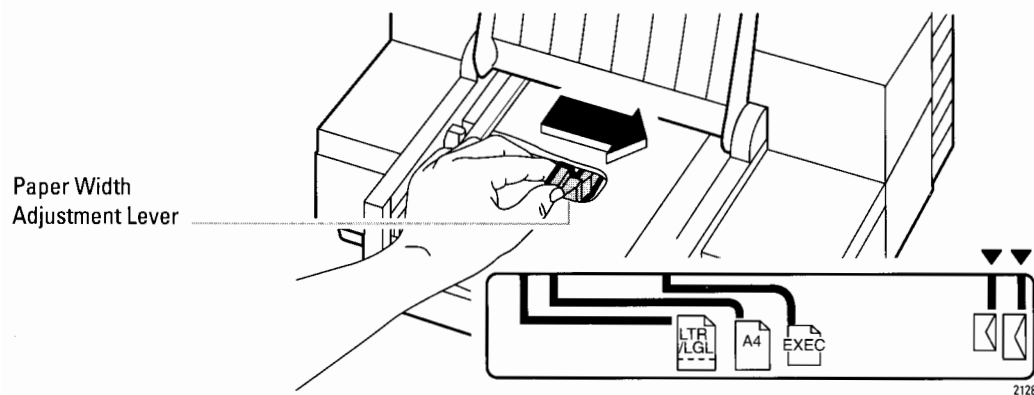
To load envelopes in your printer:

1. Open the OUT tray cover.
2. Pull out the paper tray extender and remove any media from the IN tray.



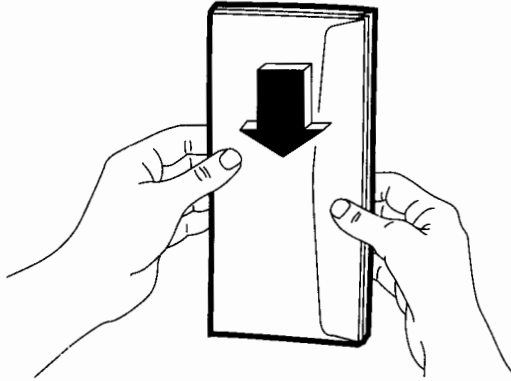
2128600

3. Slide the paper width adjustment lever to the appropriate envelope setting.



2128022

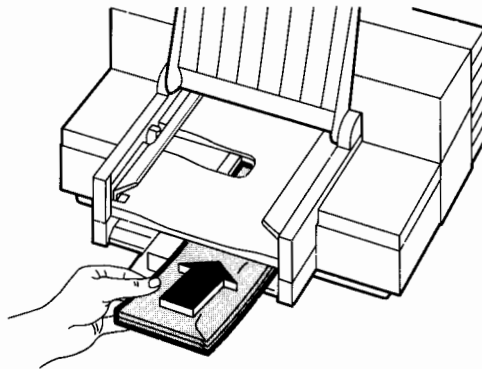
4. Remove up to 20 envelopes from their packaging and tap the short edge of the envelopes on a flat surface to even the stack.



2124029

5. Slide the envelopes evenly into the IN tray, *address side down* (flap side up), past the green envelope stop.

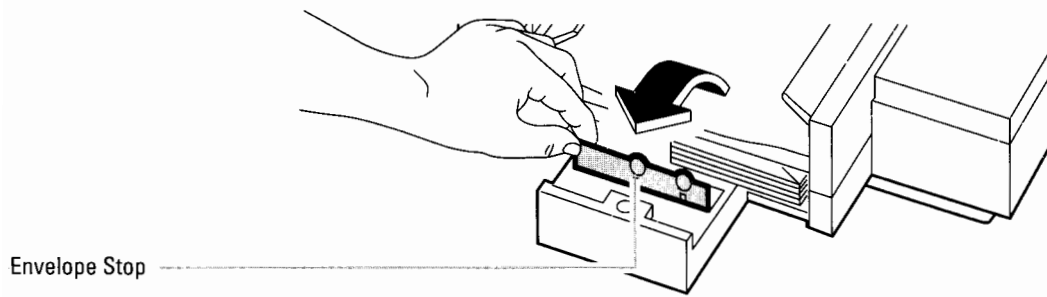
Make sure the creased flap edge of the stack aligns with the right side of the printer.



2128605



6. Raise the green envelope stop.



2128603

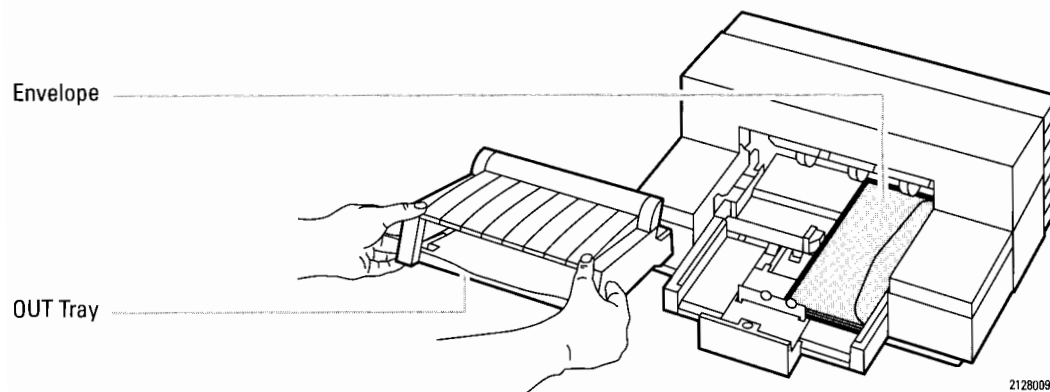
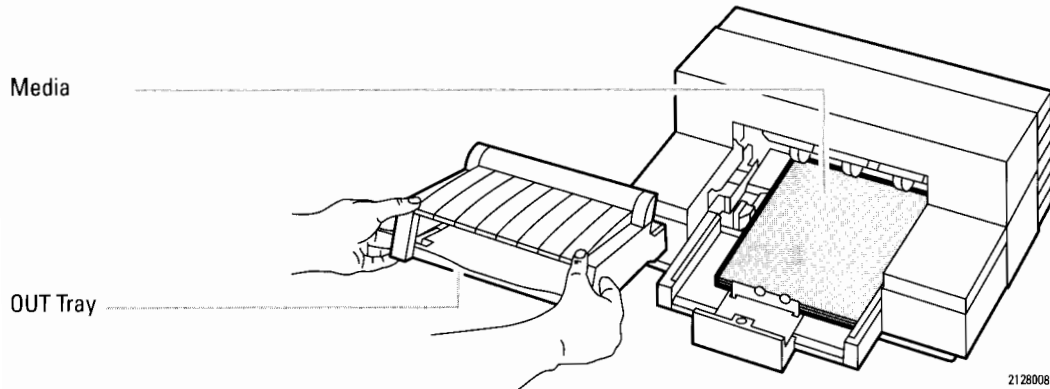
7. Push the paper tray extender in toward the printer until it stops. Make sure the envelopes do not bend in the IN tray.
8. Close the OUT tray cover.

---

## Removing Executive Size Paper and Envelopes

To remove unused executive size paper or envelopes from the IN tray:

1. Remove the OUT tray and remove the paper or envelopes.



2. Lower the green envelope stop and replace the OUT tray.

If you have problems while loading or removing media, see chapter 4.



## Using Print Cartridges

This chapter explains how to store, remove, and install print cartridges.

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Removing the Print Cartridge .....	3-3
Installing the Print Cartridge .....	3-5

---

## Storing and Using Print Cartridges

To maintain excellent print quality from your print cartridges:

- Keep print cartridges in their sealed packages, at room temperature (15.6° – 26.6°C), until you are ready to use them.
- Keep the print cartridge in the print cartridge cradle at all times.
- Do not turn off the printer before printing is complete and the print cartridge has returned to the right side of the printer.

---

### **CAUTION**

The ink in the cartridges has been carefully formulated by Hewlett-Packard to ensure superior print quality and compatibility with the printer. Damage to the printer or print cartridge resulting from modifying or refilling the print cartridge is not the responsibility of Hewlett-Packard.

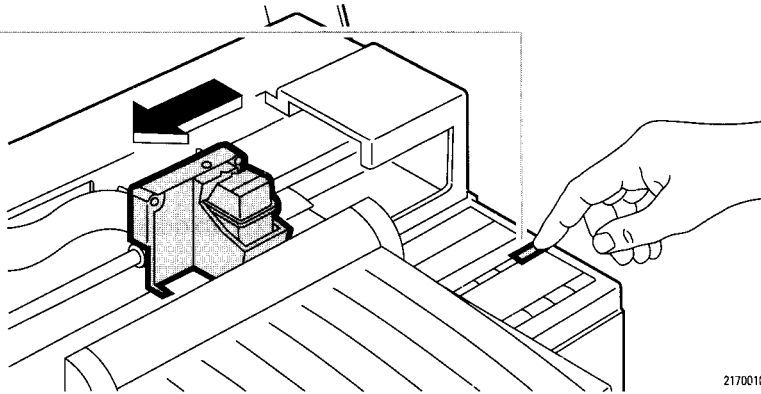
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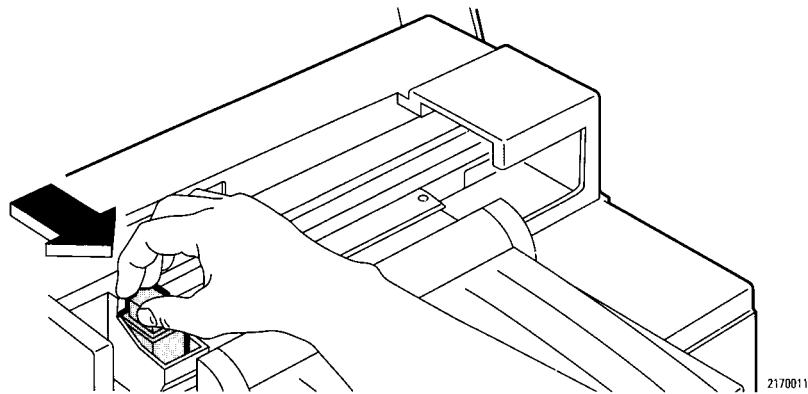
## Removing the Print Cartridge

1. Turn on the printer.
2. Open the printer's top cover.
3. Press the **Install Print Cartridge** button on the printer control panel. The print cartridge cradle moves to the left side of the printer.

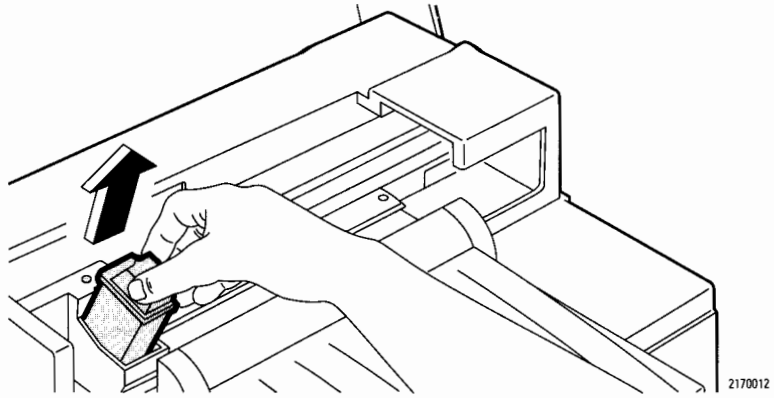
Install Print  
Cartridge Button



4. Grasp the top of the print cartridge and pull it toward you until the cartridge becomes loose.



5. Lift the empty print cartridge out of the cradle and discard it.



---

**CAUTION**

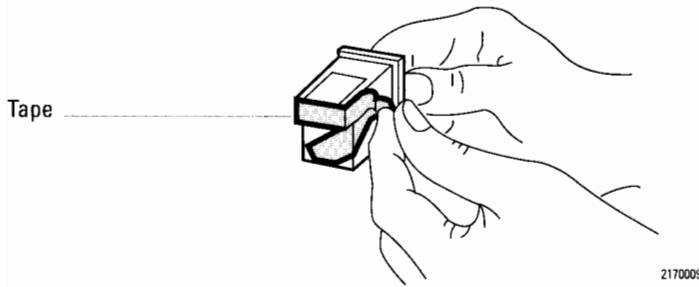
Keep new and used cartridges out of the reach of children.

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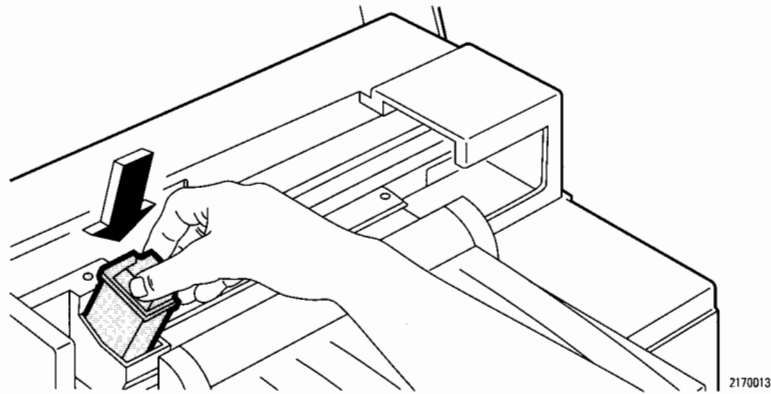
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## Installing the Print Cartridge

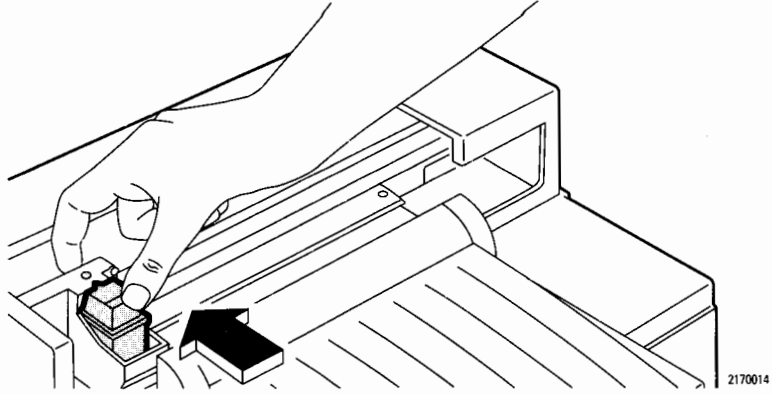
1. Open the print cartridge box and container. Grasp the print cartridge by the green top and remove the cartridge from the container.
2. Gently remove both pieces of tape covering the ink nozzles:  
*Do not touch the copper ribbon or the ink nozzles.*



3. Drop the print cartridge into the empty cradle. Align the green arrow on the cartridge top with the green dot on the cartridge cradle.



4. Push the green arrow toward the dot, until the cartridge snaps into place.



5. Press the **Install Print Cartridge** button on the printer control panel to move the print cartridge cradle to the right side of the printer.
6. Close the printer's top cover.





## Troubleshooting and Maintenance

This chapter describes how to solve printer problems and maintain your printer.

