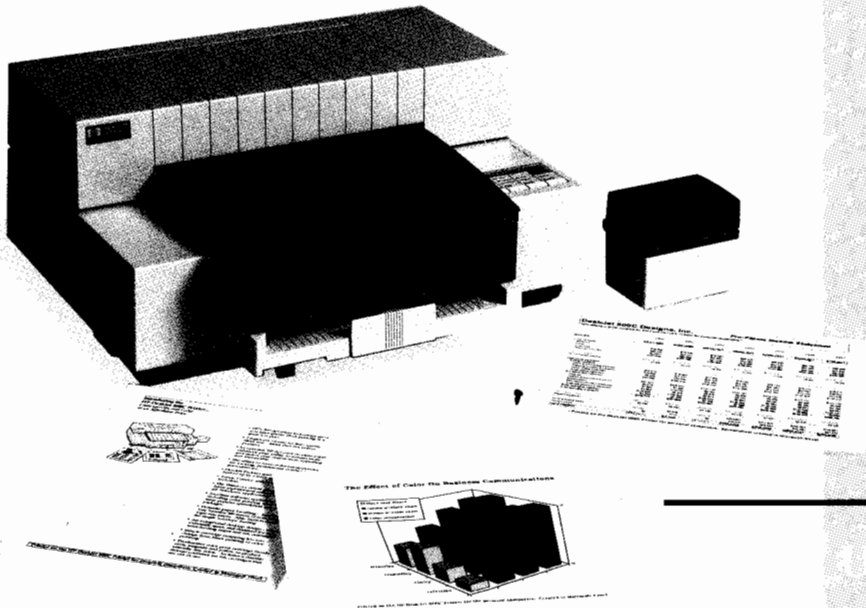


English

DeskJet 500C

Printer for personal computers





DeskJet 500C Printer

User's Guide



Manual Part Number
C2114-90021

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Regulatory Notices

Potential for Radio/Television Interference (USA only)

The DeskJet 500C printer generates and uses radio frequency energy and may cause interference to radio and television reception. Your printer complies with the specifications in Subpart J of Part 15 of the Federal Communications Commission rules for a Class B computing device. These specifications provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If the printer does cause interference to radio or television reception, which can be determined by turning the printer off and on, you can try to eliminate the interference problem by doing one or more of the following:

- Reorient the receiving antenna.
- Reorient the position of the printer with respect to the receiver.
- Move the printer away from the receiver.
- Plug the printer into a different outlet so that the printer and receiver are on different branch circuits.

If necessary, consult an authorized HP dealer or an experienced radio/television technician for additional suggestions. You 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.

To comply with FCC rules Part 15J Class B computing device use only shielded interface cables.

Power Module Statement

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

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according to ISO/IEC Guide 22 and EN 45014

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Vancouver Division
18110 S.E. 34th Street
Camas, Washington 98607

**Manufacturer's name
and address:** Hewlett Packard Singapore Pte Ltd
Asia Peripherals Division
1150 Depot Road
Singapore 0410

declares, that the product

Product Name: DeskJet and DeskWriter Printers

Model Number: HP C2106A, 2279A, C2113A, C2114A


conforms to the following Product Specifications:

Safety: IEC 950, First Edition/EN 60950

EMC: EN55022 Class B
EN55101-2
EN55101-3

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Camas, WA
January 1, 1992



Nilesh Gheewala, Customer Assurance Manager

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Inside this User's Guide

This user's guide offers you information on using the DeskJet 500C printer and its features. The information in this guide is for both first-time users and for users who are already familiar with previous DeskJet Family printers.

Printer setup and installation instructions are provided in the *DeskJet 500C Printer Setup Guide*. Make sure you have setup your printer and established communication before you begin using the printer.

Chapter 1, "Getting to Know Your Printer," offers information on the use and maintenance of the printer. Topics include media handling, letterhead paper and envelope loading, and printer control panel descriptions.

Chapter 2, "Using Your Printer," provides information on how to access the features of your printer.

Chapter 3, "Using Fonts," contains information on fonts and how to select fonts. A sample of a few of the fonts available for the DeskJet 500C printer is also included at the end of the chapter.

Chapter 4, "Troubleshooting," provides steps for solving printing problems.

Appendix A through E provide character set charts, printer command and control code tables, interface cable definitions, ordering information, and product specifications.

The Glossary contains definitions of new or possibly unfamiliar terms used in this user's guide.



Getting to Know Your Printer

This chapter describes media handling, print cartridge use, and periodic printer maintenance.

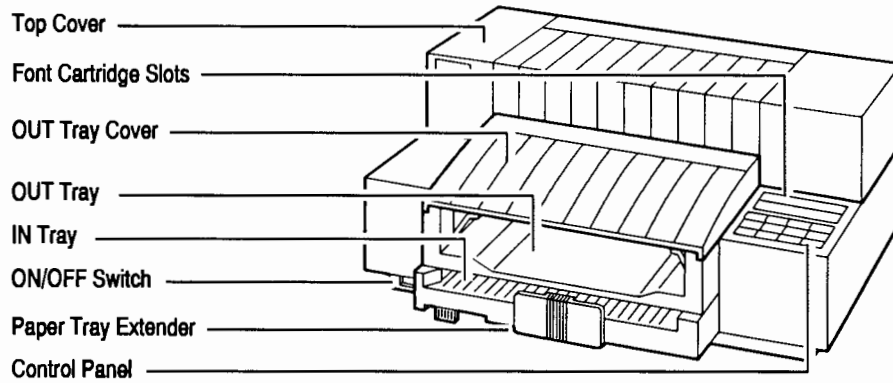
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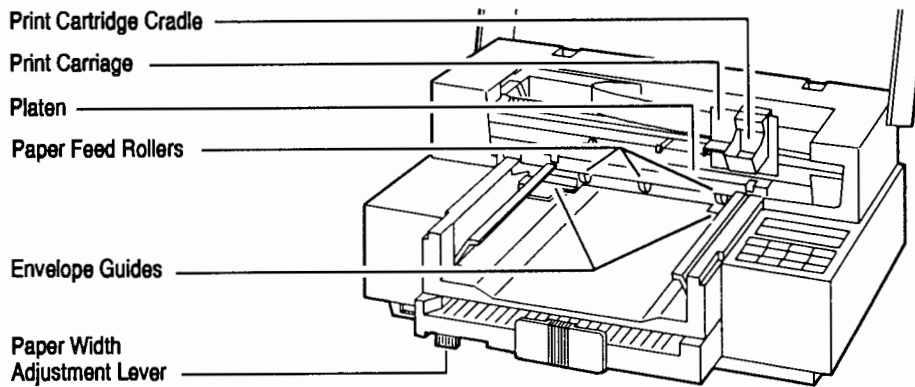
Before you begin to use your printer, make sure you have set it up using the instructions in the *DeskJet 500C Printer Setup Guide*.

Becoming Familiar with Your Printer

Become familiar with the parts of your printer shown below. Doing so will help you as you use the printer.



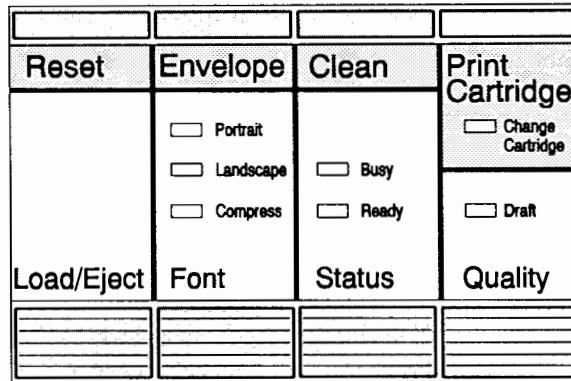
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Using the Printer Control Panel

The DeskJet 500C printer control panel has eight buttons and seven indicator lights. Refer to chapter 4, for information on error light indications.



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Quality Button

Pressing the Quality button selects draft or letter quality mode. The printer's default quality mode is letter quality. Select draft quality by pressing the Quality button. *Some software packages may override quality selections made through the printer control panel.*

Draft Light

The Draft light is on when draft quality printing is selected. The Draft light is off when letter quality printing is selected.

Status Button

Pressing the Status button pauses the printer. If the Status button is pressed during printing, the printer will finish printing the line it is on and stop. Pressing the Status button again will cause the printer to be ready for printing. Printing will resume from where it left off with no loss of information.

Ready Light

The printer is ready to receive information from the computer for printing when the Ready light is on. If the Ready light is off, the printer is paused and unable to print.

Busy Light

The Busy light is on when the printer is receiving information to print. When the Busy light is off, the printer is not receiving information. The Font, Status, and Load/Eject buttons are inactive when the Busy light is on.

Font Button

Pressing the Font Button will select the Courier 16.67 pitch font, press the Font button again to select the landscape Courier 10 pitch font, press the Font button a third time to select the landscape Courier 16.67 pitch font, and press the Font button again to return to the default Courier 10 pitch font. You can also select fonts from installed font cartridges by pressing the Font button until the light turns on below the font listed on the cartridge. The Font button is also used to begin a printer self test. Refer to chapter 2 for information on the printer self test.

NOTE

Letter Gothic, CG Times, and some internal Courier fonts (5 and 20 pitch) cannot be selected through the printer control panel. Software or printer commands must be used to select these fonts.

Portrait Light

The Portrait light indicates that the font selected is a portrait oriented font.

Landscape Light

The Landscape light indicates that the font selected is a landscape oriented font.

Compress Light

The Compress light indicates a compressed version of a font has been selected.

Load/Eject Button

Pressing the Load/Eject button loads (advances) paper and media, into the printer or ejects paper from the printer. If printing is complete and the last page does not eject, press the Load/Eject button. Refer to "Using Media in Your Printer" in this chapter for information.

Reset Button

Pressing the Reset button returns the printer to its default settings. Information waiting to print is lost when the Reset button is pressed.

Envelope Button

Pressing the Envelope button loads (advances) an envelope loaded from the OUT tray into the printer for printing. Refer to "Loading Envelopes," in this chapter.

Clean Button

Pressing the Clean button begins cleaning the print cartridge to restore print quality when dots or lines are missing from your printouts. Refer to chapter 4 "Troubleshooting" for additional information.

Print Cartridge Button

Pressing the Print Cartridge button moves the print carriage to the center of the printer, out of the "home" position to change print cartridges. After changing print cartridges, press the Print Cartridge button to return the print carriage to its "home" position.

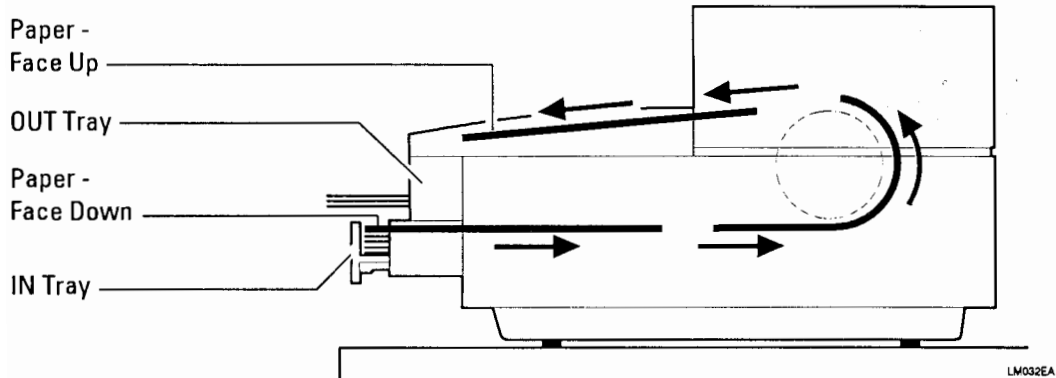
Change Cartridge Light

The Change Cartridge light blinks when the printer is waiting for you to change print cartridges.