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Printing Problems .....	4-5
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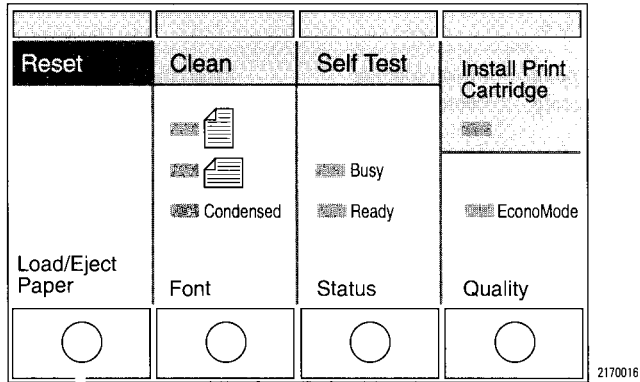
## When the Printer Does Not Print

If media is loaded and the printer does not print, use this information to solve your problem. If the self test does not print, see Printer Self-Test Problems later in this chapter.

Symptom	Cause	Solution
<b>Nothing happens when you turn on the printer. All control panel lights are off.</b>	Printer is improperly connected to the power source.	Turn off the printer and turn it on again. Next, make sure:  Make sure the power module plug is <i>firmly</i> inserted in the printer's power socket and the other end of the cord is plugged into an outlet; any attached power strip is turned on and plugged into an outlet; any installed font or RAM cartridge is firmly seated in its slot.
<b>The printer is on, but nothing prints.</b>	Printer is not ready to print.	Press the Status button on the printer control panel to turn on the Ready light.
	Printer is improperly connected.	Make sure the interface cable is firmly connected to the parallel port of the printer and the computer.
	Your software is not setup for the printer.	Follow the instructions in your software manual for setting up the software to work with the printer.
	Tape covers the print cartridge ink nozzles.	Remove the print cartridge and remove any tape covering the ink nozzles. Reinstall the print cartridge.
	Print cartridge is improperly installed.	Make sure the print cartridge snaps into place with the green arrow aligned with the dot on the cradle top.
	Print cartridge is out of ink.	Replace the empty print cartridge.
<b>Nothing prints and the Ready light is blinking.</b>	Media is incorrectly loaded.	Remove media and reload it. Push the paper tray extender toward the printer until it stops. Make sure the paper does not bend in the IN tray.  Press the Status button on the printer control panel for the Ready light to stop blinking.

# When the Lights Blink

Some printer errors cause the lights on the printer control panel to remain on or to blink in different combinations.



Symptom	Cause	Solution
<b>The Ready light is blinking.</b>	Printer is out of media.	Load media in the printer's IN tray.  If media is loaded, push the paper tray extender toward the printer until it stops. Then, press the Load/Eject Paper button on the printer control panel to resume printing.
	An installed font cartridge failed.	Turn off the printer and remove installed font cartridges. Turn the printer on. If the lights stop blinking, a font cartridge failed. If the lights continue to blink, see Customer Support later in this chapter.
<b>The Busy and Ready lights blink.</b>	The media jammed.	See the discussion for Media Problems.
<b>All printer control panel lights blink simultaneously or are on.</b>	Either the printer failed or the computer-to-printer communication failed.	Turn off the printer, disconnect the interface cable from the bottom of the printer, and turn the printer on again. If the problem continues, see Customer Support later in this chapter. If the problem is corrected, check the interface cable, the cable connections, and the computer port.

Symptom	Cause	Solution
<b>All control panel lights are on.</b>	Printer failed.	Turn off the printer and turn it on again. If the lights stay on, see Customer Support later in this chapter.
<b>The Busy light is blinking and the printer will not print in landscape orientation.</b>	Printer is waiting for a command to print.	Press the Load/Eject Paper button.
<b>All printer control panel lights blink alternately.</b>	Power module connection is loose.	Insert the power module plug firmly into the printer's power socket.
	Print cartridge cradle cannot move.	Turn off the printer. Open the printer's top cover and remove any object blocking the print cartridge cradle. Move the print cartridge cradle to the left and right with your hand. Then, turn on the printer.

## Printer Self-Test Problems

To test the printer's operation, press the **Self Test** button on the printer control panel to print a 3-page self-test pattern. Do not use executive size paper for this test. If the pattern does not print, try the following solutions.

Symptom	Cause	Solution
<b>The printer self-test pattern will not print.</b>	Tape covers the print cartridge ink nozzles.	Remove the print cartridge and remove any tape covering the ink nozzles. Reinstall the print cartridge.
	The print cartridge is improperly installed.	Align the green arrow on the cartridge top to the dot on the cradle top; snap the print cartridge into place.
	The printer is improperly connected to the computer.	Make sure the interface cable is disconnected and perform the test again. If you cannot perform the self-test, see Customer Support at the end of this chapter.
	The computer is off.	Turn off the printer, turn on the printer, and turn on the computer. Your computer may require a different sequence for turning on the equipment. Refer to your computer manual.

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## Printing Problems

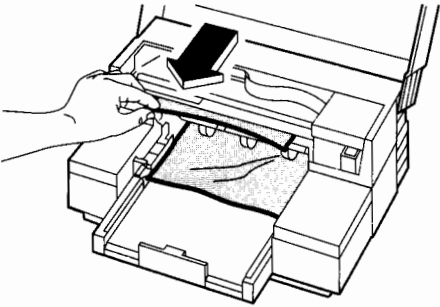
Symptom	Cause	Solution
<b>Margins are not printing as expected.</b>	Margins are incorrectly set.	Check your margin settings in the software.
	The media is incorrectly loaded.	Align the media stack against the right side of the printer. Make sure media is not over the paper width adjustment lever.
<b>Print is slanted on the media.</b>	Media is unevenly loaded.	Align the media stack evenly against the right side of the printer. See Media Problems in this chapter.
<b>Font selections are not printing.</b>	The fonts were not installed or selected properly.	See your software application manual for selecting fonts within the application. If you use font cartridges, make sure the cartridge is firmly placed in the font cartridge slot. For soft fonts, make sure the fonts are downloaded. For scalable fonts, see the on-line help for the HP DeskJet Printer Setup dialog box under Microsoft Windows. Emulation cartridges are not supported.
<b>The printout is wrong.</b>	The wrong printer driver is selected.	Select the correct printer driver.
<b>The printer seems to work but nothing prints.</b>	Tape covers the print cartridge ink nozzles.	Remove the print cartridge and remove any tape covering the ink nozzles. Reinstall the print cartridge.
	The print cartridge is out of ink.	Install a new print cartridge.
<b>Characters, dots, or lines are incomplete or missing.</b>	The print cartridge has a problem.	See Print Cartridge Problems in this chapter.
<b>Print density is inconsistent.</b>	The print cartridge ink nozzles are clogged.	See Print Cartridge Problems in this chapter.
	Media selection is inappropriate.	Try another type of media. See chapter 2.

<b>Symptom</b>	<b>Cause</b>	<b>Solution</b>
<b><i>Print is fuzzy.</i></b>	Media selection is inappropriate.	Try another type of media. See chapter 2.
	The print side was not used.	Turn over the media in the IN tray.
	Printer driver settings need adjustment.	See your software manual. If you use Windows, see the on-line help for HP DeskJet Printer Setup dialog box.
<b><i>Ink is smearing or paper is wrinkling.</i></b>	Too much ink on the page.	See your software application manual. If you use Windows, see the on-line help for HP DeskJet Printer Setup dialog box for information on adjusting intensity settings.
	Media selection is inappropriate.	Try another type of media. See chapter 2.
<b><i>Print is fading.</i></b>	The print cartridge is running out of ink.	Install a new print cartridge.

---

## Media Problems

Symptom	Cause	Solution
<b>Media does not load into the IN tray.</b>	The paper path in the IN tray is blocked.	Remove the OUT tray and remove any media from the IN tray. Make sure the paper width adjustment lever is not preventing paper from loading. Reinstall the OUT tray and load media.
	More than a 1 cm (1/2 in.) stack of media is loaded.	Remove a few sheets of media.
<b>Media does not advance into the printer.</b>	Media is improperly loaded.	Remove the media stack and make sure the stack is even. Reload the stack evenly in the IN tray so the stack's right side aligns with the printer's right side. Push the paper tray extender toward the printer until it stops. Do not bend the media.
	The OUT tray is improperly installed.	Make sure the OUT tray is fully installed into the printer and rests evenly on the IN tray.
	Media was incorrectly added.	Remove the media from the IN tray and combine it with a new stack of the same type of media. Reload the media.
	Different media types or weights are loaded.	Remove media and reload only one media type.
	Media is damaged, wrinkled, or curled.	Remove damaged media from the IN tray. Always store media in its packaging.
<b>Media does not eject from the printer.</b>	The computer was turned off during printing.	Turn off the printer. Turn on the computer and printer in the appropriate sequence. Refer to your computer manual.
	Media is curling and catching on the OUT tray cover.	Open the OUT tray cover.

Symptom	Cause	Solution
<b>Media does not fully eject from the printer and the Busy and Ready lights blink.</b>	Media is jammed.	<p>Turn off the printer and open the top cover. Remove the OUT tray and pull the jammed media out of the printer.</p>  <p>Remove all torn pieces of media from the paper path. Small scraps of media left within the printer can cause further media jams.</p> <p>Remove wrinkled or torn media from the IN tray. Reload the media stack. Replace the OUT tray and close the top cover. Turn on the printer.</p>
	<b>Printer advances multiple sheets of media.</b>	<p>Media is stuck together.</p> <p>More than a 1 cm (1/2 in.) stack of media is loaded.</p> <p>Different media types or weights are loaded.</p> <p>Media was improperly added.</p> <p>The OUT tray is improperly installed.</p> <p>The paper is bent in the IN tray.</p>



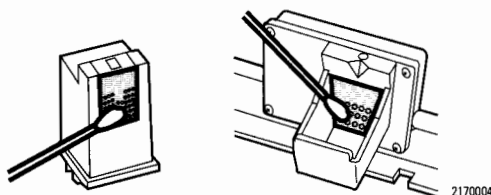
<b>Symptom</b>	<b>Cause</b>	<b>Solution</b>
<b><i>Envelopes do not advance into the printer.</i></b>	Envelopes are incorrectly loaded.	Slide the paper width adjustment lever to the appropriate envelope setting. Raise the envelope stop and push the paper tray extender toward the printer until it stops. Do not bend the envelopes.
	Envelope settings are incorrect.	Select envelopes for printing in your software application.
<b><i>Printing is slanted on envelopes.</i></b>	Envelopes are not evenly loaded.	Remove the OUT tray and tap the envelope stack to even the stack. Align the stack against the right side of the printer. Make sure the paper width adjustment lever is in the correct position for the size of envelopes you are printing. Reinstall the OUT tray.
<b><i>Printing is slanted on the media.</i></b>	Media is not evenly loaded.	Remove the OUT tray and align the media against the right side of the printer. Reinstall the OUT tray.
	Different media types or weights are loaded.	Remove media and reload only one media type or weight.
	More than a 1 cm ( <sup>1</sup> / <sub>2</sub> in.) stack of media is loaded.	Remove a few sheets of media.
	The paper width adjustment lever is bending the media.	Move the paper width adjustment lever to the left so the media lays flat.
	The media is inappropriate for use.	Use media, including envelopes, that meets the recommendations in chapter 2. When using preprinted forms, make sure they were printed straight.
	The OUT tray is improperly installed.	Fully install the OUT tray into the printer so it rests evenly on the IN tray.

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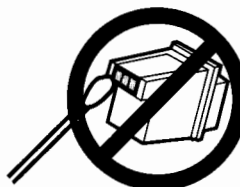
## Print Cartridge Problems

You can often solve print quality problems by using only the *print side* of the media, or by loading a different media type. However, if lines or dots are missing from your printouts, you have a print cartridge problem.

Symptom	Cause	Solution
<b>Lines or dots are missing from the characters in the printout. For example:</b>  <i>sum dolor sit amet elit, sed diam non cidunt ut labore et erat voluptat. Ut en</i>	Poor connection between print cartridge and cradle contacts.  The contacts are dirty.	Remove the print cartridge, reinstall it, and press the Self Test button. You might need to repeat this several times before the ink resumes a continuous flow.  Remove the print cartridge. Use a foam-rubber swab or lint-free cloth moistened with isopropyl alcohol to gently clean the contacts on the print cartridge and the print cartridge cradle.



Do not clean the ink nozzles; doing so can damage the print cartridge.



Reinstall the print cartridge and perform a self-test. If the print quality is not improved, replace the print cartridge. If the problem persists, see Customer Support later in this chapter.

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## Maintaining Your Printer

- Use a soft cloth moistened with water to wipe dust, smudges, and stains off of the printer's exterior case.
- Keep print cartridges in their sealed packages, at room temperature, until you are ready to use them.
- Keep the print cartridge in the print cartridge cradle at all times.
- Do not turn off the printer before printing is complete; doing so can dry out the print cartridge.
- The interior of the printer does not require cleaning. Keep fluids away from the interior of the printer.

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# Customer Support

The information in this chapter suggests solutions to common problems. If your printer is not operating properly and these suggestions do not solve your problem, use the following set of instructions appropriate for your country to obtain help.

## **For customers in the U.K., France, Germany, Switzerland, Austria, Belgium, Norway, Sweden, Denmark, Finland and the Netherlands:**

If your printer fails *during* the warranty period:

1. Follow the Troubleshooting procedures in this chapter or consult our HP FIRST facsimile assistance services.
2. If you are still unable to determine the cause of the failure, contact your local dealer or the European Customer Support Center.

Customer support representatives can answer your questions regarding the setup, configuration, installation, and operation of your printer. They can also troubleshoot and diagnose printer problems and, if necessary, can give instructions for getting the printer serviced and repaired.

If available for your country and language, phone numbers for HP FIRST and the European Customer Support Center are given in a separate document shipped with the printer. If you need additional information, please call your dealer or nearest HP Sales and Support Office.

If your printer fails *after* the warranty period:

1. Follow the Troubleshooting procedures in this chapter.
2. If you are unable to determine the cause of the failure, contact your local dealer or nearest HP Sales and Support Office for instructions on returning your printer for service and repair.

## **For customers elsewhere in the world**

If your printer fails during or after the warranty period:

1. Follow the Troubleshooting procedures in this chapter.
2. If you are unable to determine the cause of the failure, contact your local dealer or nearest HP Sales and Support Office for instructions on returning your printer for service and repair.



## Reference

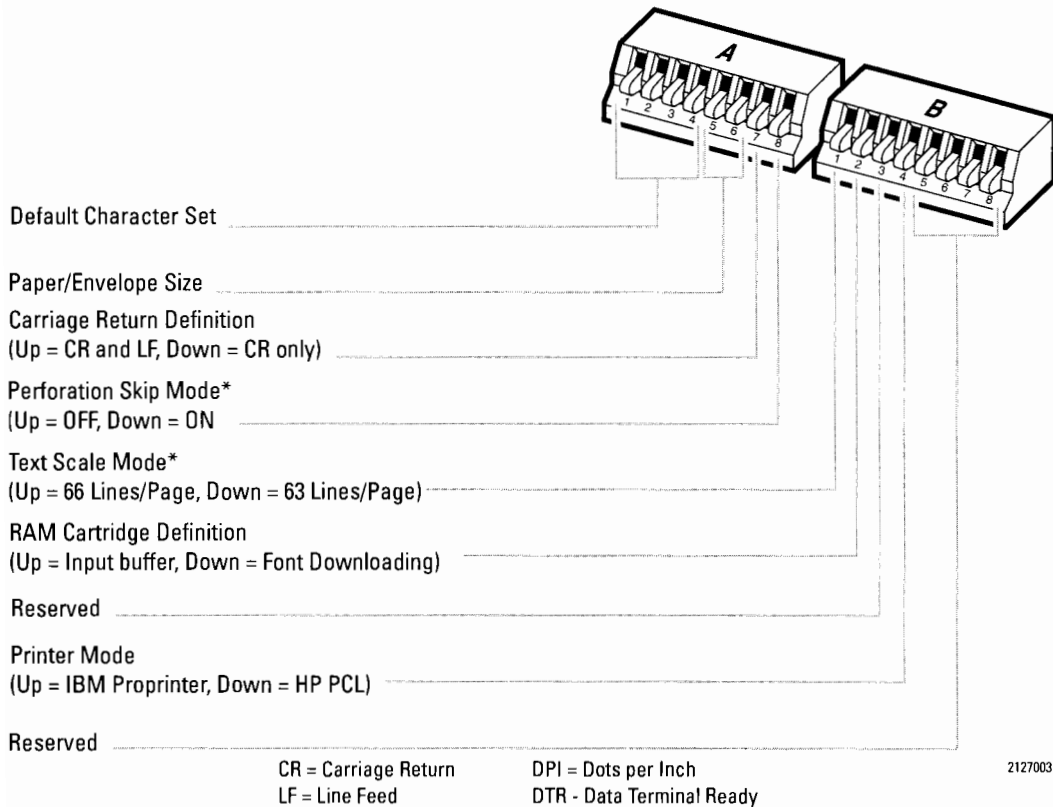
This chapter provides technical procedures and information for your HP DeskJet 520 printer.

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## The Configuration Switches

The HP DeskJet 520 printer has configuration switches under the IN tray. See Character Sets later in this chapter for information on using switches A1-A4. Character set and paper size selections made with the configuration switches are secondary to corresponding settings made with your application software or with printer commands. See chapter 1 about methods for controlling the printer.



To change the settings:

1. Use a pen to flip the switches up or down.
2. Press the **Reset** button on the printer control panel to establish the new settings.

\*Changing the Text Scale Mode setting to 66 lines/page (switch B1 Up) is ignored when Perforation Skip Mode is on. See the discussions later in this chapter for Perforation Skip Mode and Text Scale Mode.

## Selecting Character Sets

The default character set is PC-8. To change the character set, use configuration switches A1 through A4.

Character Set	A1	A2	A3	A4
PC-8	down	down	down	down
HP Roman8	down	down	down	up
PC-8 Danish/Norwegian	down	down	up	down
United Kingdom (ISO 4)	down	down	up	up
German (ISO 21)	down	up	down	down
French (ISO 69)	down	up	down	up
Italian (ISO 15)	down	up	up	down
Norwegian v.1 (ISO 60)	down	up	up	up
Swedish Names (ISO 11)	up	down	down	down
Spanish (ISO 17)	up	down	down	up
ASCII	up	down	up	down
Portuguese (ISO 16)	up	down	up	up
PC-850	up	up	down	down
ECMA-94 Latin 1	up	up	down	up
HP Legal	up	up	up	down
Default in front font cartridge slot	up	up	up	up

Additional character set support is available through the HP22706W WordPerfect font cartridge, and the HP DeskJet 500 Series Printer Driver for Microsoft Windows.

## Paper/Envelope Size

The factory default setting is U.S. letter size (8 1/2 x 11 in.) paper. To change the default paper/envelope size, use configuration switches A5 and A6. Paper and envelope size settings in your software supersede settings made with these switches.

Paper/Envelope Size	Switch A5	Switch A6
U.S. letter size 216 x 279 mm (8.5 x 11 in.)	down	down
European A4 size (210 x 297 mm)	down	up
U.S. legal size 216 x 356 mm (8.5 x 14 in.)	up	down
Envelopes (U.S. No. 10, European DL)		up



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# Print Settings

This section describes how to set up your page for printing, including how to set the top and bottom margins with Perforation Skip Mode and Text Scale Mode.

## Page Orientation

The HP DeskJet 520 printer prints in portrait or landscape orientation. Portrait orientation is the default. When you change page orientation during printing, the printer ejects the current page and then changes orientation.



**Portrait**



**Landscape**

You can select the page orientation:

- From your software application.
- By pressing the Font button on the printer control panel until the desired Font light turns on.
- Using a printer command, if possible with your software. (Refer to your software manual.)

All control codes and printer commands behave the same regardless of the selected page orientation, with one exception: The automatic underlining (E<sub>C</sub> & d # D) command is not supported in landscape orientation. (Your software manual might describe how to underline without this command.)



### Default Margins for Portrait Orientation

Paper Size	Left Margin	Right Margin	Top Margin*	Bottom Margin
U.S. letter 216 x 279 mm (8.5 x 11 in.)	6.35 mm (.25 in.)	6.35 mm (.25 in.)	12.7 mm (.5 in.)	11.7 mm (.46 in.)
European A4 (210 x 297 mm)	3.1 mm (.125 in.)	3.6 mm (.142 in.)	12.7 mm (.5 in.)	11.7 mm (.46 in.)
U.S. legal 216 x 356 mm (8.5 x 14 in.)	6.35 mm (.25 in.)	6.35 mm (.25 in.)	12.7 mm (.5 in.)	11.7 mm (.46 in.)
Executive 184 x 267 mm (7.25 x 10.5 in.)	6.35 mm (.25 in.)	6.35 mm (.25 in.)	12.7 mm (.5 in.)	11.7 mm (.46 in.)

\*Top margin is 0.4 when Perforation Skip Mode is off and three lines at 6 lpi with Perforation Skip Mode on.

NOTE: The numbers listed above are based on DOS software applications, the printable area will vary when using MS Windows software applications.





## Default Margins for Landscape Orientation

Paper Size	Left Margin*	Right Margin	Top and Bottom Margins**
European A4 (210 x 297 mm)	15 mm (.59 in.)	2 mm (.08 in.)	3.1 mm (top), 3.6 mm (bottom)
U.S. letter 216 x 279 mm (8.5 x 11 in.)	15 mm (.59 in.)	2 mm (.08 in.)	6.35 mm (.25 in.)
U.S. legal 216 x 356 mm (8.5 x 14 in.)	15 mm (.59 in.)	2 mm (.08 in.)	6.35 mm (.25 in.)
Executive 184 x 267 mm (7.25 x 10.5 in.)	15 mm (.59 in.)	2 mm (.08 in.)	6.35 mm (.25 in.)

\*You can not decrease the left margin.

\*\*Top and bottom margins are based on Perforation Skip Mode off. If Perforation Skip Mode is on, add 6 mm.

Note: Text Scale Mode has no effect in landscape orientation.

## Lines of Text Per Page

Line spacing is the vertical distance between printed lines on the page. The default line spacing for the HP DeskJet 520 printer is six printed vertical lines per inch (lpi).

### NOTE

When you print a page that uses less than the available lines without sending a form-feed command, the media advances into the printer and the **Busy** light blinks. Press the **Load/Eject Paper** button to begin printing.



## Number of Lines/Characters in Landscape Orientation

Paper Size	Lines Per Page			Characters Per Line	
	6 lpi	8 lpi	10 cpi	16.67 cpi	20 cpi
U.S. letter	45 (48)*	60 (64)*	103	172	206
European A4	45 (48)*	60 (63)*	110	183	220
U.S. legal	45 (48)*	60 (64)*	133	222	266

\* Perforation Skip Mode off

## Perforation Skip Mode

Perforation Skip Mode controls the printing of the top and bottom margins on a page. By default, Perforation Skip Mode is on and the top and bottom margins are 13 mm ( $\frac{1}{2}$  in.) and the page length is 60 lines. Information beyond 60 lines prints on the next page.

To print 63 lines with no top margin and 13 mm ( $\frac{1}{2}$  in.) bottom margin, set configuration switch A8 to the up position to turn off Perforation Skip Mode. Then reset the printer and change the margin or page length settings in your software application. To print more than 63 lines on a page, see Text Scale Mode.

## ***Text Scale Mode***

Use Text Scale Mode to print 66 lines of text on a portrait-oriented page. Text Scale Mode does not affect printing in landscape orientation or graphics mode.

To use Text Scale Mode:

1. Turn off Perforation Skip Mode by changing configuration switch A8 to the up position.
2. Turn on Text Scale Mode by changing configuration switch B1 to the up position.
3. Reset the printer and change margin or page length settings in your application software.

You can also use printer commands, described later in this chapter, to set the Perforation Skip Mode and Text Scale Mode.

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## **Fonts**

This section describes the fonts you can use with the HP DeskJet 520 printer and how to select them. You can use internal fonts, scalable printer fonts, cartridge fonts, and soft fonts with the HP DeskJet 520 printer.

### ***Internal Fonts***

Internal fonts are bitmapped fonts stored in the printer. The following internal fonts are available:

<b>Typeface</b>	<b>Orientation</b>	<b>Pitch</b>	<b>Point Size</b>	<b>Style</b>	<b>Stroke Weight</b>
Courier	portrait	5, 10, 16.67, 20	6, 12	upright,	medium, bold
		5, 10, 20	6, 12	italic	medium, bold
Courier	landscape	10, 16.67, 20	6, 12, 24	upright	medium, bold
CG Times	portrait	proportional	5, 6, 7, 8, 10, 12, 14	upright, italic	medium, bold
Letter Gothic	portrait	6, 12, 24	6, 12	upright, italic	medium, bold
Letter Gothic	landscape	12, 24	6, 12, 24	upright	medium, bold
		16.67	4.75, 9.5, 19	upright	medium, bold
Univers	portrait	proportional	5, 6, 7, 8, 10, 12, 14	upright	medium, bold
	portrait	proportional	5, 6, 10, 12	italic	medium, bold

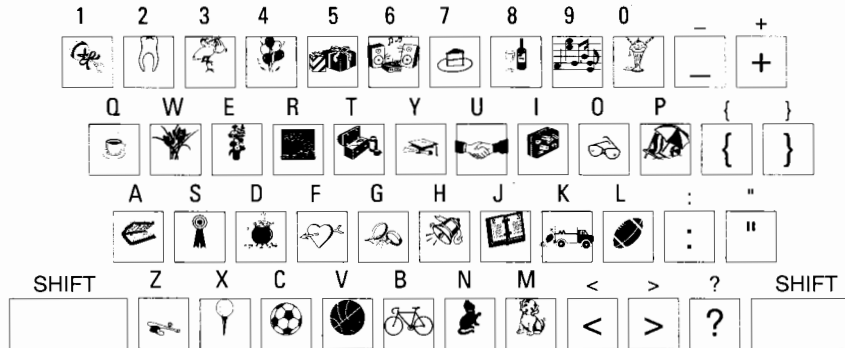
The default font is a portrait-oriented Courier 10 pitch, 12 point, upright, medium-weight. It prints if you do not select a font.

## Scalable Fonts

Scalable fonts are the outlines of the characters and symbols stored in mathematical form. Scalable fonts are available when you use the HP DeskJet 500 Series Printer Driver for Microsoft Windows (for Microsoft Windows version 3.1 or later). Your printer includes a printer driver with 10 TrueType typefaces scalable up to 127 point. See the *HP DeskJet 500 Series Printer Software Guide for Microsoft® Windows™* for installation and use instructions.

### Milestones Font

Milestones is one of the scalable fonts available with your HP DeskJet 500 Series Printer Driver for Microsoft Windows. To access the various symbols, type the key indicated and then select the Milestones Font from your software application.



### Cartridge Fonts

Cartridge fonts are bitmapped fonts stored in cartridges you install into the printer. You can use DeskJet, DeskJet PLUS, or DeskJet 500 font cartridges with this printer. *Emulation cartridges are not supported for use with the HP DeskJet 520 printer.*

### Soft Fonts

Soft fonts are bitmapped fonts stored on a disk. If you use many fonts frequently, soft fonts are the most cost effective. To install soft fonts you need at least one 256K RAM cartridge. (You can use up to two 256K RAM cartridges.) Your computer transfers (downloads) the fonts from a disk file to the printer. Each soft font product contains a downloading utility and documentation that describes how to use soft fonts.

After the fonts are downloaded and you select a printer driver, select a soft font in your software application the same way you select an internal or cartridge font. Soft fonts do not reside permanently in the printer; they are eliminated each time the printer is turned off.

## Selecting Fonts

You can select fonts through your application software, the printer control panel, or by sending printer commands. The method you use to select fonts depends on your application software.

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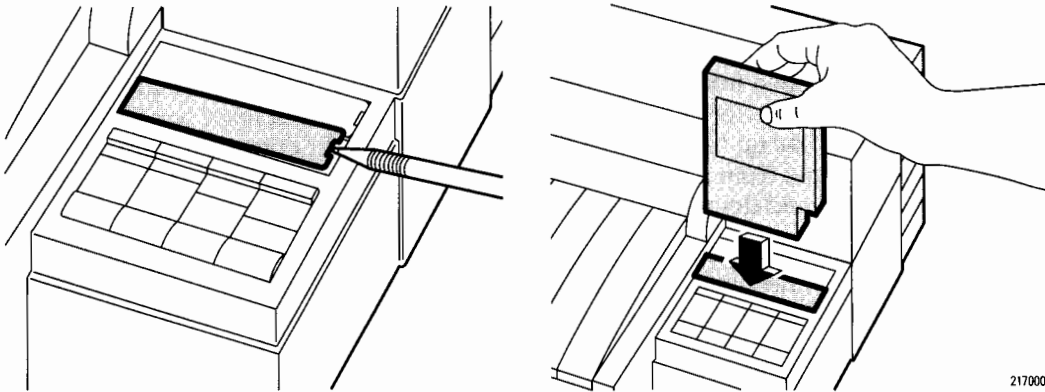
Selecting Fonts With Your Application Software	Your application software plays a major role in selecting and printing fonts. The printer driver determines the number of fonts available and the steps you use to select a font. Printer drivers are discussed in chapter 1. See your application software manual for instructions.
Selecting Fonts From the Printer Control Panel	Press the Font button to select between the Courier 10 and 16.67 pitch fonts in portrait orientation. (You cannot select Letter Gothic, CG Times, Univers, and some Courier fonts with the printer control panel.) To select the landscape Courier 10 pitch font with the control panel, press the Font button until the Landscape Font light turns on. To select other internal fonts, use your software application or printer commands. Some software applications override font selections you make with the printer control panel. See your application software manual.
Selecting Fonts With Printer Commands	When you send a command to the printer to select fonts, it sorts through various font characteristics in a particular sequence to locate a font. See Printer Commands later in this chapter.

---

## Installing Cartridges

You can install up to two font or RAM cartridges in the cartridge slots on the printer. Using RAM cartridges can improve the performance of your printer (see Improving Printer Performance later in this chapter).

1. Turn off the printer.
2. Pry off the cartridge slot cover with the tip of a pen and set the slot cover aside. (Replace the slot covers when cartridges are not installed.)



2170007

3. Insert the cartridge with the label facing you and the connectors facing down. *Do not touch the connector on the bottom of the cartridge or the connector in the printer.*
4. Push down firmly on the top of the cartridge until it snaps into place.
5. Turn on the printer.
6. Select fonts from installed font cartridges through your software application. If your software application does not provide a printer driver for a particular font, you can use the **Font** button on the printer control panel.

If you install a RAM cartridge, change configuration switch B2 to the up position to use the RAM as additional input buffer, to use the RAM cartridge for downloading soft fonts B2 should be down, then reset the printer.

*Warning:* Inserting or removing the font cartridges while the printer is on may result in damage to the printer or the font cartridge.

---

## Character Sets

A character set is a collection of the symbols and characters that constitute all elements of a language or discipline (legal), including punctuation and numbers. This section describes the character sets available and provides examples.