The Paper Path

Paper and transparencies are automatically fed through the printer, "print" side face down from the IN tray, around the platen and paper feed rollers, and are delivered face up in the OUT tray.

Envelopes are manually fed (one at a time) through the printer OUT tray, "print" side face down, under the envelope guides, and through the paper path described above.



Using Media in Your Printer

Selecting Your Media

One of the most important things you can do to ensure the best possible performance from your DeskJet 500C printer is to use the paper, transparencies, and envelopes recommended here.

Using Plain Paper

The DeskJet 500C printer was designed to work well with most types of paper, although some variation in paper composition may significantly affect print quality and paper handling. For general applications, most plain paper manufactured for high-quality photocopying yields good results. For applications requiring company letterhead for example, cotton bond paper yields excellent results. You should test paper (printing on both sides) for suitability before you purchase large quantities, ensuring the print quality you desire.



Recommended Media Types

For transparency film (LX JetSeries) and special paper (CX JetSeries) for color printing, use the following:

Media	HP Part Number
CX JetSeries CutSheet Paper (US Letter Size), 200 sheets	51630Y
CX JetSeries CutSheet Paper (A4 European Size) 200 sheets	51630Z
LX JetSeries Transparency Film (US Letter Size) 50 sheets	51636F
LX JetSeries Transparency Film (European A4 Size) 50 sheets	51636G

LX JetSeries transparency film can be used for color and black printing. CX JetSeries CutSheet paper is recommended for color printing only.

As you select paper for your DeskJet 500C printer, be sure to choose only paper in the 16 to 24 lb (60 to 90 g/m²) range. Colored photocopy, bond, and letterhead paper, or preprinted forms that fall within the 16 to 24 lb (60 to 90 g/m²) range may be used in the DeskJet 500C printer. Be sure that all paper you use is free of tears, dust, wrinkles, and curled or bent edges.

NOTE

Plain paper has a "print" side. For the best print quality, print only on the "print" side of the plain paper. The "print" side isn't visible to the naked eye, so before you remove the paper from a ream to use in your printer, check the label on the end of the ream. The "print" side will be indicated by an arrow or other symbol or wording. Remove, undisturbed from the ream, the number of sheets of paper you wish to use in your printer, and load them "print" side face down into your printer's IN tray.

Types of Media to Avoid

- paper greater than 24 lb (90 g/m²) or less than 16 lb (60 g/m²).
- inkjet paper other than the recommended type.
- paper with cutouts or perforations.
- transparency film other than the recommended type.
- multiple part forms.
- paper sizes other than those listed in appendix E.

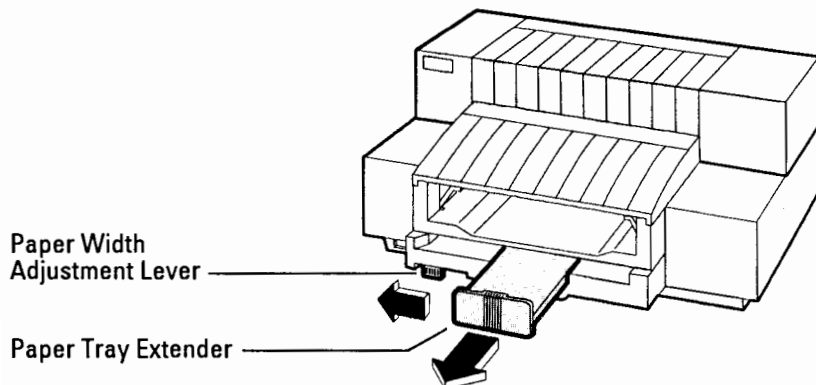
Loading Paper

- 1.** Slide the paper width adjustment lever to the left.

The paper width adjustment lever is located below the left corner of the IN tray.

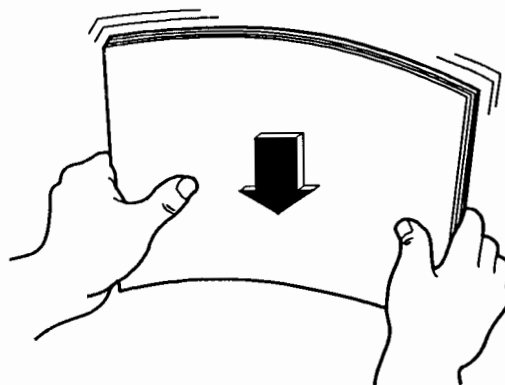
- 2.** Pull out the paper tray extender.

The paper tray extender is located at the center front edge of the IN tray.



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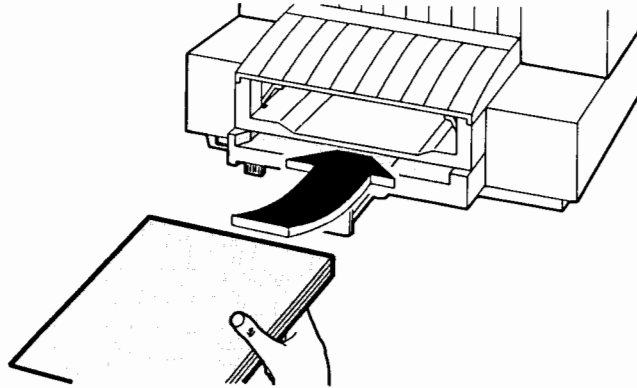
- 3.** Take out a $\frac{1}{2}$ inch (approximately 1 cm) stack of paper (about 100 sheets) and tap the paper edge on a flat surface to even the stack.



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4. Insert the stack of paper squarely into the IN tray, *print side down*.

Make sure the right edge of the paper is aligned against the right wall of the IN tray.



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5. Push the paper tray extender in toward the printer, making sure the paper does not buckle in the IN tray.
6. Slide the paper width adjustment lever to the right, making sure the paper does not buckle in the IN tray.

This will ensure that the right edge of the paper is aligned against the right wall of the IN tray and minimize skewed printing.

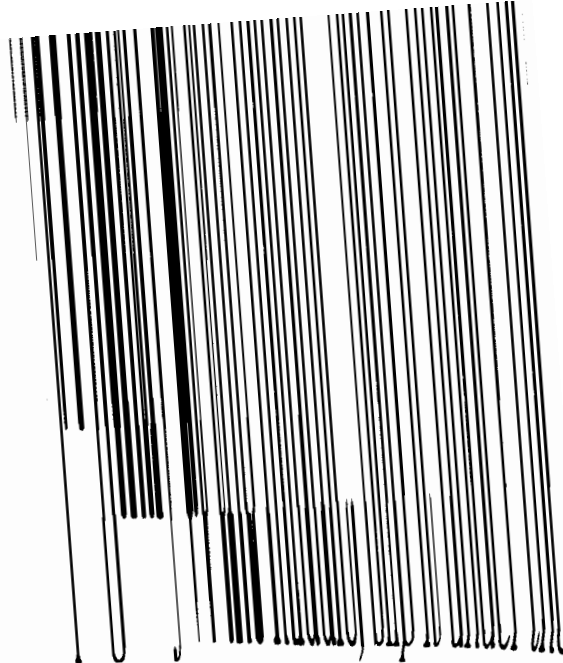
If you are using US letter (8 1/2 in. x 11 in.) or legal size (8 1/2 in. x 14 in.) paper, slide the lever back to the left.

Reloading Paper

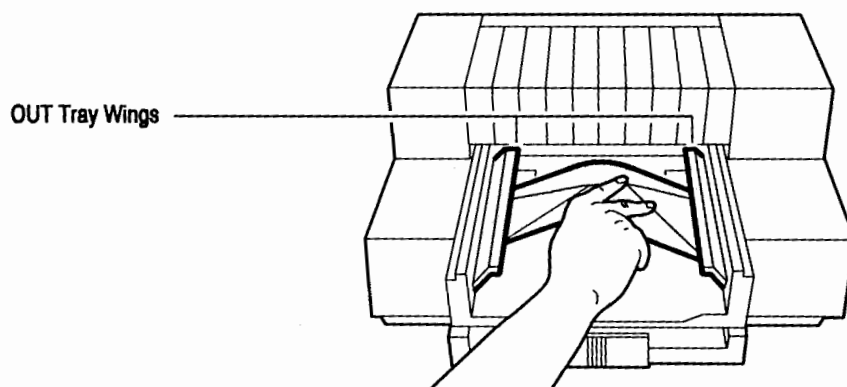
When your printer runs out of paper, the Ready light will blink to indicate that the IN tray is empty. Follow the steps in "Loading Paper" and press the Status button on the printer control panel to resume printing. Information waiting to print is not lost unless the printer is turned off when reloading paper or when printing.

Loading Special Media Types

Media loading instructions are essentially the same for plain paper, letterhead, transparencies, and special paper. Be sure to load only one media type in the printer IN tray at a time for best printing results. However, if you are using transparencies and have less than 10 sheets to load, you

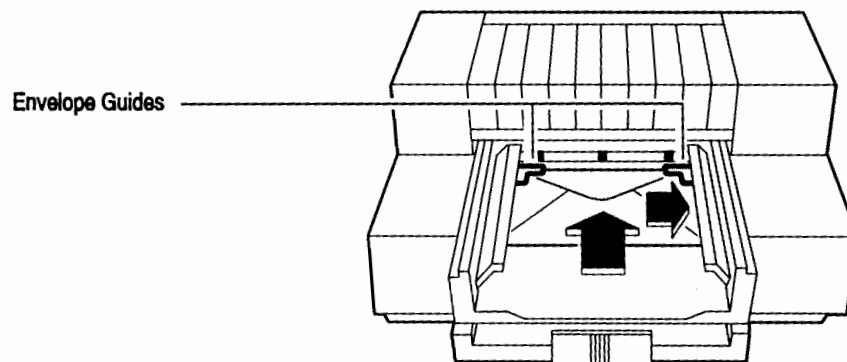


OUT tray wings, and set it, head first, into the OUT tray.



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5. With the right side of the envelope flush against the right side of the OUT tray, push the envelope forward, under the envelope guides and then under the paper feed rollers until the envelope stops.



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6. Press the Envelope button.

The envelope is ready for printing. Since printing envelopes depends on the software application that you are using, refer to your software manual for specific steps to print an envelope using your software.

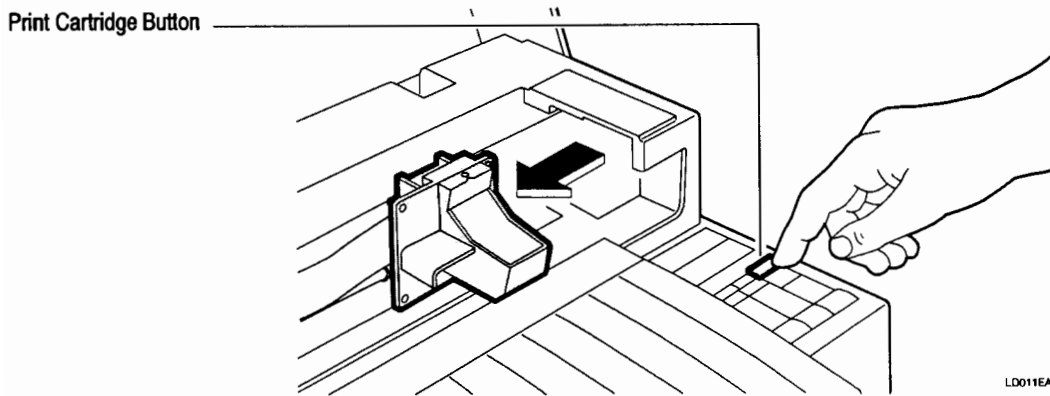
Using Print Cartridges

Two print cartridges (one black and one color) were provided with your printer. Since only one print cartridge can be used at a time, a print cartridge storage container was provided with your printer to store the print cartridge that you are not using. Using the storage container ensures that your print cartridges do not dry out or clog when not in use.