The types of character sets include 128-character sets and 256-character sets. Character sets containing 128 characters are *7-bit* character sets because only seven bits of the character byte are used to designate the character. Character sets containing 256 characters are *8-bit* character sets because the eighth bit of the character byte is used to access all 256 characters. Additional character set support is available through HP22706W WordPerfect font cartridge and the HP DeskJet 500 Series Printer Driver for Microsoft Windows.

### **7-bit Character Sets**

The 7-bit character sets conform to standard definitions set forth by the International Standards Organization (ISO). This printer supports: United Kingdom (ISO 4), German (ISO 21), French (ISO 69), Italian (ISO 15), Norwegian 1 (ISO 60), Norwegian 2 (ISO 61), Sweden: Names (ISO 11), Swedish (ISO 10), Spanish (ISO 17), ANSI ASCII (ISO 6), PC-850 (ISO 14), Portuguese (ISO 16), IRV (ISO 2), and HP Legal.

### **8-bit Character Sets**

The definitions of the first 128 characters in the 8-bit character set are standardized to the American Standard Code for Information Interchange (ASCII). This printer supports: PC-8, HP Roman8, PC-850, PC-8 Danish/Norwegian, and ECMA-94 Latin 1. Other character sets are supported through optional font cartridges.

---

HP Roman8 Character Set

0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256
	!	"	#	\$	%	&	'	(	)	*	:	;	<	=	>	?
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241	257
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242	258
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243	259
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244	260
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245	261
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246	262
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247	263
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	264
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249	265
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250	266
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251	267
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252	268
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253	269
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254	270
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255	271

PC-8 Character Set

0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256
!	"	#	\$	%	&	'	(	)	*	:	;	<	=	>	?	0
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241	257
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242	258
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243	259
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244	260
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245	261
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246	262
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247	263
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	264
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249	265
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250	266
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251	267
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252	268
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253	269
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254	270
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255	271



### *International (ISO) Character Set Substitution Table*

The ISO character sets contain the same characters as the ASCII character set, except for the characters in the positions identified below. Refer to this table for the values of characters contained in the ISO character sets that differ from the characters in the ANSI ASCII character set.

ISO No.	Character Set Name	Decimal Character Equivalents													
		ID	35	36	64	91	92	93	94	96	123	124	125	126	
6	ANSI ASCII	0U	#	\$	@		\		^	`				~	
11	Swedish Names	0S	#	å	É	Ä	Ö	Å	Û	´	ä	ö	å	ü	
10	Swedish	3S	#	å	@	Ä	Ö	Å	^	´	ä	ö	å		
17	Spanish	2S	£	\$	§	ı	Ñ	ı	^	´	°	ñ	ç	~	
69	French	1F	£	\$	à	°	ç	§	^	µ	é	ù	è		
21	German	1G	#	\$	§	À	Ö	Ü	^	´	ä	ö	ü	ß	
4	UK	1E	£	\$	@		\		^	´					
16	Portuguese	4S	#	\$	§	Á	Ç	Ó	^	´	ä	ç	õ	°	
60	Norwegian1	0D	#	\$	@	Æ	Ø	Å	^	´	æ	ø	å		
61	Norwegian2	1D	§	\$	@	Æ	Ø	Å	^	´	æ	ø	å		
2	IRV		#	å	@		\		^	´					
15	Italian	0I	£	\$	§	°	ç	é	^	´	à	ò	è	ì	





**Math7 Character Set**

0	16	32	48	64	80	96	112	128
1	√	α	γ	α	γ	α	γ	π
2	1	2	β	θ	β	θ	β	θ
3	§	ψ	σ	ψ	σ	ψ	σ	π
4	∇	4	φ	τ	φ	τ	φ	τ
5	±	5	ε	ξ	ε	ξ	ε	ξ
6	∞	6	∂	Δ	∂	Δ	∂	Δ
7	Γ	7	λ	δ	λ	δ	λ	δ
8	+	8	η	χ	η	χ	η	χ
9	=	9	ι	υ	ι	υ	ι	υ
10	∏	∏	Ω	Θ	Ω	Θ	Ω	Θ
11	Γ	Γ	Λ	κ	Γ	Λ	κ	Γ
12	ψ	ψ	ω	ω	ω	ω	ω	ω
13	≡	≡	μ	μ	μ	μ	μ	μ
14	Φ	Φ	†	†	†	†	†	†
15	Ξ	Ξ	ρ	ρ	ρ	ρ	ρ	ρ

Available through the HP 22706B font cartridge.

**HP Line Draw Character Set**

0	16	32	48	64	80	96	112	128
1	†	†	†	†	†	†	†	†
2	†	†	†	†	†	†	†	†
3	†	†	†	†	†	†	†	†
4	†	†	†	†	†	†	†	†
5	†	†	†	†	†	†	†	†
6	†	†	†	†	†	†	†	†
7	†	†	†	†	†	†	†	†
8	†	†	†	†	†	†	†	†
9	†	†	†	†	†	†	†	†
10	†	†	†	†	†	†	†	†
11	†	†	†	†	†	†	†	†
12	†	†	†	†	†	†	†	†
13	†	†	†	†	†	†	†	†
14	†	†	†	†	†	†	†	†
15	†	†	†	†	†	†	†	†

Available through these optional font cartridges: HP 22706B, HP 22706C, and HP 22706M

**PIFont Character Set**

0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Available through the HP 22706B font cartridge.

**Math8 Character Set**

0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Available through the HP 22706B font cartridge.

MS Windows Symbol Set

NUL	DLE	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256
SOH	DC1	!	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241	
STX	DC2	"	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242	
ETX	DC3	#	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243	
EOT	DC4	\$	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244	
ENQ	NAK	%	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245	
ACK	SYN	&	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246	
BEL	ETB	'	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247	
BS	CAN	(	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	
HT	EM	)	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249	
LF	SUB	*	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250	
VT	ESC	+	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251	
FF	FS	,	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252	
CR	GS	-	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253	
SO	RS	.	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254	
SI	US	/	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255	

Available through the HP DeskJet 500 Series Printer Driver for Microsoft Windows.

DeskTop Character Set

0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241	
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242	
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243	
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244	
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245	
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246	
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247	
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249	
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250	
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251	
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252	
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253	
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254	
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255	

Available through the HP 22706W WordPerfect font cartridge.

## ASCII Decimal Hexadecimal Conversion Table

This table provides the decimal and hexadecimal equivalent of each character in the HP Roman8 character set. The HP Roman8 character set is an 8-bit symbol set. In addition to the characters and symbols of the standard ASCII character set, it contains international characters and symbols. Use this table to convert printer commands to decimal or hexadecimal values.

Char	Dec.	Hex.	Char	Dec.	Hex.	Char	Dec.	Hex.	Char	Dec.	Hex.	Char	Dec.	Hex.	Char	Dec.	Hex.	Char	Dec.	Hex.
ctrl @	N <sub>0</sub>	0	00	32	20	@	64	40	·	96	60	À	160	A0	À	224	E0			
ctrl A	S <sub>H</sub>	1	01	33	21	A	65	41	a	97	61	Á	161	A1	Á	225	E1			
ctrl B	S <sub>X</sub>	2	02	34	22	B	66	42	b	98	62	Â	162	A2	Â	226	E2			
ctrl C	F <sub>X</sub>	3	03	35	23	C	67	43	c	99	63	Ã	163	A3	Ã	227	E3			
ctrl D	F <sub>T</sub>	4	04	36	24	D	68	44	d	100	64	Ä	164	A4	Ä	228	E4			
ctrl E	F <sub>0</sub>	5	05	37	25	E	69	45	e	101	65	Å	165	A5	Å	229	E5			
ctrl F	A <sub>K</sub>	6	06	38	26	F	70	46	f	102	66	Ā	166	A6	Ā	230	E6			
ctrl G	Q	7	07	39	27	G	71	47	g	103	67	ı	167	A7	ı	231	E7			
ctrl H	B <sub>S</sub>	8	08	40	28	H	72	48	h	104	68	ĥ	168	A8	ĥ	232	E8			
ctrl I	H <sub>T</sub>	9	09	41	29	I	73	49	i	105	69	·	169	A9	·	233	E9			
ctrl J	L <sub>F</sub>	10	0A	42	2A	J	74	4A	j	106	6A	ˆ	170	AA	ˆ	234	EA			
ctrl K	V <sub>T</sub>	11	0B	43	2B	K	75	4B	k	107	6B	˘	171	AB	˘	235	EB			
ctrl L	F <sub>F</sub>	12	0C	44	2C	L	76	4C	l	108	6C	˙	172	AC	˙	236	EC			
ctrl M	C <sub>R</sub>	13	0D	45	2D	M	77	4D	m	109	6D	Û	173	AD	Û	237	ED			
ctrl N	S <sub>0</sub>	14	0E	46	2E	N	78	4E	n	110	6E	Ü	174	AE	Ü	238	EE			
ctrl O	S <sub>1</sub>	15	0F	47	2F	O	79	4F	o	111	6F	Ẅ	175	AF	Ẅ	239	EF			
ctrl P	O <sub>L</sub>	16	10	48	30	P	80	50	p	112	70	—	176	80	—	240	F0			
ctrl Q	O <sub>1</sub>	17	11	49	31	Q	81	51	q	113	71	Ÿ	177	81	Ÿ	241	F1			
ctrl R	O <sub>2</sub>	18	12	50	32	R	82	52	r	114	72	ŷ	178	82	ŷ	242	F2			
ctrl S	O <sub>3</sub>	19	13	51	33	S	83	53	s	115	73	°	179	83	°	243	F3			
ctrl T	O <sub>4</sub>	20	14	52	34	T	84	54	t	116	74	Ç	180	84	Ç	244	F4			
ctrl U	N <sub>K</sub>	21	15	53	35	U	85	55	u	117	75	ç	181	85	ç	245	F5			
ctrl V	S <sub>Y</sub>	22	16	54	36	V	86	56	v	118	76	ñ	182	86	ñ	246	F6			
ctrl W	E <sub>B</sub>	23	17	55	37	W	87	57	w	119	77	ñ	183	87	ñ	247	F7			
ctrl X	C <sub>N</sub>	24	18	56	38	X	88	58	x	120	78	ı	184	88	ı	248	F8			
ctrl Y	E <sub>M</sub>	25	19	57	39	Y	89	59	y	121	79	ı	185	89	ı	249	F9			
ctrl Z	S <sub>B</sub>	26	1A	58	3A	Z	90	5A	z	122	7A	ı	186	8A	ı	250	FA			
ctrl [	E <sub>C</sub>	27	1B	59	3B	[	91	5B	{	123	7B	£	187	8B	£	251	FB			
ctrl \	F <sub>S</sub>	28	1C	60	3C	\	92	5C	{	124	7C	¥	188	8C	¥	252	FC			
ctrl ]	G <sub>S</sub>	29	1D	61	3D	]	93	5D	}	125	7D	\$	189	8D	\$	253	FD			
ctrl ^	R <sub>S</sub>	30	1E	62	3E	^	94	5E	~	126	7E	f	190	8E	f	254	FE			
ctrl _	U <sub>S</sub>	31	1F	63	3F	_	95	5F	⌘	127	7F	ç	191	8F	ç	255	FF			

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# Printer Commands

This section summarizes the printer commands and control codes available for the printer. See your software application manual or the technical reference manual for more information on printer commands.

## *Printer Command Basics*

This guide uses these conventions for printer commands in examples:

Lowercase "1" = "ℓ"      Number "one" = "1"  
Uppercase "O" = "O"      Number "zero" = "0"

The "ℓ" character will not appear on your screen.

When using printer commands, note these rules:

- Spaces appear in the printer command examples for reading only. Do not enter spaces in the printer commands.
- The printer recognizes printer commands only when the uppercase and lowercase letters are entered correctly.
- If you send a printer command to change a feature, it remains in effect until you send another printer command to change it.
- The printer returns to its default configuration switch settings when you turn it off and on, or when you press the Reset button on the printer control panel. If you send the printer command E<sub>c</sub> E (printer reset), the printer returns to the mode and font settings you selected through the printer control panel.

## **Combining Printer Commands**

You can combine printer commands that have the same two characters following the Escape character. To do so, begin the printer command with E<sub>c</sub> and the two shared characters, then append the remaining characters from each command.

EXAMPLE      .....

These printer commands: E<sub>c</sub> ( s 3 T      E<sub>c</sub> ( s 3 B      E<sub>c</sub> ( s 2 Q  
can be combined into:    E<sub>c</sub> ( s 3 b 3 t 2 Q

"Ec (s" is the portion of the printer command that all three commands share. In the combined command, "b" and "t" are now lowercase, while "Q" remains uppercase to notify the printer that the command is complete.

.....

Guidelines for combining printer commands are:

- Only printer commands that have the same two characters immediately following "E<sub>c</sub>" can be combined.
- All alphabetic characters within the combined printer commands must be lowercase, except for the last character.
- The last character in the combined printer command must be uppercase to notify the printer that the command is complete.
- Printer commands take effect as your software encounters them (from left to right). Combine printer commands in the order the printer should perform them.

### Using Decimal or Hexadecimal Equivalents

Your software application might require you to enter printer commands in decimal or hexadecimal form. When converting an ASCII escape sequence to its decimal or hexadecimal equivalent, the characters which appear to be numeric values are actually only ASCII characters. Therefore, the escape sequence E<sub>c</sub>(15U is the series of characters: E<sub>c</sub>, (, 1, 5, U, which when converted to their decimal equivalents are 027 040 049 053 085.

The three forms of printer commands for landscape page orientation are:

Escape Sequence	E <sub>c</sub> & / 1 O
Decimal Equivalent	027 038 108 049 079
Hexadecimal Equivalent	1B 26 6C 31 4F

### Using Printer Commands to Select Fonts

When you send a command to select fonts, it sorts through various font characteristics to print a font. Each characteristic has a printer command and priority.

Priority	Characteristic	Printer Command	# = numeric value
1	Orientation	E <sub>c</sub> & / # 0	0 = portrait, 1 = landscape
2	Character Set	E <sub>c</sub> ( # U	see Printer Command tables for values
3	Spacing	E <sub>c</sub> ( s # P	0 = fixed, 1 = proportional
4	Pitch	E <sub>c</sub> ( s # H	depends on pitches available
5	Point Size	E <sub>c</sub> ( s # V	depends on point sizes available
6	Style	E <sub>c</sub> ( s # S	0 = upright, 1 = italic
7	Stroke Weight	E <sub>c</sub> ( s # B	0 = normal, 3 = bold
8	Typeface	E <sub>c</sub> ( s # T	see Printer Command tables for values

When you select a font with a printer command, you must send the appropriate command for each characteristic. Use the printer's priority list to ensure that the correct font prints.

EXAMPLE .....

To select the Letter Gothic 12 pitch, 12 point font, send the pitch command. The default value for the pitch characteristic is 10. If you do not send the command for 12 pitch, the default Courier 10 pitch font prints because the pitch characteristic is higher in priority than typeface.

As another example, to select Courier, Italic, 10 pitch, 12 point, you would send the printer command:

dE<sub>c</sub>&#x2F;00 10U 0p 10h 12v 1s 0b 3t

Or, to select CG Times (PS, 12 point), you would send the printer command:

E<sub>c</sub>&#x2F;00 10U 1p 12v 0s 0b 410t.

.....