Installing a Print Cartridge

Follow the steps below to install a print cartridge.

1. Open the printer's top cover.
2. Turn on the printer.
3. Press the Print Cartridge button on the printer control panel.



The print cartridge cradle will move to the center of the printer and pause.

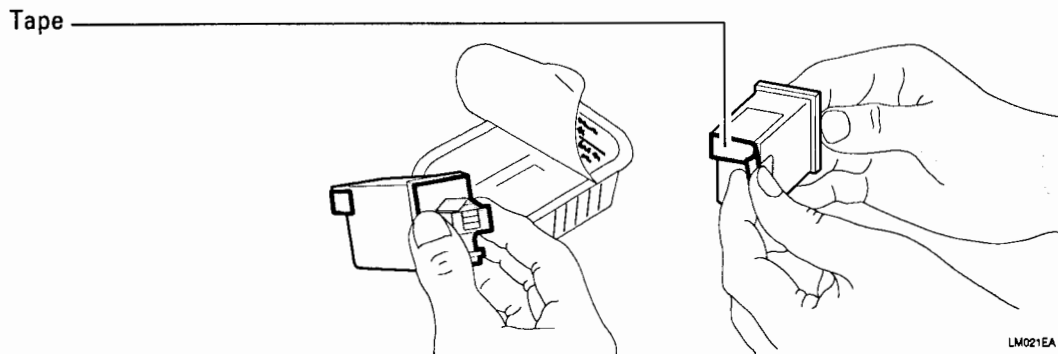
If you are installing a new print cartridge, go to step 4. If you are installing a print cartridge from the print cartridge storage container, go to step 6.

4. Open the print cartridge container. Grasp the print cartridge by the green arrow and remove the print cartridge from its container.

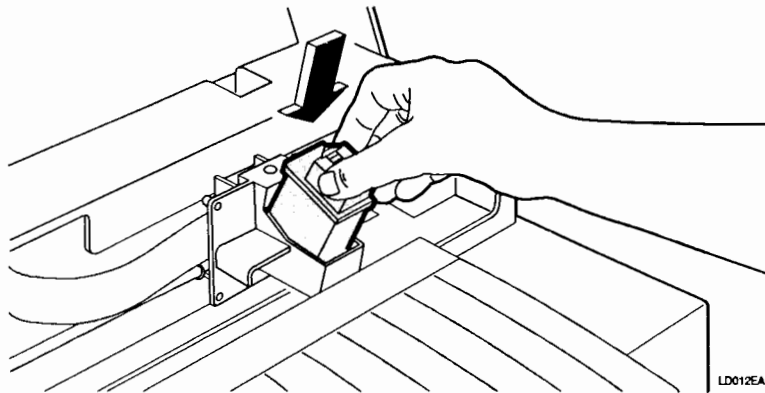
CAUTION

The ink in the print cartridge may be harmful if swallowed. Keep new and used cartridges out of the reach of children. Discard empty cartridges immediately.

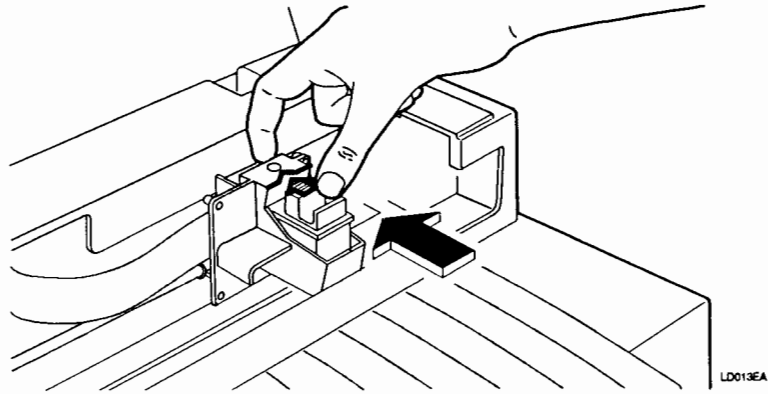
5. Gently remove the tape covering the ink nozzles on the print cartridge. *Be careful not to touch the copper ribbon or the ink nozzles.*



6. Drop the print cartridge down and forward into the cradle with the green arrow on the cartridge top pointing to the green dot on the top of the cradle.



7. Push the green arrow forward toward the green dot, "snapping" the cartridge into place.



8. Press the Print Cartridge button on the printer control panel. The print cartridge cradle will return to the "home" position.
9. Close the printer's top cover.

NOTE

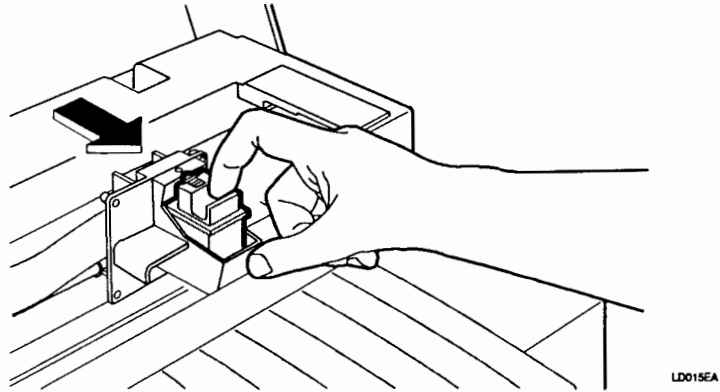
If the print cartridge cradle moves back to the center of the printer and the control panel lights begin to blink, see "Print Cartridge Problems" in chapter 4 of this user's guide.

Changing Print Cartridges

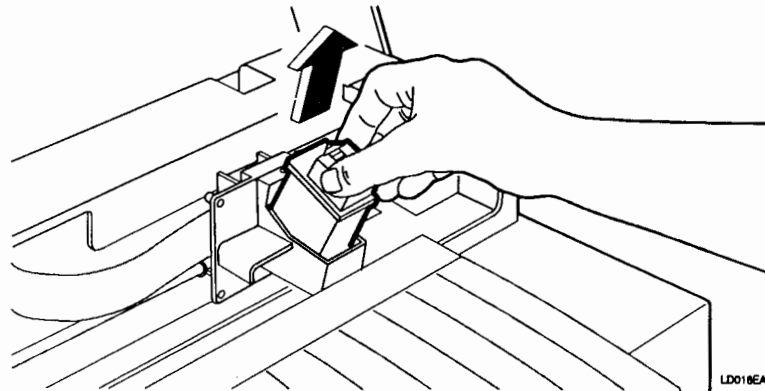
Follow these steps to remove a print cartridge from the cradle and to load a print cartridge from the storage container.

1. Open the printer's top cover.
2. Make sure the printer is on.
3. Press the Print Cartridge button on the printer control panel.

4. Grasp the green cartridge top while placing your thumb on the cartridge cradle. Pull the cartridge top toward you until the cartridge "pops" loose.



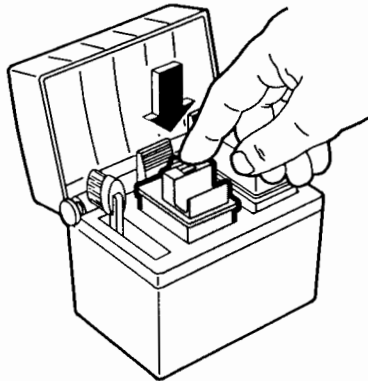
5. Lift the print cartridge out of the cradle.



6. Open the storage container cover.
7. Set the print cartridge in the appropriate storage container cradle with the green arrow on the cartridge top pointing to the cartridge clip.

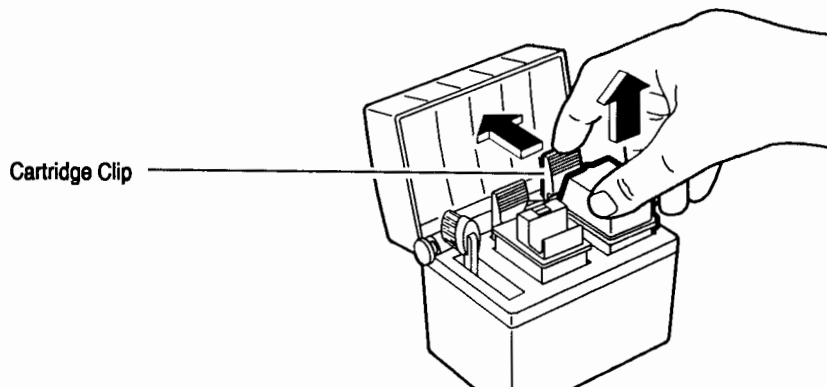
To ensure that the appropriate cradle is used, match the dot(s) on the cartridge clips with the dot(s) on the print cartridge label. A black dot indicates a black print cartridge and three color dots indicates a color print cartridge.

8. Push the print cartridge down, "snapping" the cartridge into place.



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9. Grasp the other print cartridge in the storage container while pressing the cartridge clip back with your index finger.
10. Lift the print cartridge from the storage container cradle.



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11. Close the storage container cover.
12. Insert the print cartridge into the printer following the steps in "Installing a Print Cartridge," earlier in this section.

Print Cartridge Maintenance

To maintain excellent print quality from your print cartridges, follow the tips below:

- Keep print cartridges in their sealed packages until you are ready to use them.
- Store print cartridges at room temperature.
- Keep print cartridges in either the printer or the storage container provided at all times. Leaving the cartridge out on your desk will ruin the print cartridge. Refer to "Print Cartridge Problems" in chapter 4 for information on caring for print cartridge problems.
- Discard empty print cartridges immediately.
- Keep the print cartridge cradle in its "home" position on the right side of the printer when the printer is not in use. Leaving it out of "home" position will ruin the print cartridge. Avoid turning off the printer before printing is complete, or the cradle will be left out of its "home" position.

Using the Print Cartridge Storage Container

A storage container for your print cartridges was provided with your printer. Using this storage container ensures that your print cartridges will not dry out or clog when not in use, prolonging the life of the print cartridges.