### ***HP PCL Printer Command Summary***

<b>Printer Feature</b>	<b>Printer Command</b>	<b>Decimal Equivalent</b>	<b>Hex. Equivalent</b>
<b>Printer Control</b>			
Reset	E <sub>c</sub> E	027 069	1B 45
Self test	E <sub>c</sub> z	027 122	1B 7A
<b>Paper Input Control (Media Source)</b>			
Eject page	E <sub>c</sub> &#x2F;0H	027 038 108 048 072	1B 26 6C 30 48
Feed from tray	E <sub>c</sub> &#x2F;1H	027 038 108 049 072	1B 26 6C 31 48
Envelope feed	E <sub>c</sub> &#x2F;3H	027 038 108 051 072	1B 26 6C 33 48
<b>Print Mode (Text)</b>			
Unidirectional left to right	E <sub>c</sub> &k0W	027 038 107 048 087	1B 26 6B 30 57
Bidirectional	E <sub>c</sub> &k1W	027 038 107 049 087	1B 26 6B 31 57
Unidirectional right to left	E <sub>c</sub> &k2W	027 038 107 050 087	1B 26 6B 32 57
<b>Underline</b>			
Single fixed	E <sub>c</sub> &d1D	027 038 100 049 068	1B 26 64 31 44
Double fixed	E <sub>c</sub> &d2D	027 038 100 050 068	1B 26 64 32 44
Single floating	E <sub>c</sub> &d3D	027 038 100 051 068	1B 26 64 33 44
Double floating	E <sub>c</sub> &d4D	027 038 100 052 068	1B 26 64 34 44
Turn off	E <sub>c</sub> &d@	027 038 100 064	1B 26 64 40

\*These printer commands are listed in the order in which they must be sent.

#Indicates the numeric value field.



Printer Feature	Printer Command	Decimal Equivalent	Hex. Equivalent
<b>Printer Control, Cont.</b>			
<b>Line Termination</b>			
CR ⇒ CR, LF ⇒ LF, FF ⇒ FF	E <sub>c</sub> &k0G	027 038 107 048 071	1B 26 6B 30 47
CR ⇒ CR+LF, LF ⇒ LF, FF ⇒ FF	E <sub>c</sub> &k1G	027 038 107 049 071	1B 26 6B 31 47
CR ⇒ CR, LF ⇒ CR + LF, FF ⇒ CR+FF	E <sub>c</sub> &k2G	027 038 107 050 071	1B 26 6B 32 47
CR ⇒ CR+LF, LF ⇒ CR+LF, FF ⇒ CR+FF	E <sub>c</sub> &k3G	027 038 107 051 071	1B 26 6B 33 47
<b>End-of-Line Wrap</b>			
Turn on	E <sub>c</sub> &s0C	027 038 115 048 067	1B 26 73 30 43
Turn off	E <sub>c</sub> &s1C	027 038 115 049 067	1B 26 73 31 43
<b>Transparent Print Mode</b>			
No. of bytes	E <sub>c</sub> &p#X[data]	027 038 112 # 088 [data]	1B 26 70 # 58 [data]
<b>Display Functions Mode</b>			
Turn on	E <sub>c</sub> Y	027 089	1B 59
Turn off	E <sub>c</sub> Z	027 090	1B 5A
<b>Page Control</b>			
<b>Page Orientation*</b>			
Landscape	E <sub>c</sub> &ℓ 1 O	027 038 108 049 079	1B 26 6C 31 4F
Portrait	E <sub>c</sub> &ℓ 0 O	027 038 108 048 079	1B 26 6C 30 4F
<b>Page Size*</b>			
Default size	E <sub>c</sub> &ℓ 0A	027 038 108 048 065	1B 26 6C 30 41
US Letter	E <sub>c</sub> &ℓ 2A	027 038 108 050 065	1B 26 6C 32 41
US Legal	E <sub>c</sub> &ℓ 3A	027 038 108 051 065	1B 26 6C 33 41
US Executive	E <sub>c</sub> &ℓ 1A	027 038 108 049 065	1B 26 6C 31 41
A4	E <sub>c</sub> &ℓ 26A	027 038 108 050 054 065	1B 26 6C 32 36 41
No. 10 envelope (landscape)	E <sub>c</sub> &ℓ -81A	027 038 108 045 056 049 065	1B 26 6C 2D 38 31 41
DL envelope (landscape)	E <sub>c</sub> &ℓ -90A	027 038 108 045 057 048 065	1B 26 6C 2D 39 30 41
<b>Line Spacing</b>			
Lines per inch (no. of lines)	E <sub>c</sub> &ℓ #D	027 038 108 # 068	1B 26 6C # 44
<b>Page Length*</b>			
Number of lines	E <sub>c</sub> &ℓ #P	027 038 108 # 080	1B 26 6C # 50
<b>Perforation Skip Mode*</b>			
On	E <sub>c</sub> &ℓ 1L	027 038 108 049 076	1B 26 6C 31 4C
Off	E <sub>c</sub> &ℓ 0L	027 038 108 048 076	1B 26 6C 30 4C
<b>Top Margin*</b>			
Number of lines	E <sub>c</sub> &ℓ #E	027 038 108 # 069	1B 26 6C # 45
<b>Text Length*</b>			
Number of lines	E <sub>c</sub> &ℓ #F	027 038 108 # 070	1B 26 6C # 46

\*These printer commands are listed in the order in which they must be sent.

#Indicates the numeric value field.

Printer Feature	Printer Command	Decimal Equivalent	Hex. Equivalent
<b>Page Control, Cont.</b>			
<b>Side Margins*</b>			
Clear	E <sub>c</sub> 9	027 057	1B 39
Left (column no.)	E <sub>c</sub> &a#L	027 038 097 # 076	1B 26 61 # 4C
Right (column no.)	E <sub>c</sub> &a#M	027 038 097 # 077	1B 26 61 # 4D
<b>Text Scale Mode</b>			
Off	E <sub>c</sub> &k5W	027 038 107 053 087	1B 26 6B 35 57
On	E <sub>c</sub> &k6W	027 038 107 054 087	1B 26 6B 36 57
<b>Cursor Positioning</b>			
Horizontal motion index no. of 1/120th in. moves	E <sub>c</sub> &k#H	027 038 107 # 072	1B 26 6B # 48
Move to column no.	E <sub>c</sub> &a#C	027 038 097 # 067	1B 26 61 # 43
Horizontal no. (decipoints)	E <sub>c</sub> &a#H	027 038 097 # 072	1B 26 61 # 48
Horizontal no. (dots)	E <sub>c</sub> *p#X	027 042 112 # 088	1B 2A 70 # 58
Vertical motion index no. of 1/48 in. moves	E <sub>c</sub> &l#C	027 038 108 # 067	1B 26 6C # 43
Move to row no.	E <sub>c</sub> &a#R	027 038 097 # 082	1B 26 61 # 52
Vertical no. (decipoints)	E <sub>c</sub> &a#V	027 038 097 # 086	1B 26 61 # 56
Vertical no. (dots)	E <sub>c</sub> *p#Y	027 042 112 # 089	1B 2A 70 # 59
<b>Font Selection</b>			
<b>Character Set*</b>			
PC-8	E <sub>c</sub> (10U)	027 040 049 048 085	1B 28 31 30 55
HP Roman8	E <sub>c</sub> (8U)	027 040 056 085	1B 28 38 55
PC-8 Danish/Norwegian	E <sub>c</sub> (11U)	027 040 049 049 085	1B 28 31 31 55
PC-850	E <sub>c</sub> (12U)	027 040 049 050 085	1B 28 31 32 55
ECMA-94 Latin 1	E <sub>c</sub> (0N)	027 040 048 078	1B 28 30 4E
German (ISO 21)	E <sub>c</sub> (1G)	027 040 049 071	1B 28 31 47
French (ISO 69)	E <sub>c</sub> (1F)	027 040 049 070	1B 28 31 46
Italian (ISO 15)	E <sub>c</sub> (0I)	027 040 048 073	1B 28 30 49
Spanish (ISO 17)	E <sub>c</sub> (2S)	027 040 050 083	1B 28 32 53
Swedish Names (ISO 11)	E <sub>c</sub> (0S)	027 040 048 083	1B 28 30 53
Swedish (ISO 10)	E <sub>c</sub> (3S)	027 040 051 083	1B 28 33 53
Norwegian1 (ISO 60)	E <sub>c</sub> (0D)	027 040 048 068	1B 28 30 44
Norwegian2 (ISO 61)	E <sub>c</sub> (1D)	027 040 049 068	1B 28 31 44
Portuguese (ISO 16)	E <sub>c</sub> (4S)	027 040 052 083	1B 28 34 53
United Kingdom (ISO 4)	E <sub>c</sub> (1E)	027 040 049 069	1B 28 31 45
ANSI ASCII (ISO 6)	E <sub>c</sub> (0U)	027 040 048 085	1B 28 30 55
JIS ASCII	E <sub>c</sub> (0K)	027 040 048 075	1B 28 30 4B
HP Legal	E <sub>c</sub> (1U)	027 040 049 085	1B 28 31 55
ISO IRV	E <sub>c</sub> (2U)	027 040 051 085	1B 28 32 55

\*These printer commands are listed in the order in which they must be sent.

#Indicates the numeric value field

Printer Feature	Printer Command	Decimal Equivalent	Hex. Equivalent
<b>Font Selection, Cont.</b>			
<b>Character Set*</b>			
Line Draw (optional)	E <sub>c</sub> (0L)	027 040 048 076	1B 28 30 4C
Math7 (optional)	E <sub>c</sub> (0M)	027 040 048 077	1B 28 30 4D
Math 8 (optional)	E <sub>c</sub> (8M)	027 040 056 077	1B 28 38 4D
Math8a (optional)	E <sub>c</sub> (0Q)	027 040 048 081	1B 28 30 51
Math8b (optional)	E <sub>c</sub> (1Q)	027 040 049 081	1B 28 31 51
PIFont (optional)	E <sub>c</sub> (15U)	027 040 049 053 085	1B 28 31 35 55
PIFonta (optional)	E <sub>c</sub> (2Q)	027 040 050 081	1B 28 32 51
<b>Spacing*</b>			
Proportional	E <sub>c</sub> (s1P)	027 040 115 049 080	1B 28 73 31 50
Fixed	E <sub>c</sub> (s0P)	027 040 115 048 080	1B 28 73 30 50
<b>Print Pitch*</b>			
Number of characters per inch	E <sub>c</sub> (s#H)	027 040 115 # 072	1B 28 73 # 48
<b>Point Size (Character Height)*</b>			
Number of 1/72nd in.	E <sub>c</sub> (s#V)	027 040 115 # 086	1B 28 73 # 56
<b>Style*</b>			
Upright	E <sub>c</sub> (s0S)	027 040 115 048 083	1B 28 73 30 53
Italic	E <sub>c</sub> (s1S)	027 040 115 049 083	1B 28 73 31 53
<b>Stroke Weight*</b>			
Bold	E <sub>c</sub> (s3B)	027 040 115 051 066	1B 28 73 33 42
Normal	E <sub>c</sub> (s0B)	027 040 115 048 066	1B 28 73 30 42
Extra bold (optional)	E <sub>c</sub> (s7B)	027 040 115 055 066	1B 28 73 37 42
<b>Typeface*</b>			
Courier	E <sub>c</sub> (s3T)	027 040 115 051 084	1B 28 73 33 54
CG Times	E <sub>c</sub> (s4101T)	027 040 115 052 049 048 049 084	1B 28 73 34 31 30 31 54
Letter Gothic	E <sub>c</sub> (s6T)	027 040 115 054 084	1B 28 73 36 54
Univers	E <sub>c</sub> (s52T)	027 040 115 053 050 084	1B 28 73 35 32 54
Pica (optional)	E <sub>c</sub> (s1T)	027 040 115 049 084	1B 28 73 31 54
Line Printer (optional)	E <sub>c</sub> (s0T)	027 040 115 048 084	1B 28 73 30 54
Pica (optional)	E <sub>c</sub> (s1T)	027 040 115 049 084	1B 28 73 31 54
Prestige (optional)	E <sub>c</sub> (s8T)	027 040 115 056 084	1B 28 73 38 54
Elite (optional)	E <sub>c</sub> (s2T)	027 040 115 050 084	1B 28 73 32 54
Script (optional)	E <sub>c</sub> (s7T)	027 040 115 055 084	1B 28 73 37 54
Helvetica (optional)	E <sub>c</sub> (s4T)	027 040 115 052 084	1B 28 73 34 54
Presentations (optional)	E <sub>c</sub> (s11T)	027 040 115 049 049 084	1B 28 73 31 31 54
Times Roman (optional)	E <sub>c</sub> (s5T)	027 040 115 053 084	1B 28 73 35 54
CG Century Schoolbook (optional)	E <sub>c</sub> (s23T)	027 040 115 050 051 084	1B 28 73 32 33 54
Brush (optional)	E <sub>c</sub> (s32T)	027 040 115 051 050 084	1B 28 73 33 32 54

\*These printer commands are listed in the order in which they must be sent.

#Indicates the numeric value field

Printer Feature	Printer Command	Decimal Equivalent	Hex. Equivalent
<b>Font Selection, Cont.</b>			
<b>Typeface*</b>			
Dom Casual (optional)	E <sub>c</sub> (s61T	027 040 115 054 049 084	1B 28 73 36 31 54
Univers Condensed (optional)	E <sub>c</sub> (s85T	027 040 115 056 053 084	1B 28 73 38 35 54
Garamond (optional)	E <sub>c</sub> (s101T	027 040 115 049 048 049 084	1B 28 73 31 30 31 54
CG Triumvirate (optional)	E <sub>c</sub> (s4T	027 040 115 052 084	1B 28 73 34 54
<b>Print Quality</b>			
Letter	E <sub>c</sub> (s2Q	027 040 115 050 081	1B 28 73 32 51
EconoMode (draft)	E <sub>c</sub> (s1Q	027 040 115 049 081	1B 28 73 31 51
<b>Download Font Management</b>			
Font ID no.	E <sub>c</sub> *c#D	027 042 099 # 068	1B 2A 63 # 44
ASCII code no.	E <sub>c</sub> *c#E	027 042 099 # 069	1B 2A 63 # 45
Delete all	E <sub>c</sub> *c0F	027 042 099 048 070	1B 2A 63 30 46
Delete temporary	E <sub>c</sub> *c1F	027 042 099 049 070	1B 2A 63 31 46
Delete last	E <sub>c</sub> *c2F	027 042 099 050 070	1B 2A 63 32 46
Make temporary	E <sub>c</sub> *c4F	027 042 099 052 070	1B 2A 63 34 46
Make permanent	E <sub>c</sub> *c5F	027 042 099 053 070	1B 2A 63 35 46
Create font number of bytes	E <sub>c</sub> )s#W[data]	027 041 115 # 087 [data]	1B 29 73 # 57 [data]
Download chr. No. of bytes	E <sub>c</sub> (s#W[data]	027 040 115 # 087 [data]	1B 28 73 # 57 [data]
Select primary ID no.	E <sub>c</sub> (#X	027 040 # 088	1B 28 # 58
Select secondary ID no.	E <sub>c</sub> )#X	027 041 # 088	1B 29 # 58
<b>Raster Graphics</b>			
<b>Start Raster Graphics</b>			
At left most position	E <sub>c</sub> *r0A	027 042 114 048 065	1B 2A 72 30 41
Current cursor position	E <sub>c</sub> *r1A	027 042 114 049 065	1B 2A 72 31 41
<b>End Raster Graphics</b>			
End Graphics	E <sub>c</sub> *rbC	027 042 114 098 067	1B 2A 72 62 43

\*These printer commands are listed in the order in which they must be sent.

#Indicates the numeric value field.

Printer Feature	Printer Command	Decimal Equivalent	Hex. Equivalent
<b>Raster Graphics, Cont.</b>			
<b>Resolution</b>			
75 dots per inch	E <sub>c</sub> *t75R	027 042 116 055 053 082	1B 2A 74 37 35 52
100 dots per inch	E <sub>c</sub> *t100R	027 042 116 049 048 048 082	1B 2A 74 31 30 30 52
150 dots per inch	E <sub>c</sub> *t150R	027 042 116 049 053 048 082	1B 2A 74 31 35 30 52
300 dots per inch	E <sub>c</sub> *t300R	027 042 116 051 048 048 082	1B 2A 74 33 30 30 52
<b>Set Raster Graphics Width</b>			
Number of pixels	E <sub>c</sub> *r#S	027 042 114 # 083	1B 2A 72 # 53
<b>Print Mode (Graphics)</b>			
Graphics default (no break)	E <sub>c</sub> *p0N	027 042 112 048 78	1B 2A 70 30 4E
Bidirectional	E <sub>c</sub> *p1N	027 042 112 049 78	1B 2A 70 31 4E
Left to right	E <sub>c</sub> *p2N	027 042 112 050 78	1B 2A 70 32 4E
Right to left	E <sub>c</sub> *p3N	027 042 112 051 78	1B 2A 70 33 4E
Conditional bidirectional	E <sub>c</sub> *p4N	027 042 112 052 78	1B 2A 70 34 4E
<b>Set Raster Graphics Compression</b>			
Method 0	E <sub>c</sub> *b0M	027 042 098 048 077	1B 2A 62 30 4D
Method 1	E <sub>c</sub> *b1M	027 042 098 049 077	1B 2A 62 31 4D
Method 2	E <sub>c</sub> *b2M	027 042 098 050 077	1B 2A 62 32 4D
Method 3	E <sub>c</sub> *b3M	027 042 098 051 077	1B 2A 62 33 4D
Method 9	E <sub>c</sub> *b9M	027 042 098 057 077	1B 2A 62 39 4D
Seed Row Source	E <sub>c</sub> *b#S	027 042 098 # 083	1B 2A 62 # 53
<b>Transfer Raster Graphics</b>			
Number of bytes	E <sub>c</sub> *b#W[data]	027 042 098 # 087 [data]	1B 2A 62 # 57 [data]
<b>Relative Vertical Pixel Movement (formerly known as Y Offset)</b>			
Number of dots	E <sub>c</sub> *b#Y	027 042 098 # 089	1B 2A 62 # 59
<b>Set Graphics Quality</b>			
Quality EconoMode (draft)	E <sub>c</sub> *r1Q	027 042 114 049 081	1B 2A 72 31 51
Similar to letter quality	E <sub>c</sub> *r2Q	027 042 114 050 081	1B 2A 72 32 51
<b>Set Number of Raster Planes Per Row</b>			
Single plane palette	E <sub>c</sub> *r1U	027 042 114 049 085	1B 2A 72 31 55
<b>Misc. Raster Graphics Commands</b>			
Raster graphics shingling	E <sub>c</sub> *o#Q	027 042 111 # 081	1B 2A 6F # 51
Raster graphics depletion	E <sub>c</sub> *o#D	027 042 111 # 068	1B 2A 6F # 44

\*These printer commands are listed in the order in which they must be sent.

#Indicates the numeric value field.

## ***HP PCL Control Codes***

A control code is a character that starts a printer function. In this guide, control codes begin with CTRL. To send CTRL, press the control key on the computer keyboard while typing the character. This control key is labeled as CTRL, CNTL, or CTL.

The following are HP PCL control codes the printer recognizes. The Keystroke column lists the letter to type with the CTRL key to send a control code. The “current print position” in the Description column is where the next character prints.

<b>Code Names</b>	<b>Symbol</b>	<b>Description</b>	<b>Dec. Value</b>	<b>Hex. Value</b>	<b>Keystroke</b>
Backspace	B <sub>S</sub>	Moves the current print position one character position to the left.	08	08	CTRL H
Horizontal Tab	H <sub>T</sub>	Moves to the next predefined tab position. (Tabs are located every eighth character position, beginning at the left margin).	09	09	CTRL I
Line Feed	L <sub>F</sub>	Advances the media one line at the current line spacing.	10	0A	CTRL J
Form Feed	F <sub>F</sub>	Advances the media to the next top-of-form. Top-of-form is the first line of printing on the next page.	12	0C	CTRL L
Carriage Return	C <sub>R</sub>	Moves the current print position to the left margin. Does not advance paper.	13	0D	CTRL M
Shift Out	S <sub>O</sub>	Selects the currently designated secondary font for use.	14	0E	CTRL N
Shift In	S <sub>I</sub>	Selects the currently designated primary font for use.	15	0F	CTRL O
Escape	E <sub>C</sub>	Indicates to the printer that the characters immediately following are part of a printer command.	27	1B	CTRL [

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# IBM Proprinter Compatibility Mode

The IBM Proprinter Compatibility Mode lets you print from software that cannot print to HP DeskJet printers, but can print to an IBM Proprinter. To ensure maximum compatibility, select the IBM Proprinter printer driver with your software.

If an IBM Proprinter printer driver is not available, choose one of the following:

- IBM Proprinter II driver
- IBM Proprinter XL driver
- IBM Proprinter III driver
- IBM Proprinter III XL driver

## **NOTE**

If you use one of the alternate printer drivers, these IBM Proprinter features are *not* accessible: Set Initial Condition, NLQ II Printing and Downloads; Double-High Printing, and Proportional Spaced Fonts.

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To set the printer to the IBM Proprinter Compatibility Mode:

1. Set configuration switch B4 to the up position.
2. Press the **Reset** button to establish the new setting.
3. Press the **Self Test** button. A one page self-test prints with the compatibility mode identified in the upper left.

The HP DeskJet 520 printer in IBM Proprinter Compatibility Mode does *not* support the following printer commands.

Print Feature	Printer Command
<b>Printer Control</b>	
Bell	BE
Select Printer	D1
Deselect Printer	D3
Deselect Printer	E <sub>c</sub> Q3
<b>Page Format</b>	
Set Top of Form	E <sub>c</sub> 4

These IBM Proprinter commands are supported by the HP DeskJet 520 printer in the IBM Proprinter Compatibility Mode:

Printer Feature	Printer Command
<b>Print Modes</b>	
Start Double wide printing by line	E <sub>c</sub> SO
Start Continuous Double wide printing	E <sub>c</sub> W1
Cancel Continuous Double wide printing	E <sub>c</sub> W0
Start Condensed printing	E <sub>c</sub> SI
<b>Quality Modes</b>	
Start Emphasized printing	E <sub>c</sub> E
Cancel Emphasized printing	E <sub>c</sub> F
Start Double Strike printing (NLQ)	E <sub>c</sub> G
Cancel Double Strike printing (NLQ)	E <sub>c</sub> H
Start Normal Quality (not download)	E <sub>c</sub> I0
Start NLQ (not download)	E <sub>c</sub> I2
Start Superscript printing	E <sub>c</sub> S0
Start Subscript printing	E <sub>c</sub> S1
Cancel Sub/superscript printing	E <sub>c</sub> T
Start Continuous Underscore	E <sub>c</sub> -1
Cancel Continuous Underscore	E <sub>c</sub> -0
Start Continuous Overscore	E <sub>c</sub> _i
Cancel Continuous Overscore	E <sub>c</sub> _0
<b>Vertical Movement</b>	
Line Spacing=1/8 in. (8lpi)	E <sub>c</sub> 0
Line Spacing=7/72 in.	E <sub>c</sub> 1
Start Text Line Spacing (default=1/6)	E <sub>c</sub> 2
Graphics Line Spacing='n'/216 in.	E <sub>c</sub> 3'n'
Store Text Line Spacing='n'/72 in.	E <sub>c</sub> A'n'
One-time LF of 'n'/216 in. without CR	E <sub>c</sub> J'n'

Printer Feature	Printer Command
<b>Tabs</b>	
Set VT at n1,n2,...nk (k<<64)	E <sub>c</sub> B'n'n'0
Clear all vertical tabs	E <sub>c</sub> B0
Set HT at n1,n2,...nk (nk<<28)	E <sub>c</sub> D'n'n'0
Clear all horizontal tabs	E <sub>c</sub> D0
Set all tabs to power on defaults	E <sub>c</sub> R
<b>Page Format</b>	
Form length='n' lines ('n'=1 to 255)	E <sub>c</sub> C'n'
Form length='n' lines ('n'=0 to 22)	E <sub>c</sub> C0'n'
Perf Skip ='n' lines ('n'=1 to 255)	E <sub>c</sub> N'n'
Cancel Automatic Perforation Skip	E <sub>c</sub> O
<b>Graphics Modes</b>	
Single Density ON (width=n1+256*n2)	E <sub>c</sub> K'n1n2'
Double Density Graphics ON	E <sub>c</sub> L'n1n2'
High Speed Double Density Graphics ON	E <sub>c</sub> Y'n1n2'
Quadruple Density Graphics ON	E <sub>c</sub> Z'n1n2'
<b>Printer Control</b>	
Start Automatic Line Feed Mode	E <sub>c</sub> 51
Cancel Automatic Line Feed Mode	E <sub>c</sub> 50
Start Unidirectional Print Mode	E <sub>c</sub> U1
Cancel Unidirectional, Start Bidirectional	E <sub>c</sub> U0
<b>Character Selection</b>	
Select Character Set Table 2	E <sub>c</sub> 6
Select Character Set Table 1	E <sub>c</sub> 7
Print Continuous from All Character Table	E <sub>c</sub> 'n'
Print one character from All Character Table	E <sub>c</sub> ^



## Configuration Switches and the IBM Proprinter Compatibility Mode

### Download Fonts and Character Set Mapping

The default for IBM Proprinter Compatibility Mode is download fonts enabled (switch A1 down). To disable the download fonts mode, set switch A1 up and select one of following character sets using switches A3 and A4.

Character Set	A3	A4
IBM Proprinter	Down	Down
PC-8	Up	Up
PC-850	Up	Down
PC-8 Danish/Norwegian	Down	Up

*Downloaded fonts result in slower printing speed and 9-wire print quality.*

The IBM Proprinter Compatibility Mode supports two mappings of the character sets:

- Character Set 1 mapping has control codes (non-printable areas) in two places: between ASCII 0 and ASCII 32, and between ASCII 128 and ASCII 159.
- Character Set 2 mapping has control codes (non-printable areas) in one place: between ASCII 0 and ASCII 32.

See Character Sets earlier in this chapter for more information.

IBM All Characters Chart

0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	!	"	#	\$	%	&	'	(	)	*	+	,	;	:	?
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

IBM Character Set 2 Mapping

NUL	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256
	DC1	!	1	A	Q	@	a	b	r	e	u	U	U	U	U	U	±
	DC2	"	2	B	R	b	B	R	b	R	b	R	b	R	b	R	±
	DC3	#	3	C	S	c	S	C	s	C	s	C	s	C	s	±	
	DC4	\$	4	D	T	d	T	D	t	D	t	D	t	D	t	±	
	%	5	5	E	U	e	U	E	u	E	u	E	u	E	u	±	
	&	6	6	F	V	f	V	F	v	F	v	F	v	F	v	±	
	'	7	7	G	W	g	W	G	w	G	w	G	w	G	w	±	
BEL	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247	
BS	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	
CAN	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	
HT	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249	
LF	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250	
VT	ESC	+	;	K	C	k	C	K	c	K	c	K	c	K	c	±	
FF	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251	
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252	
CR	-	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	
SO	.	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	
SI	/	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	

IBM Character Set 1 Mapping

NUL	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256
	DC1	!	1	A	Q	@	a	b	r	e	u	U	U	U	U	U	±
	DC2	"	2	B	R	b	B	R	b	R	b	R	b	R	b	R	±
	DC3	#	3	C	S	c	S	C	s	C	s	C	s	C	s	±	
	DC4	\$	4	D	T	d	T	D	t	D	t	D	t	D	t	±	
	%	5	5	E	U	e	U	E	u	E	u	E	u	E	u	±	
	&	6	6	F	V	f	V	F	v	F	v	F	v	F	v	±	
	'	7	7	G	W	g	W	G	w	G	w	G	w	G	w	±	
BEL	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247	
BS	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	
CAN	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	
HT	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249	
LF	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250	
VT	ESC	+	;	K	C	k	C	K	c	K	c	K	c	K	c	±	
FF	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251	
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252	
CR	-	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	
SO	.	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	
SI	/	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	

## ***Differences Between the IBM Proprinter and the IBM Proprinter Compatibility Mode***

<b>Feature</b>	<b>Difference</b>
Emphasized text	The IBM Proprinter supports double-strike for Compressed and Elite text but does not emphasize them. The IBM Proprinter Compatibility Mode prints double-strike and emphasized as bold Compressed or Elite text.
Print mode	The IBM Proprinter defaults to draft mode. The IBM Proprinter Compatibility Mode defaults to LQ mode.
Line-draw characters	Compressed (17.1 pitch) and expanded compressed (8.5 pitch) line-draw characters are not contiguous in the IBM Proprinter Compatibility Mode. On the IBM Proprinter, only the compressed line-draw characters are not contiguous.
Character alignment	The IBM Proprinter Compatibility Mode centers characters vertically in the character cell. The IBM Proprinter aligns characters top justified in the character cell.
Overscore mode	Overscore mode does not work in IBM Proprinter Compatibility Mode if the overscored characters are preceded on the same line by non-overscored downloaded characters or normal column graphics.
Superscript and subscript characters	The IBM Proprinter prints superscript and subscript characters in draft mode. In IBM Proprinter Compatibility Mode, these are printed in NLQ mode.  Superscript mode does not work in IBM Proprinter Compatibility Mode if the superscripted characters are preceded on the same line by non-superscript downloaded characters or normal column graphics.
Automatic perforation skip location	The IBM Proprinter assumes that space allocated for perforation skip is at the bottom of the page. The IBM Proprinter Compatibility Mode divides the perforation skip space, placing half at the top of the page and half at the bottom.
Page length change	When the IBM Proprinter changes the page length, it sets the top-of-form at the current vertical position. In the IBM Proprinter Compatibility Mode, if the current page has printed and the printer receives a request to change the page length, it ejects the current sheet, and sets the top-of-form at the top of the next sheet.
Set top-of-form	The IBM Proprinter allows the top-of-form setting to be at any position on a page of continuous form paper. The HP DeskJet 520 printer considers the top-of-form to be at the top of a cut-sheet page. Therefore, the top-of-form printer command is ignored in the IBM Proprinter Compatibility Mode.
Downloaded characters	If a downloaded character does not fit at the end of a line, the IBM Proprinter puts it on the next line. The IBM Proprinter Compatibility Mode prints the part of the character that fits and truncates the rest of it. Subsequent characters are put on the next line.
Default lines per page	When you enable Perforation Skip Mode on the HP DeskJet 520 printer, it prints 60 lines per page. (You must use a printer command to set Perforation Skip Mode on the IBM Proprinter.) When Perforation Skip Mode is disabled, the IBM Proprinter prints 66 lines per page and the HP DeskJet 520 printer prints 64 lines on the first page and 2 lines on the second page.  To stop the 2 lines from printing on the next page, either change the page length setting to 63 lines in your software or enable Text Scale Mode. This allows 66 lines per page in text printing.

**NOTE**

In IBM Proprinter Compatibility Mode, you cannot use Text Scale Mode to print graphics or merged text and graphics.