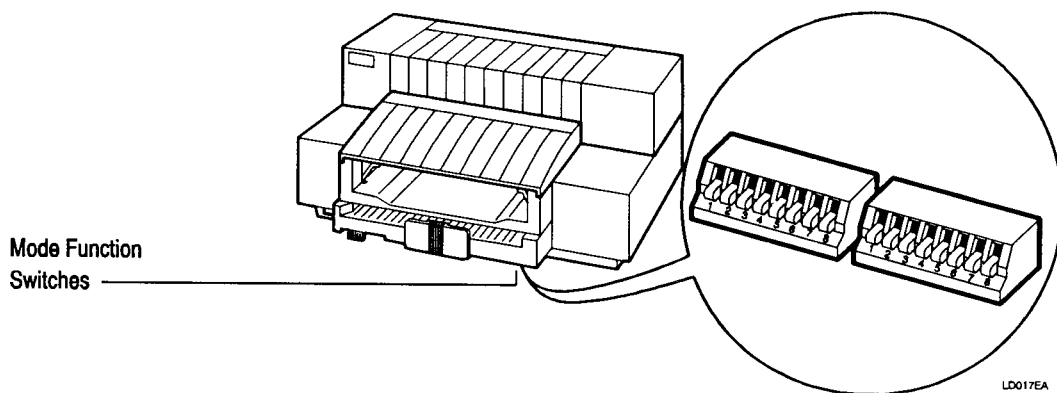
NOTE

Use the brush provided with your print cartridge storage container only to brush the contacts on the print cartridge and the print cartridge cradle. This procedure is described in chapter 4 of this user's guide. Brush the contacts only as described in chapter 4. Do not brush the ink nozzles on the print cartridge. Brushing the ink nozzles will ruin the print cartridge and contaminate the brush with ink.

Using Mode Function Switches

The DeskJet 500C printer has two banks of mode function switches located on the printer's front base, under the IN tray. These switches define a number of default printer settings, ranging from paper size to data communications settings for an RS-232-C serial interface connection.

The illustration below shows the function switches in their factory default positions. Factory default is the settings that are selected on the printer at the factory. The factory default settings are in use unless you manually change the switch settings. In most circumstances, you will not need to change the switch settings.



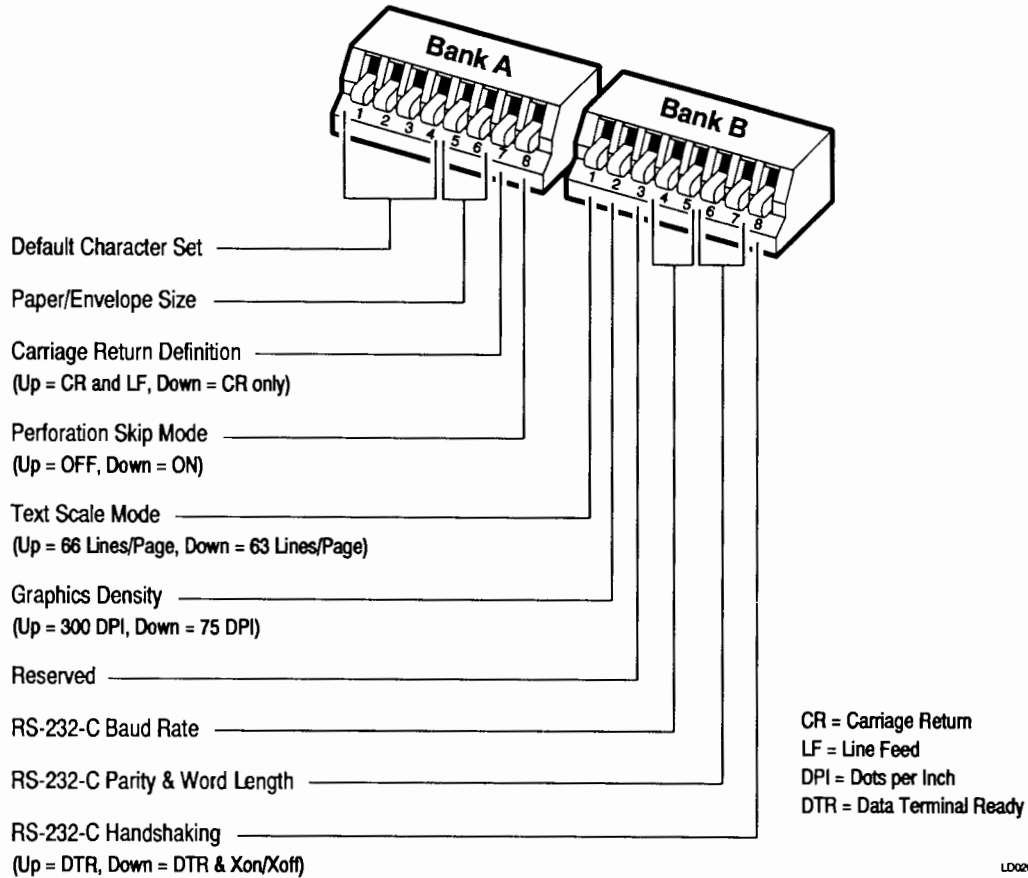
To change the mode function switch settings, use a pen or pencil to flip the switches to the desired (UP or DOWN) position.

NOTE

Settings that you select through your software or printer control panel will override mode function switch settings.

Mode Function Switch Definitions

Definitions for mode function switch settings are shown below. Additional options for selecting character sets, paper/envelope size and RS-232-C serial interface settings are provided on the following pages. Refer to "Using Perforation Skip Mode" and "Using Text Scale Mode" in chapter 2 of this user's guide for additional information.



Changing the Text Scale Mode setting to 66 lines/page with switch B1 Up is ignored when Perforation Mode (switch A8 down) is on.

Changing Default Settings

The table below lists the mode function switch settings for selecting the default character set. The factory default character set is PC-8. Refer to appendix B for additional information on available character sets.

Default Character Set Selection

Character Set	Switch A1	Switch A2	Switch A3	Switch A4
PC-8	down	down	down	down
HP Roman 8	down	down	down	up
PC-8 Danish/Norwegian	down	down	up	down
United Kingdom (ISO 4)	down	down	up	up
Germany (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
Portugese (ISO 16)	up	down	up	up
PC-850	up	up	down	down
ECMA-94 Latin1	up	up	down	up
HP Legal	up	up	up	down
Default set in the Front Font Cartridge Slot	up	up	up	up

The table below lists the mode function switch settings for default paper/envelope sizes. The factory default setting is for U.S. Letter size (8 1/2 x 11 in.) paper.

Paper/Envelope Size

Paper/Envelope Size	Switch A5	Switch A6
U.S. Letter Size (8 1/2 in. x 11 in.)	down	down
European A4 (210 mm x 297 mm)	down	up
U.S. Legal (8 1/2 in. x 14 in.)	up	down
Envelope (U.S. No. 10, European DL)	up	up

The following tables list the mode function switch settings for selecting baud rate, parity, and word length for an RS-232-C serial interface connection. Refer to appendix C for information on settings.

RS-232-C Baud Rate Selection

Baud Rate	Switch B4	Switch B5
9600 Baud	down	down
19200 Baud	down	up
2400 Baud	up	down
1200 Baud	up	up

RS-232-C Parity and Word Length

Parity	Word Length	Switch B6	Switch B7
No Parity	8 Data Bits	down	down
Odd Parity	7 Data Bits	down	up
Even Parity	7 Data Bits	up	down
No Parity	8 Data Bits	up	up

Printer Maintenance

Very little maintenance is required to keep your DeskJet 500C printer in top working condition. Perform the following maintenance procedures as necessary.

Exterior Maintenance

Use a soft cloth moistened with water to wipe dust, smudges, and stains off of the printer's case.

Interior Maintenance

The interior of the printer should not be cleaned.

Keep fluids away from the interior of the printer.



Using Your Printer

This chapter contains information on using the features offered by your printer.

Methods for Selecting Printing Features	2-2
Setting Default Paper Size	2-5
Setting Margins	2-5
Using Perforation Skip Mode	2-6
Using Text Scale Mode	2-7
Selecting Page Orientation	2-8
Selecting Color Printing Features	2-12
The Printer Self Test	2-12

Methods for Selecting Printing Features

The methods for selecting printer features depends on the software package that you use. This section describes the methods you may use to select printer features.

Using Software with Your Printer

After your computer and printer are setup to work together, you will need to setup your software to work with your printer. Software packages control printer features in different ways, some allow you to select features through a menu, while other packages require you to enter printer commands. If you are not sure of the method that your software package uses, refer to the printing section of your software manual for information.

Using your software to select printer features is the easiest and most efficient method because it allows you to have more control of your printer's output. *Software settings always override printer control panel and mode function switches settings.*

NOTE

Access to some printer features, such as font selection and color printing, depend largely on your software. The printer's features may exceed some software package capabilities. Upgrading your software may be required for full access of printer features.



Printer Drivers Each software package may require you to have a specific printer driver installed to be able to print correctly. Printer drivers are files that control the operation of the printer and allow your software access to printer features. When you select options for a document such as italic, your software sends codes indicating your selection to the printer driver. The printer driver interprets the software codes and sends commands to the printer in the printer's language.

Typically, software packages support many printers through different printer drivers. To ensure maximum access of your DeskJet 500C printer features, use a DeskJet 500 printer driver for printing with the black print cartridge or a DeskJet 500C printer driver for printing with the color print cartridge. Refer to the *HP DeskJet 500C Printer Software Information Guide*, for information on choosing and installing printer drivers.

NOTE

Printing problems often occur when an incorrect printer driver is selected. If your printout is incorrect, you should check your software to verify that the appropriate printer driver has been selected. If you have problems with your software and printer, contact your software vendor.

Using Printer Commands

Another method for selecting printer features is through printer commands. A printer command (also known as an escape sequence) directs the printer to perform a task, such as italicizing text. Most software packages do not require you to send printer commands. The software sends the commands for you.

If your software package does not automatically send printer commands, you can enter them directly in your file, or in a menu provided by your software package. Some software packages, refer to printer commands as initialization or setup strings. Printer commands can also be embedded in your file.

HP PCL Printer Language The printer commands in this user's guide conform to HP PCL printer language. The PCL printer language is a standard developed by Hewlett-Packard to ensure compatibility between current and future PCL printers. The DeskJet 500C printer implements HP PCL Level 3 printer language, plus some extensions. Extensions are optional features to the PCL printer language hierarchy which provide flexibility to address specific printing needs. Refer to appendix B for additional information on HP PCL printer commands.

Setup Strings Setup (or initialization) strings are printer commands that are sent to the printer before any other information is sent. Setup strings can be entered as decimal or hexadecimal code, depending on the requirements of your software package. The length of a setup string can be shortened by combining printer commands. Refer to "Combining Printer Commands" in appendix B.

Embedded Printer Commands These are printer commands that you type (embed) into your file. Embedded printer commands can be seen on your screen and may take up space on the screen, but the commands are not printed and do not take up space on the printed document. If your software package allows you to embed printer commands, refer to your software manual for specific instructions.

Other Methods

In addition to using software and printer commands to control printer features, you can use the printer control panel and mode function switches. However, these selections will be ignored if selections are made through software or printer commands.

Setting Default Paper Size

The printer's default paper size is U.S. Letter size. Default paper size can be changed through mode function switches A5 and A6. Refer to "Changing Default Settings" in chapter 1 of this user's guide. Paper size can also be set through software or with printer commands. Both methods will override mode function switch settings.

Setting Margins

This section identifies the variables for setting your margins.

Left and Right Side Margins The leftmost printable position on U.S. Letter and Legal paper is $\frac{1}{4}$ inch (6mm) in from (to the right of) the left edge of the paper. The leftmost printable position on European A4 paper is $\frac{1}{8}$ inch (3mm) in from the left edge. The leftmost printable position on both U.S. No. 10 and European DL envelopes is $\frac{1}{2}$ inch (13mm) in from the left edge of the envelope.

Line Spacing Line spacing is the vertical distance between printed lines on the page. It is measured as number of printed vertical lines per inch (lpi). The default line spacing is 6 lpi.