The combinations for Perforation Skip Mode and Text Scale Mode include:

<b>Lines Per Page</b>	<b>Perforation Skip Mode</b>	<b>Text Scale Mode</b>
60	ON	OFF
64	OFF	OFF
60	ON	ON
66	OFF	ON

---

# Specifications

## Print Method

Plain paper drop-on-demand thermal inkjet printing

## Print Speed\*

### *MS Windows Print Speed*

Presentation mode: 1 page per minute

Normal mode: 2.5 pages per minute

Fast mode: 3 pages per minute

EconoMode: 3 pages per minute

### *DOS Mechanism Speed*

Letter quality mode: 167 cps at 10 cpi

EconoMode: 240 cps at 10 cpi

## Resolution

### *MS Windows (text and graphics)*

Presentation mode: 600 x 300 dpi

Normal mode: 600 x 300 dpi

Fast mode: 300 x 300

EconoMode: 150 x 300 dpi

### *DOS (text)*

Letter quality mode: 600 x 300 dpi

EconoMode: 150 x 300 dpi

### *DOS (graphics)*

Full-page 75, 100, 150, 300 dpi

## Printer Command Language

HP PCL Level 3

## Character Set Support

HP Roman8, PC-8, PC-8 (D/N), ISO 7 bit languages (German, French, Italian, Norwegian, Portuguese, Swedish, Spanish, U.K.) PC-850, ASCII, ECMA-94 Latin 1, HP Legal, HP Line Draw, Math, and PI.

## Vertical Alignment

±0.002 in.

## Emulation

IBM Proprinter I emulation

*\* Approximate figures. Exact speed will vary depending on the system configuration, software application, and document complexity.*

## Built-in (internal) Fonts

### *Courier (Portrait Orientation)*

Pitch: 5, 10, 16.67, 20 cpi

Point size: 6, 12 pt.

Style: Upright (Italic: 5, 10, 20 cpi only)

Stroke weight: Normal, Bold

### *CG Times (Portrait Orientation)*

Pitch: Proportional

Point size: 5, 6, 7, 8, 10, 12, 14 pt

Style: Upright, Italic

Stroke weight: Normal, Bold

### *Letter Gothic (Portrait Orientation)*

Pitch: 6, 12, 24 cpi

Point size: 6, 12 pt.

Style: Upright, Italic

Stroke weight: Normal, Bold

### *Univers (Portrait Orientation)*

Pitch: Proportional

Point size: 5, 6, 7, 8, 10, 12, 14 pt

Style: Upright (Italic: 5, 6, 10, 12 pt only)

Stroke weight: Normal, Bold

### *Courier (Landscape Orientation)*

Pitch: 10, 16.67, 20 cpi

Point size: 6, 12, 24

Style: Upright

Stroke weight: Normal, Bold

### *Letter Gothic (Landscape Orientation)*

Point and Pitch: 6, 12, 24 pt for 12, 24 cpi

4.75, 9.5, 19 pt for 16.67 cpi

Style: Upright

Stroke weight: Normal, Bold

## Scalable TrueType Fonts for Microsoft Windows

Arial® Black, CG Goudy Old Style, Phyllis, Graphite Light, CG Poster Bodoni, Lucida® Casual, Gill Sans® Shadow, Milestones™ Font, Signet Roundhand, and PL Benguiat Frisky

## Software Compatibility

MS Windows v3.1 Compatible

Compatible with an extensive range of DOS software applications

OS/2 v1.3, 2.0, 2.1 Compatible

**Media Weight**

Paper: 60 to 135 g/m<sup>2</sup> (16 to 36 lb)  
 Envelopes: 75 to 90 g/m<sup>2</sup> (20 to 24 lb)

**Media Size**

US letter 216 x 279 mm (8.5 x 11 in.)  
 European A4 (210 x 297 mm)  
 US legal 216 x 356 mm (8.5 x 14 in.)  
 U.S. transparency 216 x 279 mm (8.5 x 11 in.)  
 European A4 transparency (210 x 297 mm)  
 U.S. glossy 216 x 279 mm (8.5 x 11 in.)  
 European A4 glossy (210 x 297 mm)  
 Executive 184 x 267 mm (7.25 x 10.5 in.)  
 US No. 10 envelope 104.7 x 241.3 mm (4.12 x 9.5 in.)  
 European DL envelope (220 x 110 mm)

**Media Handling**

Built-in sheet feeder (up to 100 sheets)  
 Built-in envelope feeder (up to 20 envelopes)  
 Built-in OUT tray (up to 50 sheets)

**Control Panel***Buttons*

Reset, Clean, Self Test, Install Print Cartridge,  
 Load/Eject Paper, Font, Status, Quality

*Lights*

Landscape Font, Portrait Font, Condensed Font, Busy,  
 Ready, Print Cartridge, EconoMode

**I/O Interface**

Centronics parallel

**Buffer Size**

16 Kbyte receive buffer

**Power Requirements**

Power modules:  
 Input Voltage (depends on power module ordered):  
 100, 120, 220, or 240 VAC (+10%, -10%)  
 Frequency:

100 VAC	50/60 Hz (+3 Hz, -3 Hz)
120 VAC	60 Hz (+3 Hz, -3 Hz)
220 VAC	50 Hz (+3Hz, -3 Hz)
240 VAC	50 Hz (+3 Hz, -3 Hz)

**Power consumption:**

8 watts maximum non-printing  
 25 watts maximum printing

**Operating Environment**

Maximum operating temperature:  
 5°C (41°F) to 40°C (104°F)  
 Recommended operating temperature for best print  
 quality: 15°C (59°F) to 35°C (95°F)  
 Storage temperature: -40°C (-40°F) to 60°C (140°F)  
 Humidity: 10-80% RH non-condensing  
 Noise Levels per ISO 9296:

	Letter Quality	EconoMode
Sound Power, LwAd:	6.1 B(A)	6.4 B(A)
Sound Pressure, LpAm:	47 dB(A)	49 dB(A)

**Dimensions**

443 mm (17.5 in.) W x 206 mm (8.2 in.) H  
 x 389 mm (15.3 in.)D

**Weight**

6.6 kg (14.5 lb)

**Reliability**

60,000 page life. 20,000 hours MTBF  
 2000 hours power-on and 12,000 printed pages  
 per year  
 1000 total pages per month maximum use

**Product Certifications**

Safety Certifications - Power Module: UL, CSA, TUV  
 SEMKO, NEMKO, FEI, LCIE, SECV  
 Safety Certifications - Printer with Power Module: UL,  
 CSA, TUV, ETL. Others not required  
 EMI Certifications - Printer with Power Module: FCC  
 Class B when used with a Class B computing device  
 (USA), EMC Directive 89/336/EEC (European  
 Community), VCCI (Japan), SABS (South Africa), RRL  
 (South Korea)

# Regulatory Notices

## FCC Statement (USA)

The United States Federal Communications Commission (in 47 CFR 15.105) has specified that the following notice be brought to the attention of users of this product.

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 and correct the interferences by one or more of the following measures:

- reorient the receiving antenna
- increase the separation between the equipment and the receiver
- connect the equipment into and outlet on a circuit different from that to which the receiver is connected
- consult the dealer or an experienced radio/TV technician for help

The user may find the following booklet prepared by the Federal Communications Commission, helpful: *How to Identify and Resolve Radio/TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4.

Use of a shielded cable is required to comply within Class B limits of Part 15 of FCC Rules.

Pursuant to Part 15.21 if the FCC Rules any changes or modifications to this equipment not expressly approved by Hewlett-Packard Company may cause harmful interference and void the FCC authorization to operate this equipment.

## Power Module Statement

The power module cannot be repaired. If it is defective it should be discarded or returned to the supplier.

波障害について この装置は、第二種情報装置(住宅地域又はその隣接した地域において使用されるべき情報装置)で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会(VCCI)基準に適合しております。  
しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると、受信障害の原因になることがあります。  
取扱説明書に従って正しい取り扱いをして下さい。

## Observer!

Skadas sladden till denna nätadapter skall enheten kasseras. Sladden går ej att byta ut.

사용자 안내문

기종별	사용자 안내문
A급 기기	이 기기는 업무용으로 전자파 방해검정을 받은 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못 구입하셨을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.
B급 기기	이 기기는 비업무용으로 전자파 방해검정을 받은 기기로서 주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

비고 A급: 업무용 기기를 말한다.  
B급: 업무용 기기 외의 기기를 말한다.

## Svenska

Får endast anslutas till jordat nätuttag.

# DECLARATION OF CONFORMITY

according to ISO/IEC Guide 22 and EN 45014

**Manufacturer's Name:** Hewlett-Packard Company

**Manufacturer's Address:**

Hewlett-Packard Co.  
Vancouver Division  
18110 S.E. 34th Street  
Camas, WA 98607

Hewlett-Packard Singapore (PTE) Ltd.  
Asia Peripherals Division  
20 Gul Way  
Singapore 2262

Hewlett-Packard Espanola, S.A.  
Barcelona Peripherals Operation  
Avenida Graells, 501  
08190 Sant Cugat del Valles  
Barcelona, Spain

**declares, that the product(s):**

**Product Name:** DeskJet and DeskWriter Printers

**Model Number(s):** C2106A, 2279A, C2113A, C2114A, C2121A,  
C2124A, C2127A, C2128A, C2168A,  
C2169A, C2170A, and C2171A

**Product Options:** All

**conforms to the following Product Specifications:**

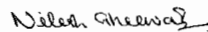
**Safety:** IEC 950 (1991) Second Edition without amendments/EN 60950 (1988)

**EMC:** EN55022 (1988) Class B/CISPR 22 (1985) Class B  
IEC 801-2 (1991) Second Edition/prEN 55101-2 (1990):4 kV CD, 8 kV AD  
IEC 801-3 (1984)/prEN 55024-3 (1991): 3 V/m  
IEC 801-4 (1988)/prEN 55024-4 (1992): 1 kV

**Supplementary Information:**

The products herewith comply with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC. The products were tested in a typical configuration.

Camas, WA., Dec, 20, 1993



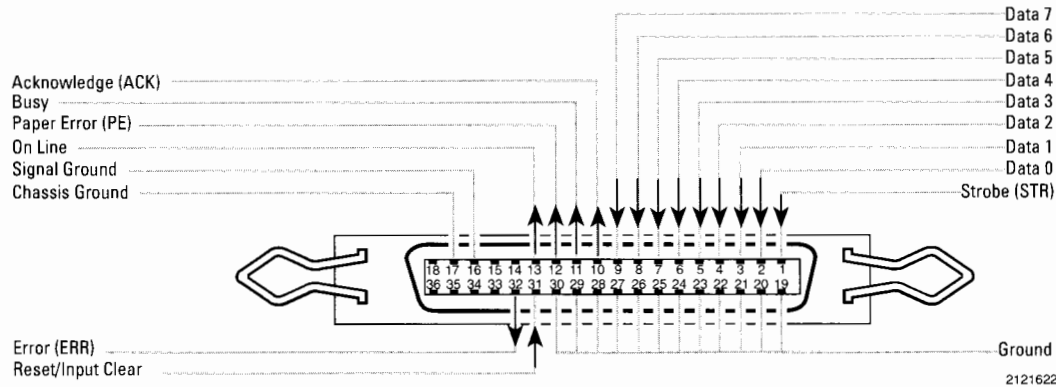
Niles Gheewala  
Customer Assurance Manager

European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department ZQ/  
Standards Europe, Herrenberger Straße 130, D-71034 Böblingen FAX:+49-7031-143143



# Interface and Cable Requirements

The Centronics parallel interface port, which is a standard 36-pin Amphenol type with two metal-wire retaining clips.



Pin No.	Signal	Description
1	Strobe <sup>1</sup>	A low pulse causes the printer to read one byte of data.
2 - 9	Data 0 - Data 7	Data lines. Data 0 is the least significant bit (LSB).
10	Acknowledge <sup>1</sup>	The printer sends a low pulse to indicate that it has accepted a byte of data and is ready for more data.
11	Busy	The printer sends a high logic level to indicate to the computer that it cannot receive data due to data entry, a full buffer, or error status.
12	Paper Error	The printer sends a high logic level to indicate to the computer that it is out of paper.
13	Ready	The printer sends a high logic level to indicate to the computer that it is in an online condition.
16	Gnd	Signal interface ground.
17	Chassis Gnd	Chassis ground.
18	+5 V	The printer outputs a +5 volt high logic level through a 2.2K ohm resistor.
19 - 30	Sig Gnd	Signal ground.
31	Reset/Input Clear	A low pulse sent by the computer resets the printer and clears the printer's input buffer. The printer does not work when this line is held low.
32	Error <sup>1</sup>	The printer sends a low logic level to the computer to indicate that it is in an error state.

<sup>1</sup>Indicates active low

## ***Cable Requirements***

<b>Computer Model</b>	<b>Host Interface</b>	<b>HP Cable #</b>	<b>Non-HP Cable #</b>
Vectra PC Family	HP24540A/B Serial/Parallel Interface Card	C2912A or 24542D	
HP Terminals: 2392A, 2393A, 2394A, 2397A	Opt 093 or HP40210P	40242D	
700/96, 700/98	Built In	24542D, C2912A	
IBM PC, PC/XT	IBM Serial/Parallel Adaptor	C2912A or 24542D	IBM Parallel Printer Cable
IBM PC/AT	IBM Serial/Parallel Adaptor	C2912A or 24542D	IBM Parallel Printer Cable
IBM PS/2	Built-in	C2912A or 24542D	
IBM Convertible PC	IBM Serial/Parallel Adaptor	C2912A or 24542D	

If your computer has only a serial port, you need a serial/parallel converter kit. Contact your computer dealer to obtain a kit.

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## **Increasing Printer Performance**

The printing speed of the HP DeskJet 520 printer can be affected by:

- Amount of RAM in your computer
- Which printer driver is installed on your computer
- Which printer is selected from your application software program

To enhance the printer's performance:

- Increase the amount of RAM in your computer.
- Install the appropriate printer driver.
- Limit the number of application programs or documents you open at a time.
- Delete screen fonts or printer fonts you do not often use.
- Delete large screen fonts you do not often use.
- Use the printer settings recommended for enhanced printer performance. If you use Microsoft Windows 3.1, refer to the on-line help for the HP DeskJet Printer Setup dialog box. Otherwise, refer to the printing section of your application software's manual.

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# Ordering Information

## *The Standard Unit*

The standard unit includes: One HP DeskJet 520 printer, one print cartridge, one power module, one user's guide kit containing one user's guide and one setup guide, two disk envelopes containing printer software and printer software guides. The interface cable is not included.

## *Ordering Supplies and Accessories*

To order printer supplies or accessories, call your nearest HP dealer. If your dealer does not have the supplies, call HP DIRECT for fast shipping service:

- **Within the U.S.:** 1-800-538-8787
- **Toronto:** 416-671-8383
- **Other Canadian Provinces:** 1-800-387-3154

Write or call:

- **Europe/Africa/Middle East:** (31) 20/547 999, Hewlett-Packard S.A., Central Mailing Department, PO. Box 529, 1180 Amstelveen, The Netherlands
- **Australia/ New Zealand:** (03) 895-2895, China Resources Bldg., 26 Harbour Road, Wanchai, Hong Kong
- **Latin America:** (525)326-40-00, Latin American Region Headquarters, Monte Pelyoux 111 Colonia Lomas de Chapultepec, Codigo Postal 11000, Mexico, D.F.
- **Japan:** (03) 331-6111, Yokogawa-Hewlett-Packard Ltd. 29-21, Takaido-Higashi 3-chome, Suginami-ku, Tokyo 168
- **Elsewhere in the World:** Hewlett-Packard Company, Intercontinental Headquarters, 3495 Deer Creek Road, Palo Alto, CA 94304, U.S.A.