Top Margin The top margin is the area between the top of the paper and the beginning of the printed text. The first printable line below the top margin is defined as top-of-form. The HP DeskJet 500C printer has a default top margin of $\frac{1}{2}$ inch (13mm) or three lines at 6 lpi with Perforation Skip Mode on. Top margin is set to 0 when Perforation Skip Mode is off. Refer to "Perforation Skip Mode" for more information.

Bottom Margin The bottom margin depends on Perforation Skip Mode and Text Scale Mode settings.

Using Perforation Skip Mode

Perforation Skip Mode controls the top and bottom margins of a page. The area at the top and bottom of a page is called the perforation region. When Perforation Skip Mode is on, you have a $\frac{1}{2}$ inch (13 mm) top margin and a $\frac{1}{2}$ inch (13mm) bottom margin, resulting in a page length of 60 lines. The $\frac{1}{2}$ inch (13mm) bottom margin, referred to as the unprintable area, cannot be printed on. Information entering the unprintable area prints on the next page.

Perforation Skip Mode on (mode function switch A8 DOWN) is the default setting. When Perforation Skip Mode is off (mode function switch A8 UP), the top margin decreases to 0, the unprintable area at the bottom of the page remains at a $\frac{1}{2}$ (13mm) inch, and the page length increases to 63 lines per page. To further increase the page length, refer to "Text Scale Mode" on the next page.

Using Text Scale Mode

Text Scale Mode allows the printer to fit 66 lines of text in 63 lines by scaling the vertical position of the lines on a page. A U.S. Letter size (8 1/2 inch x 11 inch) page has a page length of 66 lines with line spacing at 6 lines per inch.

Text Scale Mode should be used only when printing portrait oriented text. It is ignored when Perforation Skip Mode is on, or when the printer is in landscape orientation or graphics mode. Using Text Scale Mode with merged text and graphics will result in an incorrect printout. The printer's default is Text Scale Mode off, with mode function switch B1 (DOWN). Text Scale Mode is on when switch B1 is in the UP position. A printer command can also be used to turn on Text Scale Mode.

The example below further explains Text Scale Mode.

Example

On an 11 inch page, you have the following parameters.

Line spacing: 6 lpi

Perforation Skip Mode: OFF

Unprintable region: 1/2 inch (3 lines bottom margin)

Page length = 11 in. (66 lines) - 1/2 in. (3 lines) = 10 1/2 in. (63 lines) of printable page length.

You have two options to increase the printable page length.

1. Set the page length in the software package to a value equal to, or less than, the printable page length. In the above example, 63 lines.
2. Turn on Text Scale Mode to print 66 lines within 10 1/2 inches.

Text Scale Mode is on with mode function switch B1 in the UP position, or when the following printer command:

E_c & k 6 W is sent to the printer.

Avoiding Page Formatting Problems

- Make sure the page length setting in your software is 60 lines per page, when you use the printer's default settings of Perforation Skip Mode on and Text Scale Mode off.
- Check the printer's mode function switch settings each time you change margin settings in your software to ensure that the software and printer settings are consistent.
- Always use your software to set margins.

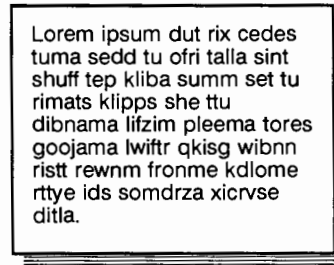
Selecting Page Orientation

Page orientation refers to the way print appears on the page. The DeskJet 500C printer prints in portrait or landscape orientation. Portrait orientation is the printer's default page orientation. The illustrations below show the difference between portrait and landscape orientation.

A rectangular box containing ten lines of Lorem Ipsum text. The text is oriented vertically, with the top of the box being the left side of the page.

Lorem ipsum dut
 rix cedes tuma
 sedd tu ofri talla
 sint shuff tep kliba
 summ set tu rimats
 klipps she ttu
 dibnama lifzim
 pleema tores
 goojama lwiftr
 qkisg wibnn ristt
 rewnm fronme
 kdlome rttye.

Portrait

A rectangular box containing ten lines of Lorem Ipsum text. The text is oriented horizontally, with the top of the box being the top side of the page.

Lorem ipsum dut rix cedes
 tuma sedd tu ofri talla sint
 shuff tep kliba summ set tu
 rimats klipps she ttu
 dibnama lifzim pleema tores
 goojama lwiftr qkisg wibnn
 ristt rewnm fronme kdlome
 rttye ids somdrza xicrvse
 ditla.

Landscape

Landscape Orientation

Landscape orientation is selected through the printer control panel, software, or by sending an escape sequence. To use the printer control panel, press the Font button until the Landscape light turns on. Refer to your software manual for information on printing a landscape page.

If you change page orientation during printing, the printer will eject the page and change orientation.

Landscape Fonts Internal fonts available in landscape orientation are Courier 10, 16.67, and 20. Additional fonts are available on the HP 22707L Landscape Fonts cartridge.

Default Paper Size The default paper size in landscape orientation is U.S. letter (8¹/₂ in. x 11 in.). To change the default, refer to "Setting Default Paper Size," in this chapter.

Left and Right Landscape Margins The left margin is ¹/₂ inch (13mm). The left margin can be increased, but it cannot be reduced or eliminated. The maximum value of the right margin is ¹/₆ inch (4mm) from the right paper edge. The printable area between left and right margins on a landscape page is 10 ¹/₃ inches on U.S. letter size paper, and 286mm on A4 size paper.

Top and Bottom Landscape Margins The top and bottom margins on a landscape page have a ¹/₄ inch (3,18 mm on A4 size paper) unprintable area which results in 8 inches of printable area on U.S. letter size paper and 203 mm of printable area on A4 size paper. When Perforation Skip Mode is on, ¹/₄ inch (6 mm) is added to the top and bottom margins. Changing the lines per inch from 6 lpi to 8 lpi and turning Perforation Skip Mode off will increase your printable area. Refer to the following table for information.

When perforation skip is enabled, the top and bottom margins can be changed by sending printer commands. The table below provides additional information.

Lines of Text Per Page

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

lpi=Lines Per Inch (vertical)

cpi=Characters Per Inch (horizontal)

Text Scale Mode has no effect in landscape orientation.

NOTE

If you use fewer than the available lines on a page without sending a form feed command, paper will load in the printer and the Busy light on the printer control panel will blink. Press the Load/Eject button to begin printing.

Landscape Limitations

All control codes and escape sequences behave just as in portrait orientation with two exceptions.

Underlining: Automatic underlining (E_C & d # D) is not supported. Your software package may allow you to underline using another means.

Graphics: Any graphic information sent will be ignored. Reset the printer to return to portrait orientation before sending graphics information.

Page Control Printer Commands

The table below lists the printer commands for controlling a page. Decimal or hexadecimal equivalents of each command are listed in appendix B.

Page Control Printer Commands

Page Control Feature	Printer Command
Enable landscape orientation	E _c & / 1 0
Disable landscape orientation	E _c & / 0 0
Line Spacing (Set Lines Per Inch)	E _c & / # D
Select U.S. Letter paper size	E _c & / 2 A
Select U.S. Legal paper size	E _c & / 3 A
Select European A4 paper size	E _c & / 26 A
Select No. 10 envelope	E _c & / 81 A
Set left margin	E _c & a # L
Set right margin	E _c & a # M
Clear left and right margins	E _c 9
Set top margin	E _c & / # E
Enable Perforation Skip Mode	E _c & / 1 L
Disable Perforation Skip Mode	E _c & / 0 L
Enable Text Scale Mode	E _c & k 6 W
Disable Text Scale Mode	E _c & k 5 W

The technical reference manual contains more detailed information on how to use printer commands. Refer to appendix D for ordering information.

Selecting Color Printing Features

Color printing is available through specific software packages or through the HP DeskJet Series Printer Driver for Microsoft Windows that came with your printer. Refer to the *HP DeskJet 500C Printer Software Information Guide* for color printing information. Color printing features will not be available to you unless you have a specific DeskJet 500C printer driver.

For basic information on color printing, refer to the "*Using Color Guide*" provided with your printer.

The Printer Self Test

The printer self test checks the printer's electronic circuitry and prints a 3 page self test pattern with the black print cartridge installed. A one line self test pattern will print when the color print cartridge is installed.

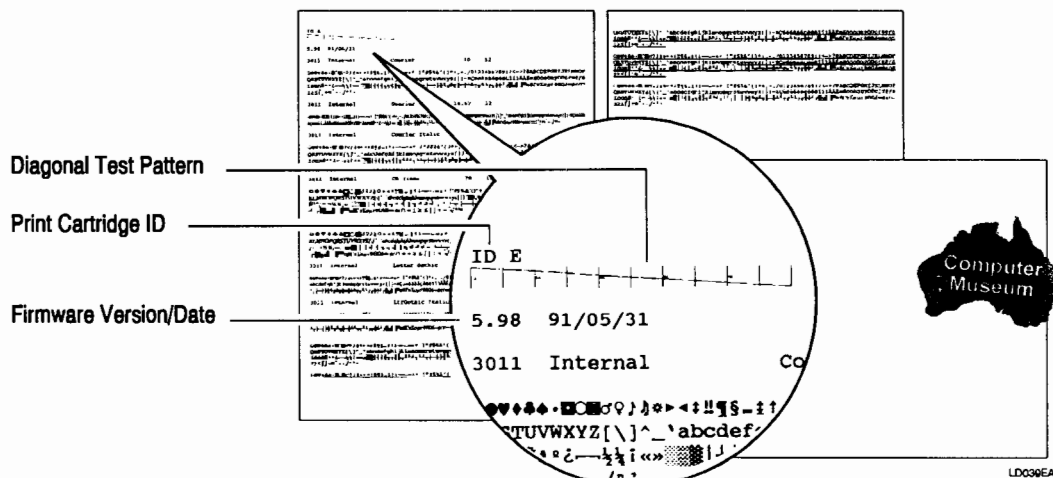
Use the following steps to print a printer self test.

1. Begin with the printer turned off.
2. Press and hold the Font button on the printer control panel while turning on the printer. Release the Font button after paper begins to load.

A reduced example of a 3 page black printer self test is shown on the following page. A sample of the color printer self test and information on solving printer self test problems is contained in chapter 4, "Troubleshooting" of this user's guide.

The reduced sample of the black printer self test identifies elements of information provided in the 3 page black printer self test pattern. The printer self test identifies the following:

- Prints a diagonal test pattern that identifies any ink nozzles that are not printing. If the diagonal line has a gap, one or more nozzles may be blocked and you may need to "clean" the print cartridge by pressing the Clean button.
- Identifies the print cartridge installed by printing a print cartridge ID.
- Identifies the printer firmware version and date. If a problem occurs with your printer, you may need to provide the firmware version and date to service or support personnel.
- Prints the internal fonts and any installed external fonts accessible to the printer. Additional fonts will print if you have font cartridges installed.



Notes

Lined area for notes.



Using Fonts

This chapter contains information on font terminology, and the fonts available with the printer.

Font Terminology	3-2
The HP DeskJet 500C Printer and Fonts	3-8
Types of Fonts	3-8
Internal Fonts	3-8
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Cartridge Fonts	3-10
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Using Fonts in Your Documents	3-21

Font Terminology

This chapter defines the terms used to describe and categorize fonts, and provides information on the availability and use of fonts with this printer.

Font is defined as a collection of characters and symbols that are of the same typeface, spacing, size, stroke weight, and style. For example, Courier 10 pitch/12 point is one font, while Courier 20 pitch/12 point is a second font and Courier 10 pitch/12 point italic is a third font.

Typeface is defined as a set of characters and symbols that have a unique design. Courier, Helvetica, Dom Casual, and CG Times are typefaces. An example is shown below.

Example

```
.....  
Courier  
Helvetica  
Dom Casual  
CG Times  
.....
```

Serif or Sans Serif Typeface Serifs are the crosslines or finishing strokes at the top or bottom of a character. CG Times and Courier are serif typefaces. Typefaces without serifs are referred to as sans serif. Helvetica and Letter Gothic are sans serif typefaces. The illustration below shows the difference between a serif and sans serif typeface.

Serif Typeface → 

Sans Serif Typeface → 

Spacing refers to the relative width (spacing) between characters in a font. Font spacing is either fixed-pitch or proportional. All fixed-pitch fonts are given the same horizontal (or width) space. For example, a wide letter such as a "w" and a narrow letter such as an "i" are given the same space. Fixed-pitch fonts are also called monospaced fonts. Fixed pitch fonts are often used for documents in which text must be aligned in columns.

With proportional spacing, characters are given horizontal space based on the needs of each character. Proportionally spaced fonts are easier to read and give a document a professional look. The difference between fixed-pitch spacing and proportional spacing is illustrated below.



Fixed Pitch



Proportional Spacing

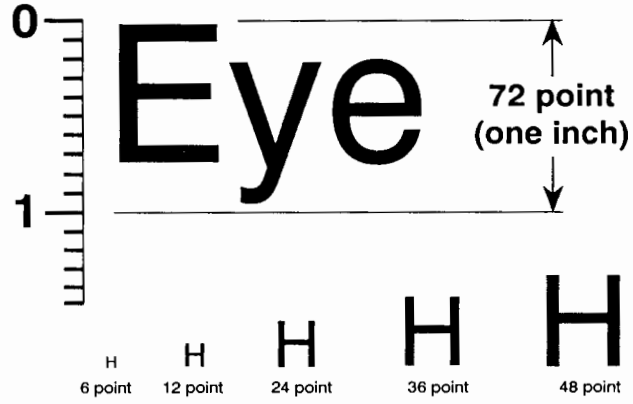
Pitch refers to the number of characters printed per horizontal inch. A 10 pitch font will print 10 characters per horizontal inch (cpi). Since spacing varies from character to character with proportionally spaced fonts, pitch applies only to fixed-pitch fonts.

abcdeabcdeab **12 pitch or 12 characters per inch**

abcdeabcde **10 pitch or 10 characters per inch**



Point Size (Character Height) refers to the height of a printed uppercase character. Character height is defined in points. One point is $\frac{1}{72}$ nd of an inch, so 72 points equals one inch. Both fixed-pitch and proportionally spaced fonts are measured by point size. The illustration below shows how point size is measured.



Kerning refers to the adjustment of spacing between proportionally spaced characters to make them visually more even, balanced, and attractive. Fixed-pitch fonts are not kerned.

Example

.....
No Kerning
Kerning
.....

Style refers to the shape of a character such as upright or italic. Italics are used to emphasize text in a document.

Example
You can italicize a *single* word.
.....

Stroke Weight refers to the thickness of print, such as bold or normal. Bold is used to emphasize or highlight text in a document.

Example
This is an example of **bold** print.
.....

Quality refers to quality of print, such as draft or letter quality. Draft quality prints drafts of a document faster and saves ink. Letter quality is used for documents that require a finished, polished appearance.

Example
This is Letter Quality.
.....

Character Sets are collections of symbols and characters that constitute all the elements of a language or discipline (mathematics or legal), including punctuation and numbers. The default character set for the DeskJet 500C printer is PC-8. Further information on character sets is contained in appendix A of this user's guide.

!"#\$%&'()*+,-./0123456789:;<=>?
 @ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`
 abcdefghijklmnopqrstuvwxyz{|}~
 ÀÁÂÃÄÅ Æ ÇÈÉÊËÌÍÎÏ ÑÒÓÔÕÖ ÙÚÛÜÝ Þ
 àéôûáéóúàèòùäëöüËÍÏ ÑÒÓÔÕÖ ÙÚÛÜÝ Þ
 ÁÃÄÅ Æ ÇÈÉÊËÌÍÎÏ ÑÒÓÔÕÖ ÙÚÛÜÝ Þ

Orientation refers to the way print appears on a page. Fonts can be printed in either portrait or landscape orientation. The difference between the two orientations is illustrated below. Refer to chapter 2, "Using Your Printer," for more information on orientation.

Lorem ipsum dut
 rix cedes tuma
 sedd tu ofri talla
 sint shuff tep kliba
 summ set tu rimats
 klipps she ttu
 dibnama lifzim
 pleema tores
 goojama lwiftr
 qkisk wibnn ristt
 rewnm fronme
 kdlome rttye.

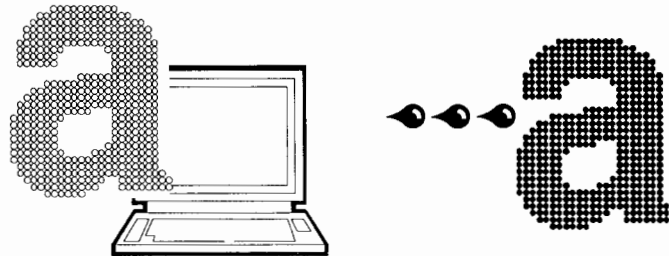
Portrait

Lorem ipsum dut rix cedes
 tuma sedd tu ofri talla sint
 shuff tep kliba summ set tu
 rimats klipps she ttu
 dibnama lifzim pleema tores
 goojama lwiftr qkisk wibnn
 ristt rewnm fronme kdlome
 rttye ids somdrza xicrvse
 ditla.

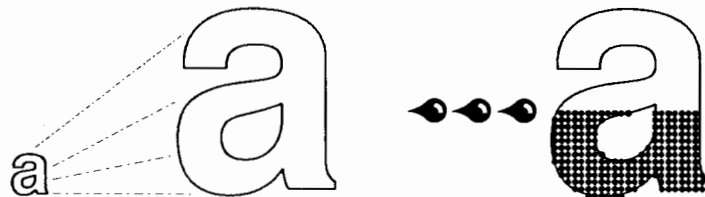
Landscape

The following are terms that describe font formats.

Bitmapped Fonts are a collection of characters and symbols with a unique design and specific size that are stored in the printer, in font cartridges, or on floppy disks as patterns of tiny dots. Bitmapped fonts are rigid and not changeable. The example below illustrates a bitmapped font.



Scalable Printer Fonts are the actual outlines of the characters and symbols of a font stored in mathematical form. The character outlines can be scaled (reduced or enlarged) to a wide range of point sizes. Scalable fonts are often referred to as outline fonts. Refer to "HP DeskJet 500C Printer and Fonts" section in this chapter for more information.



Screen Fonts are bitmapped images of fonts that match scalable printer fonts. Screen fonts give a close approximation of the printed text on the computer screen.

The HP DeskJet 500C Printer and Fonts

The remainder of this chapter concentrates on the HP DeskJet 500C printer and fonts.

Types of Fonts

The DeskJet 500C printer provides access to four types of fonts. Each font type is listed below and described in the following pages.

- **Internal fonts**
- **Cartridge fonts**
- **Soft fonts**
- **Scalable printer fonts**

Internal Fonts

Internal fonts are bitmapped fonts that are in the printer when you receive it. Internal fonts are often referred to as built-in fonts or resident fonts. The table below identifies the internal fonts available through the printer.

DeskJet 500C Printer Internal (Built-in) Fonts

Typeface	Orientation	Pitch	Point	Style	Stroke Weight
Courier	portrait	5, 10, 20	6, 12	upright, italic	medium, bold
	portrait	16.67	6, 12	upright	medium
	landscape	10, 16.67, 20	6, 12, 24	upright	medium, bold
CG Times	portrait	PS	6, 12	upright, italic	medium, bold
Letter Gothic	portrait	24	6, 12	upright, italic	medium, bold

The example below shows a few samples of the internal fonts.

Example

```
.....  
Courier, 12 point, 10 pitch  
CG Times, 12 point, PS  
Letter Gothic, 12 point, 12 pitch  
.....
```

Default Font

If you do not select a font, the default font will print. The default font is Courier 10 pitch, 12 point, upright, medium-weight. The default character set is PC-8, unless you manually change the character set settings on the mode function switches. Portrait orientation is the printer's default font orientation.

NOTE

You can print fixed-pitch fonts in a variety of pitch and point size combinations. The samples below show the internal Courier fonts printed in a combination of pitch and point sizes.

Courier 20 pitch, 6 point	<code>courier</code>
Courier 20 pitch, 12 point	<code>Courier</code>
Courier 16.67 pitch, 6 point	<code>courier</code>
Courier 16.67 pitch, 12 point	<code>Courier</code>
Courier 10 pitch, 6 point	<code>Courier</code>
Courier 10 pitch, 12 point	<code>Courier</code>
Courier 5 pitch, 6 point	<code>courier</code>
Courier 5 pitch, 12 point	<code>Courier</code>

Cartridge Fonts

Cartridge fonts are bitmapped fonts stored in cartridges, which you purchase and install in your printer. Cartridge fonts provide access to additional fonts. You can use DeskJet or DeskJet PLUS, or DeskJet 500 font cartridges with the DeskJet 500C printer. The following is a list of font cartridges available for the DeskJet 500C printer. Refer to appendix D for specific ordering information.

Recommended Font Cartridges for the DeskJet 500C Printer

Order Number/ Cartridge Name	Typeface/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 Cartridge	Letter Gothic	12, 24, 16.67	12, 9.5	Upright, Italic Upright	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	
22706R Times Roman Collection	Times Roman	Proportional	5, 6, 10, 12 4, 7, 8, 14	Upright, Italic Upright	HP ROMAN8, ASCII, HP LEGAL, PC-8, PC-8 D/N, PC-850, ISO7, ECMA-94 LATIN 1.
22706T Helvetica Collection	Helvetica	Proportional	5, 6, 10, 12 4, 7, 8, 14	Upright, Italic Upright	HP ROMAN8, ASCII, HP LEGAL, PC-8, PC-8 D/N, PC-850, ISO7, ECMA-94 LATIN 1.