## Available Font Cartridges

Number/Name	Font	Pitch	Point Size	Style	Character Set Support
22706B Prestige Elite	Prestige Elite	12, 24, 16.67, 33.34	10, 7	Upright, Italic Upright	HP Roman8, ASCII, Roman Ext., HP Legal, PC8, ECMA-94 Latin 1, ISO7. Includes Math and PI font.
	HP Line Draw	12	12	Upright	
22706C Letter Gothic	Letter Gothic	12, 24, 16.67, 33.34	9.5, 12	Upright, Italic	HP Roman8, ASCII, Roman Ext., HP Legal, PC8, ECMA-94 Latin 1, ISO7
	HP Line Draw	12	12	Upright	
22706L Landscape Fonts	Letter Gothic	12, 24, 16.67	12, 24	Upright, Italic	HP Roman8, ASCII, Roman Ext., HP Legal, PC8, ECMA-94 Latin 1, ISO7
	Courier	10, 20	12	Upright	
22706M Presentations	Presentations	6.5, 13, 8.1, 16.2, 10, 20	14, 16, 18	Upright	ASCII*
	Letter Gothic	10, 20	14	Upright	
	HP Line Draw	10,	12	Upright	
22706U Times Roman Headlines	Times Roman	Proportional	15, 30	Upright	HP Roman8, ASCII, HP Legal, PC-8, PC-8 D/N, PC-850, ISO7, ECMA-94 Latin 1
22706V Helvetica Headlines	Helvetica	Proportional	15, 30	Upright	HP Roman8, ASCII, HP Legal, PC-8, PC-8 D/N, PC-850, ISO7, ECMA-94 Latin 1
22706W WordPerfect Font	CG Times	Proportional	6, 24 8, 10, 12, 14	Upright Upright, Italic	DeskTop Symbols
	CG Times Bold	Proportional	18	Upright	
	Univers	Proportional	14, 18, 24	Upright	
C2109B Global Text (kerned)		Proportional	8, 10	Upright	PC-8, PC-8 D/N, PC-850, HP Roman-8, US-ASCII, ECMA-94 Latin 1
	CG Triumvirate	Proportional	10, 14	Upright	
C2109C Garamond Collection	Garamond Antiqua	Proportional	8	Upright, Italic	PC-8, PC-8 D/N, PC-850, HP Roman-8, US-ASCII, ECMA-94 Latin 1
	Garamond Antiqua/Proportional Kursiv (Italic)		10, 12	Upright	
	Garamond Halbfett (bold)	Proportional	14	Upright	
C2109D Oom Casual**	Dom Casual	Proportional	12, 14, 18, 24	Upright	Ecma-94 Latin 1
C2109E Brush (kerned)**	Brush	Proportional	12, 14, 18, 24	Upright	Ecma-94 Latin 1

\* This font cartridge contains ASCII characters only and may not be suitable for use in some countries.

\*\*Bold is not available.

See Character Sets in this chapter for a listing of all character sets.

## Supplies and Accessories List

Supply/Accessory	HP Reorder Number
Print Cartridge	
High Capacity Inkjet Print Cartridge	51626A
Media	
LX JetSeries Transparency Film (U.S. letter)	51636F
LX JetSeries Transparency Film (European A4)	51636G
LX JetSeries Glossy Paper (U.S. Letter)	51636H
LX JetSeries Glossy Paper (European A4)	51636J
Soft Fonts/Font Cartridges	
Times Roman/Helvetica Soft Font*	22708C
256K RAM Cartridge	22707B
Misc. Accessories	
Printer dust cover	92250R
Printer organizer	92177Z
Power Module	
U.S.A., Canada, 120V/50/60H	17122B
Europe (except U.K. and Denmark), 220V/50H	17222B
Japan, 100V/50H	17322B
U.K., 240V/50H	17422B
Switzerland, 220V/50H	17522B
South Africa, 220V/50H	17622B
Australia, 240V/50H	17722B
Denmark, 220V/50H	17822B
China, 220V/50H	17922B
HP DeskJet 520 Printer User's Guide Kits	
U.S. English User's Guide Kit	C2170-60010
International English User's Kit	C2170-60011
Danish User's Guide Kit	C2170-60012
Dutch User's Guide Kit	C2170-60013
Finnish User's Guide Kit	C2170-60014
French User's Guide Kit	C2170-60015
German User's Guide Kit	C2170-60016
Italian User's Guide Kit	C2170-60017
Norwegian User's Guide Kit	C2170-60018
Portuguese User's Guide Kit	C2170-60019
Spanish User's Guide Kit	C2170-60020
Swedish User's Guide Kit	C2170-60021
Traditional Chinese User's Guide Kit	C2170-60022
Czechoslovakia User's Guide Kit	C2170-60041
Hungarian User's Guide Kit	C2170-60042
Polish User's Guide Kit	C2170-60043

\*Requires at least one 256K RAM Cartridge





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# Glossary

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**ASCII**

(American Standard Code for Information Interchange.) An 8-bit code that uses 7 bits to represent character information such as letters, punctuation, symbols, and control characters. The eighth bit can be used for parity.

**bit**

Binary digit; a bit represents an "on" or "off" electrical condition. It is the smallest unit of digital information used by a computer or peripheral device.

**bitmapped font**

Printer or screen font made of dot-by-dot patterns.

**buffer**

Segment of computer or printer memory where information for input or output is held until processed.

**byte**

Unit of information consisting of eight bits.

**busy**

When the printer is receiving information from the computer.

**cable**

Group of insulated wires that carry information between devices.

**Centronics parallel interface**

Standard interface for connecting printers and other peripheral devices to a computer. Unlike a serial interface, a parallel interface transmits a full byte of data at one time.

**character**

Printable letters and symbols.

**character height**

Height of a printed uppercase character. Character height is defined in points. One point is  $1/72$  of an inch.

**character set**

Unique sub-grouping of all available characters in a font. Each character set is defined for a specific purpose. Character sets are also called symbol sets.

**clean print cartridge**

To restore print quality of the print cartridge.

**configure**

Process of changing printer settings to allow the printer to communicate with a computer.

**configuration**

Hardware configuration is changed with configuration switch settings. Software configuration is changed by entering new data or setup strings.

See **configure**.

**configuration switches**

Two banks of switches located on the printer's front base, below the IN tray drawer, used to define default printer settings, such as page length or data communications.

**control code**

Instruction that tells the printer to perform a specific function.

**cpi**

Characters per inch, also called pitch. CPI describes the number of characters that print within one horizontal inch. For example, 10 pitch printing yields 10 characters per inch.

**cps**

Characters Per Second (cps) refers to printing speed. It is used in describing the number of characters that will print within one horizontal inch per second.

**data communications**

Transfer of information between a computer and peripheral device, such as a printer.

**downloading**

Process of transferring fonts stored on floppy disks from the computer to the printer's memory. Downloaded fonts are called soft fonts. Soft fonts remain in the printer until you turn off the printer.

**dpi**

Dots per inch. DPI describes the number of ink dots printed within one horizontal inch. Also known as print resolution.

**draft quality**

See **EconoMode**.

**EconoMode**

EconoMode printing saves ink and allows you to print a "draft" document faster.

**embedded printer commands**

Commands you type into a software file to change the printing options.

**emulation**

An alternate mode that allows the printer to act like another type of printer.

**escape character**

The escape character; E<sub>C</sub> is used to identify a printer command to the computer. This character is usually not a printable character. Use it as a command code for the printer.

**factory default**

Printer settings that are selected at the factory. These settings are in use unless you change them.

**fixed-pitch spacing**

Equal spacing between each character of a font. Each character takes up the same amount of space on a line. Also known as a monospaced font.

**font**

Collection of characters with a consistent size and style.

**font cartridge**

Fonts stored on a cartridge. The cartridges install in either of the two font cartridge slots on the printer.

**font characteristics**

Characteristics such as orientation, character height, style, stroke weight, and typeface that determine what a printed font looks like.

**font scaling**

Method used by the printer driver to adjust font size to produce high-quality printed text. Scalable fonts are provided on the HP DeskJet 500 Series Printer Driver for Microsoft Windows.

**grayscale**

Representing color in black and white. Different colors and saturation levels of color appear as different shades of gray.

**hardware**

Electronic components of a computer or printer.

**hexadecimal**

Numbers represented to the base 16 (digits 0-9 and A,B,C,D,E,F). Referred to as "hex."

**interface cable**

Transmission cable that connects a printer or other device to a computer.

**interface connector**

Connector at the end of an interface cable that is inserted into the interface port on the computer or printer.

**internal fonts**

Fonts that reside in the printer. Also called resident or built-in fonts

**kerning**

Adjustment of spacing between proportionally spaced characters making them visually consistent and balanced.

**landscape orientation**

Refers to printing across the length of the page. The term landscape is derived from pictures of landscape, which are usually horizontal in format.

**letter quality mode**

Provides the best print quality for DOS applications.

**lpi**

Lines Per Inch describes the number of lines printed within one vertical inch. Most printing is 6 or 8 lpi.

**media jam**

When media gets stuck somewhere along the paper path.

**offline**

When the printer is offline, it does not accept information from the computer. The **Ready** light turns off when the printer is offline.

**online**

When the printer is online, it accepts information from the computer. When the **Ready** light is on, the printer is online.

**outline fonts**

Often referred to as scalable printer fonts. See **scalable fonts**.

**page orientation**

Direction of print on the page. Printing across the width of a page is known as portrait orientation. Printing across the length of a page is known as landscape orientation.

**PCL commands**

The HP PCL Level 3 printer language. The PCL printer language is a standard developed by Hewlett-Packard to ensure compatibility between current and future PCL printers. PCL commands provide access to printer features.

**perforation skip area**

Area outside the text area but within the physical page. The HP DeskJet 520 printer does not print characters in this area. Printing beyond the text area prints on the next page.

**pitch**

Number of characters printed in one horizontal inch. Also known as cpi.

**point size**

One point is  $\frac{1}{72}$  of an inch. Character height is given in points. For example, 12 point type is  $\frac{1}{6}$  of an inch tall.

**portrait orientation**

Printing across the width of the page. The term is derived from portraits of people, which are usually vertical in format.



**power socket**

Socket on the bottom of the printer into which you attach the power module.

**primary font**

In HP PCL printer language, you can define two fonts internally at the same time. Access to the primary font is via the control code S<sub>I</sub> (Shift In) and access to a secondary font is via the control code S<sub>O</sub> (Shift Out).

**print cartridge**

Removable cartridge containing the ink used for printing.

**print density**

Relative darkness of print on the page. Very dense print appears totally black. Less dense print looks lighter, and solid filled areas may not be totally black.

**print quality**

Determined by the print mode, such as EconoMode or letter quality.

See **EconoMode** and **letter mode**.

**print resolution**

Measure of image sharpness expressed as dots per inch (dpi). See **dpi**.

**printer commands**

Commands sent to change printing options such as page orientation, margins, and font selection. Also called escape sequences.

**printer control panel**

Buttons and lights on the right front corner of the printer where you can change some printer settings.

**printer driver**

Computer file that provides information needed for the software application to communicate with a printer. Each software application requires specific printer drivers.

**printer interface port**

Socket on the bottom of the printer where you connect a parallel interface cable.

**proportional spacing**

Font with spacing that varies according to the width of each character. Proportional spacing makes text easier to read.

**ready**

When the printer is online and can accept data from the computer. The printer is ready when the **Ready** light is on. The printer is offline and paused when the **Ready** light is off.

**resolution**

Number of dots available to represent graphic detail in a given area. In print, resolution is measured as dots per inch (dpi). See also **print resolution**.

**sans serif font**

Typeface designed without crosslines or finishing strokes at the top and bottom of characters. Helvetica is a sans serif font.

**scalable fonts**

Outlines of characters and symbols of a font stored in mathematical form. These outlines are not point size specific. When you send the outlines to the printer, the printer driver can scale the outlines (reduced or enlarged) from 4 to 127 point. Often referred to as outline printer fonts.

**screen fonts**

Bitmapped images of printer fonts which can be created from scalable fonts to install with the HP DeskJet 500 Series Printer Driver for Microsoft Windows that came with the printer. Screen fonts give a close approximation on the screen of the printed text. Screen fonts do use system memory and hard disk space.

**serif font**

Typeface designed with crosslines or finishing strokes at the top and bottom of characters. Courier is an example of a serif font.

**soft font**

Fonts stored on floppy disks. Soft fonts are transferred to the printer's memory and used the same way as cartridge or resident fonts.

**software application**

Any word processing, graphics, programming or special application package that you use on your computer system.

**spacing**

The relative width spacing between characters. Fixed-pitch fonts have the same horizontal width between characters. Proportional spaced fonts have horizontal width spacing that varies by character.

**stroke weight**

Bold, medium, or light print density, or darkness.

**style**

For fonts, this refers to upright or italic printing.

**top of form**

The line of the page where printing can begin; the first line after the top margin.

**troubleshooting**

Process of locating the cause of a problem by stepping through a list of symptoms and suggested remedies until the solution is found.

**typeface**

Refers to the printed design of characters. For instance, Courier, Helvetica, and Letter Gothic typefaces all print characters of a different design.

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# Reduce, Reuse, Recycle

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## Protecting the Environment

Hewlett-Packard continuously improves the design and production processes of HP DeskJet 500 series and DeskWriter printers to minimize the negative impact on the office environment; on the communities where they are manufactured, shipped, and used; and of the disposal at the end of printing life.

## Elimination

**Ozone:** All ozone-depleting chemicals (CFCs, for example) have been eliminated from Hewlett-Packard manufacturing processes.

**Printer Packaging:** Boxes for shipping individual printers from the factory to the distribution centers have been eliminated, saving roughly 50% in fuel and, therefore, fuel emissions. Boxes used to ship printers from the distribution centers are brown kraft paper made without bleach, eliminating the production of dioxin, a toxic substance.

## Recycling

**Printer Packaging:** The boxes used to ship printers from the distribution centers, the expanded polystyrene packaging inserts, and the clear polyethylene bags containing the printer drivers are 100% recyclable.

**Plastic Parts:** All currently manufactured plastic parts weighing more than 25 grams (about one ounce) are marked as to the plastic content to facilitate product recycling.

**Print Cartridges:** Hewlett-Packard is conducting several pilot programs to take back print cartridges for material reclamation and environmentally-sound disposal. Call your Hewlett-Packard representative for current status.

**Printers:** Hewlett-Packard accepts used and obsolete printers for component recycling. Call your Hewlett-Packard sales office for instructions

**Manuals:** The manuals in this kit are printed on recycled paper.

## Reduction and Reuse

**Ink Packaging:** The HP 51626A High Capacity black print cartridge delivers twice as much ink as older models, reducing the ink packaging waste by 50%.

**Manuals:** A new documentation format maintains the depth of product information while reducing the bulk of the user's guide by approximately 40%.

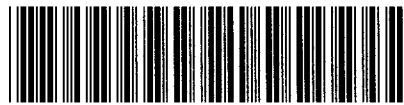
## Energy Consumption

HP DeskJet 500 series and DeskWriter printers use only 8 watts in stand-by mode, which easily qualifies them as energy-saving computer printers under the U.S. Environmental Protection Agency's Energy Star Computers program. The EPA estimates that if all desktop PCs and peripherals in the U.S. were to qualify, the overall savings in electricity could amount to over \$1 billion each year. It could also prevent the emission of 20 million tons of carbon dioxide per year (the equivalent output of 5 million cars).

The EPA, as a matter of policy, does not endorse any particular company or its products.



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