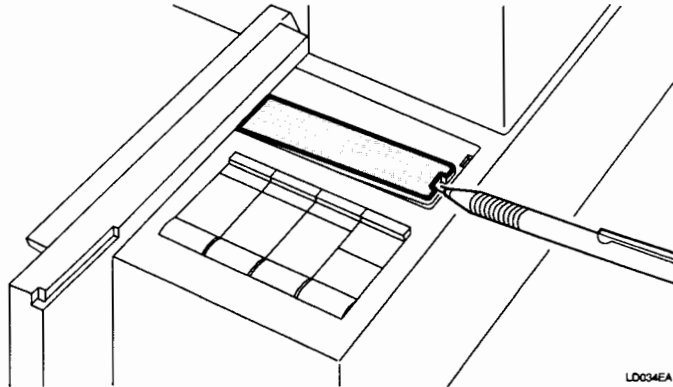
Order Number/ Cartridge Name	Typeface/Font	Pitch	Point Size	Style	Character Set Support
22706U Times Roman Headlines	Times Roman	Proportional	15, 30	Upright	HP ROMAN8, ASCII, HP LEGAL, PC-8, PC-8 D/N, PC-850, ISO7, ECMA-94 LATIN 1.
22706V Helvetica Headlines	Helvetica	Proportional	15, 30	Upright	HP ROMAN8, ASCII, HP LEGAL, PC-8, PC-8 D/N, PC-850, ISO7, ECMA-94 LATIN 1.
22706W WordPerfect Font Cartridge	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)	CG Century Schoolbook	Proportional	8, 10	Upright Upright, Italic	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 (kerned)	Garamond Antiqua	Proportional	8	Upright	PC-8, PC-8 D/N, PC-850, HP ROMAN-8, US-ASCII, ECMA-94 LATIN 1.
	Garamond Antiqua / <i>Kursiv</i> (italic)	Proportional	10, 12	Upright, Italic	
	Garamond Halbfett (bold)	Proportional	14	Upright	
C2109D Dom Casual (kerned)	Dom Casual	Proportional	12, 14, 18, 24	Upright	ECMA-94 LATIN 1.
C2109E Brush (kerned)	Brush	Proportional	12, 18, 24	Upright	ECMA-94 LATIN 1.

Bold can be accessed for most fonts except Dom Casual and Brush.

See appendix A for a listing of all character sets.

Installing Font Cartridges

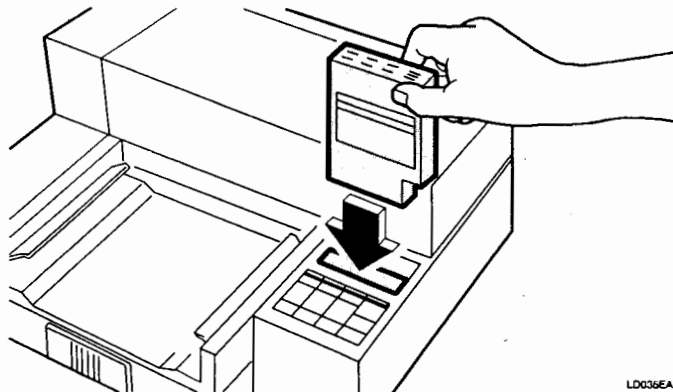
1. Begin with your printer turned off.
2. Remove the tray cover from the OUT tray, and set it aside.
3. Pry the font cartridge slot cover loose with the tip of a pen or similar object. Make sure that the slot cover doesn't flip into the printer cavity. Set the cover aside. To prevent small objects from falling into the printer, replace the slot covers when not using font cartridges.



NOTE

Be sure to turn off the printer before installing or changing font cartridges.

4. Hold the font cartridge with the label facing you and the connectors facing down, and insert the cartridge into the cartridge slot. See below.



CAUTION

Do not touch the connector on the bottom of the cartridge or the connector in the printer. Doing so may damage both units.

5. Push down firmly on the top of the font cartridge until it snaps into place.
6. Turn on the printer. All of the font cartridge lights will flash on briefly, then the Portrait light on the printer control panel will remain on.
7. Replace the tray cover.

The font cartridge is ready for use. Select fonts from the cartridge with the same steps you would use to select internal fonts. To ensure that fonts from the cartridge will print, make sure the printer driver for the specific font cartridge or font is selected. Refer to your software manual for additional information.

Soft Fonts

Soft fonts are bitmapped fonts that your computer can transfer (download) from a disk file to the printer. The DeskJet 500C printer requires a 256K RAM cartridge to use soft fonts. A maximum of two 256K RAM cartridges can be installed in the printer. RAM cartridges cannot be used to increase the printer's input buffer. A downloading utility and documentation on using soft fonts is provided with each soft font product.

Once the fonts are downloaded to the printer and an appropriate printer driver is selected, you can select a soft font in your software package with the same steps you would use to 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. Soft fonts require more steps and take a bit more time to use, but they allow you to custom mix and match fonts to your needs. If you will be using many different fonts frequently, soft fonts are the most cost effective to use. Appendix D offers ordering information.

Scalable Printer Fonts

Scalable fonts are the outlines of the characters and symbols of a font stored in mathematical form. The typefaces can be scaled from 4 to 127 point.

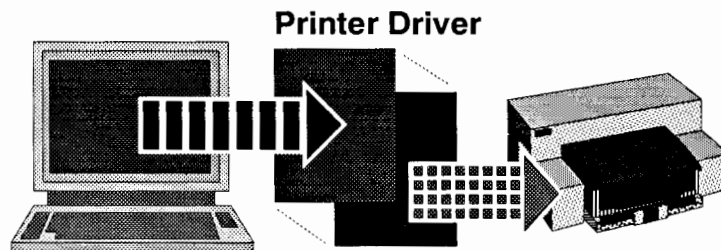
Scalable fonts for the HP DeskJet 500C Printer are accessible through the HP DeskJet Series Printer Driver for Microsoft Windows. You must use Microsoft Windows version 3.0 to use scalable fonts. The printer driver with three scalable typefaces (Courier, Univers, and CG Times) was included in the box with your printer.

Methods for Accessing Fonts

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

Using Software

Software plays a major role in your ability to access fonts. To select and print fonts in a document, you will need to install a specific printer driver for the HP DeskJet 500C printer or HP DeskJet Family printers.



Printer drivers are discussed in chapter 2, "Using Your Printer" and in the *HP DeskJet 500C Printer Software Information Guide*. You should also refer to your software manual for additional information. The printer driver that you install in your software determines the type of access you have to available fonts, and the steps you would use to select a font.

To use scalable fonts with the DeskJet 500C printer and Microsoft Windows 3.0, you must install the HP DeskJet Series Printer Driver that came with your printer.

Using the Printer Control Panel

If your software allows you to use the printer control panel to select fonts, press the Font button to select between the Courier 10 and 16.67 pitch fonts in portrait orientation. Letter Gothic, CG Times and some Courier fonts (5 and 20 pitch cannot be accessed through the printer control panel. The landscape Courier 10 pitch font can be selected by pressing the Font button until the the Landscape light turns on. To select additional internal fonts, you must use your software package or printer commands. Fonts from installed font cartridges can be selected by pressing the Font button until the light below your font selection on the cartridge turns on. *Some software packages will override font selections made through the printer control panel.*

Using Printer Commands

Most software packages allow you to select fonts without using printer commands. However, if you need to use printer commands to select fonts, use the following information. The HP DeskJet 500C printer follows a decision-making process to sort through various font characteristics. Each characteristic has a specific printer command and priority in the printer's font selection hierarchy (see below).

Prioritized Font Characteristics

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

When you send a printer command to select a font, you should send the appropriate command for each characteristic in the order identified on the previous page. The example below shows how you can combine printer commands to send for two different fonts. Refer to appendix B for information on combining printer commands and for numeric value fields.



To Select:

Courier, Italic
(10 pitch, 12 point)

Send: E_c&/00 E_c(10U E_c(s Op 10h 12v 1s 0b 3t 2Q

CG Times
(PS, 12 point)

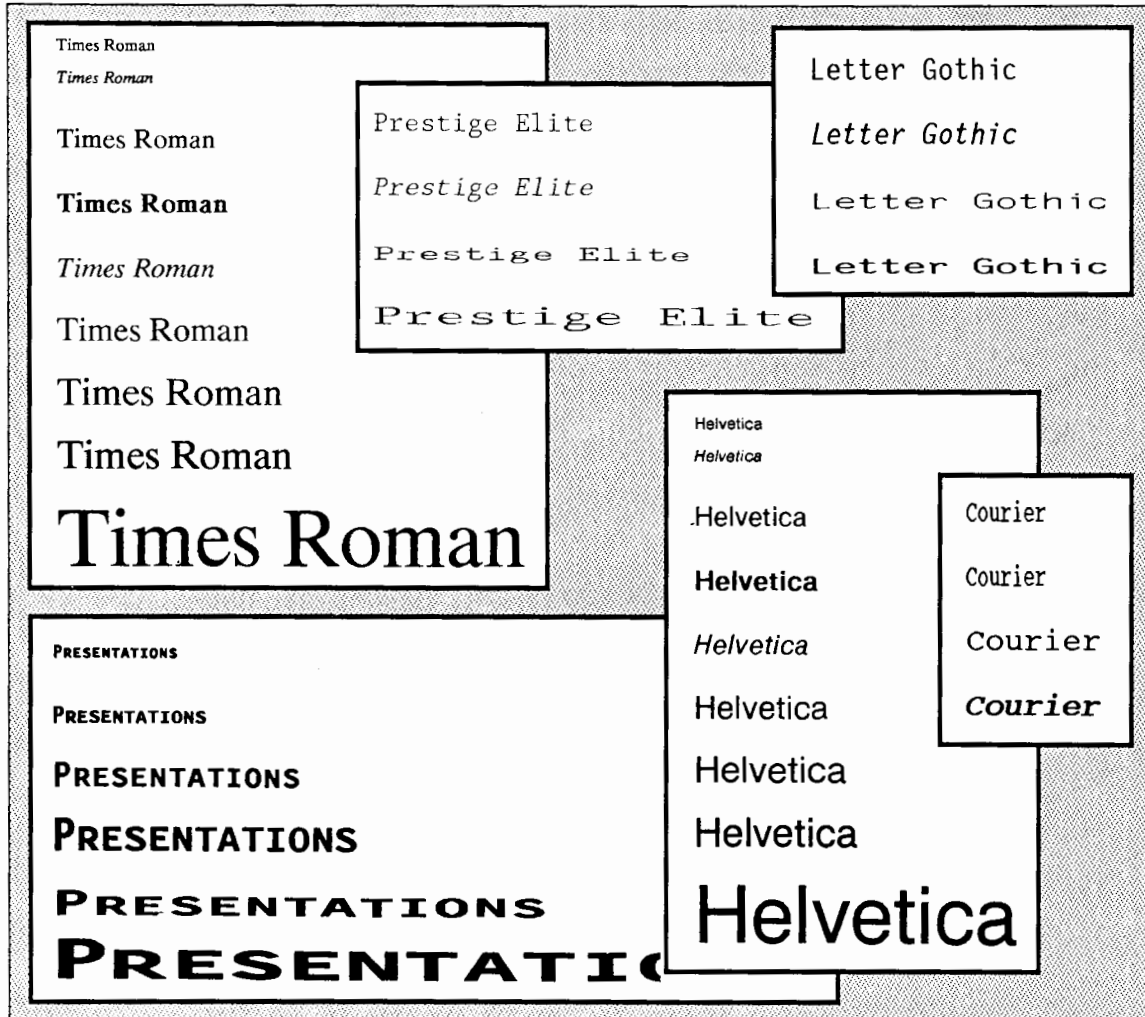
Send: E_c&/00 E_c(10U E_c(s 1p 12v 0s 0b 410lt 2Q

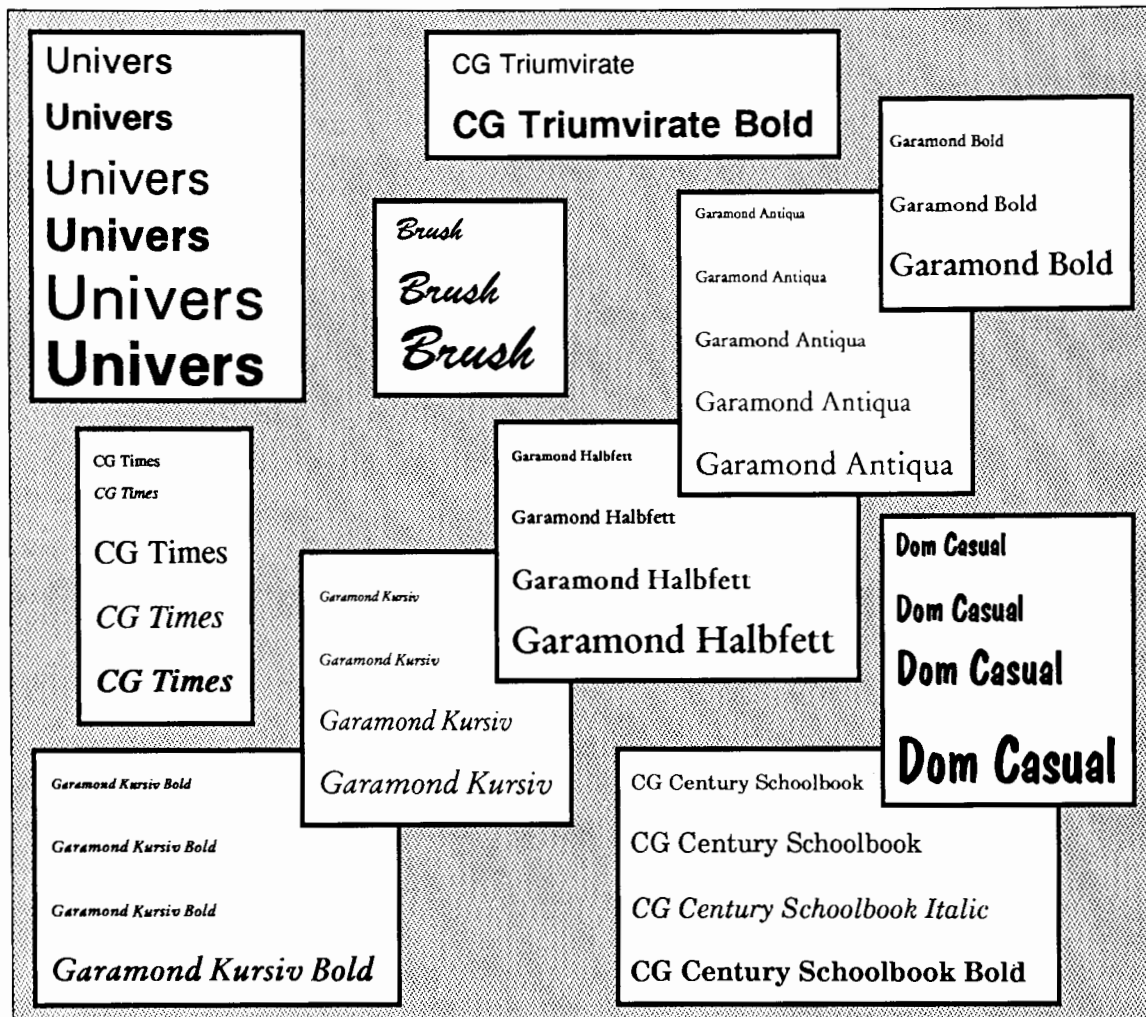
ORIENTATION
PRI/SEC CHARACTER SET (=Pri,)=Sec
CHARACTER SET
PRI/SEC FONT ATTRIBUTES (=Pri,)=Sec
SPACING 0=Normal, 1=Proportional
PITCH (Characters per inch)
POINT SIZE (Char Ht In 72nds of an Inch)
STYLE 0=Upright, 1=Italic
STROKE WEIGHT 0=Normal, 3=Bold
TYPEFACE
QUALITY 1=Draft, 2=Letter

Using the printer's priority list ensures that the appropriate printer commands are sent for the selected font. For example, if you send printer commands to select the Letter Gothic 12 pitch, 12 point font you must send the pitch command to print this font. The default value for the pitch characteristic is 10. If you do not send the command to change pitch to 12, the default Courier 10 pitch font will print. The Courier typeface will print because the pitch characteristic is higher in priority than typeface.

Expanding Your Font Selection

You can expand your font options by purchasing font cartridges or soft fonts. Samples of some of the fonts available for the HP DeskJet 500C printer are shown below and on the following page. Ordering information is available in appendix D.





If you use the HP DeskJet Series Printer Driver for Microsoft Windows that came with your printer, you can expand your font selection by purchasing scalable typefaces from the HP MasterType Library. Samples of the typefaces that you can order are shown below.

Antique Olive	ITC Avant Garde Gothic®	
Antique Olive Compact		<i>Brush</i>
CG Bodini	ITC Bengulat®	ITC Bookman®
CG Triumvirate Condensed	Garamond Antiqua	
◆ → ⊕ → → → ☆ ⊗	Dem Casual	Revue Light
CG Century Schoolbook	University Roman	
CG Triumvirate	Univers Condensed	Revue Shadow
<i>Park Avenue</i>	Stymie	Cooper Black
Shannon	ITC Souvenir®	ITC Lubalin Graph®
CG Palacio	Futura® II	Unicial
Microstyle	CG Omega	CG Times
		Univers®

NOTE

The HP DeskJet 500C printer allows access to MasterType Library scalable fonts only with the HP DeskJet Series Printer Driver for Microsoft Windows.

Using Fonts in Your Documents

Fonts can set the mood and tone of a document. Here are a few principles for designing documents with fonts.

- Select fonts that are appropriate for the message you want to communicate. Serif typefaces (CG Times, Courier) are typically used for formal letters and sans serif typefaces (Letter Gothic) are used for informal memos or spreadsheets. Sans serif typefaces can also be used for titles and headings.
- Use fonts wisely. Using too many fonts in a document causes confusion for your reader.
- Use bold or italic fonts to emphasize or visually cue the reader to important information.

Choosing Fonts

Use the following tips for choosing internal fonts.

NOTE

CG Times, Letter Gothic, and some Courier fonts (5 and 20 pitch) cannot be selected from the printer control panel. These fonts are selected through software or printer commands.

Courier is a fixed-pitch serif typeface frequently used for correspondence and professional documents. The Courier 10 pitch font, often called a typewriter-style typeface lends a cordial feel to a document. Use the Courier 16.67 pitch font to efficiently present text in a limited amount of space.

Letter Gothic is a fixed-pitch sans serif typeface used for a variety of applications. This typeface has a clean, modern look and works well for text in columns, tables, and lists. The Letter Gothic bold font can be used as a subheading.

CG Times is a kerned proportionally spaced serif typeface with a traditional look. This typeface provides an authoritative tone and is very easy to read. The CG Times 12 point font works especially well as body text in long documents and for correspondence.

Notes



Troubleshooting

This chapter contains helpful troubleshooting tips and solutions for problems your printer may have that do not require the help of trained service personnel.

Telephone Support	4-2
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Color Printing Problems	4-10
Printing Problems	4-11
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Clearing Paper Jams	4-14
Printer Self Test Problems	4-15
Print Cartridge Problems	4-17

Telephone Support

The information contained in this section covers common problems and suggests solutions. If your printer is not operating properly, follow the suggestions in this section. If your printer's problem is not covered here, or you still need help, contact your nearest HP Sales and Support Office.

No Response from the Printer

Symptom	Cause	Solution
<i>Printer is on, nothing prints.</i>	The printer is not ready for printing.	Make sure the Ready light on the printer control panel is on. If the Ready light is off, press the Status button on the printer control panel and the Ready light will turn on.
	The printer or computer is not connected properly to the interface cable.	<p>Make sure the correct interface cable was connected to the correct interface port (serial or parallel) on your printer, and the other end of the cable was connected to the correct interface port on your computer.</p> <p>Make sure the interface cable is connected securely to the printer and to the computer. Printing will not occur if the connection is loose to either port.</p>
	Communication was not established between the computer and printer.	Use the steps in "Establishing Communication" of appendix C in this user's guide.
	Your software was not setup to print to your printer.	Refer to the <i>HP DeskJet 500C Printer Software Information Guide</i> for software setup steps.
	The tape on the ink nozzles of the print cartridge was not removed.	Remove the print cartridge, and remove the transparent tape covering the ink nozzles (bottom of print cartridge).
	The print cartridge is not installed properly.	Remove the print cartridge, and re-install it. Make sure the green arrow on the cartridge top points to the green dot on the top of the cradle, and that the print cartridge "snaps" into place.
	The print cartridge may be out of ink.	Press the Clean button, and try printing. If nothing happens, replace the print cartridge with a new one.

Symptom	Cause	Solution
<p><i>The printer is on and nothing happens.</i></p>	<p>The printer is not properly connected to an electrical power source.</p>	<p>Turn off the printer and make sure the power module plug is connected firmly to the printer's power socket, and the other end of the power module cord is connected to a grounded wall outlet.</p> <p>If you use a power strip, make sure the power strip is plugged into a grounded wall outlet, and the power strip is on.</p> <p>It is also possible that the protection circuitry in the power module was activated by a power surge. Turn the printer off and on to clear this error.</p>

Control Panel Error Light Indications

This section identifies printer control panel error light indications and provides solutions to each error indication.

Reset	Envelope	Clean	Print Cartridge
	<input type="checkbox"/> Portrait <input type="checkbox"/> Landscape <input type="checkbox"/> Compress	<input type="checkbox"/> Busy <input type="checkbox"/> Ready	<input type="checkbox"/> Change Cartridge <input type="checkbox"/> Draft
Load/Eject	Font	Status	Quality

LD038EA

Symptom	Cause	Solution
<i>Ready Light is blinking.</i>	The printer is out of media.	<p>Load paper or media in the printer's IN tray and press the Status button on the printer control panel.</p> <p>If media is already loaded, make sure the paper tray extender is pushed in toward the printer and media is flush against the right side of the printer's IN tray.</p>
<i>Busy and Ready lights are blinking.</i>	A paper jam occurred.	Use the steps in "Clearing Paper Jams" in this chapter.
<i>Busy light blinking, printer won't print in landscape orientation.</i>	The printer is waiting to print.	Press the Load/Eject button.

Symptom	Cause	Solution
<i>All printer control panel lights are blinking alternately.</i>	The print carriage is unable to move.	<p>Make sure all packing tape was removed from the print cartridge cradle.</p> <p>Turn off the printer, open the printer's top cover, and remove anything blocking the movement of the print carriage. Gently move the print carriage to the left and back again with your hand. Then, turn on the printer.</p> <p>If the lights continue to blink and you have font cartridges installed, make sure the problem wasn't caused by a font cartridge failure. Remove any installed font cartridges and turn the printer off and on. If the lights continue to blink, contact your nearest HP Sales and Support Office.</p>
<i>Change Cartridge and Busy lights are blinking.</i>	The print cartridge contacts and print cartridge cradle contacts need to be brushed.	<p>Brush the contacts as described in "Brushing the Print Cartridge Contacts" section of this chapter.</p> <p>If the lights continue to blink after brushing, replace the print cartridge with a new one.</p>
<i>Draft and Change Cartridge lights are blinking alternately with Portrait, Landscape, Compress, Busy and Ready lights.</i>	A problem with an installed font cartridge occurred.	Remove any font cartridges installed in the printer and turn the printer off and on. If the lights continue to blink without font cartridges installed, contact your nearest HP Sales and Support Office.
<i>All control panel lights are on.</i>	The printer was hung up.	Turn off the printer and computer. If the computer and printer are connected to a power strip, turn off the power strip. Turn on the printer, wait 30 seconds and turn on the computer. If nothing happens, contact your nearest HP Sales and Support Office.
<i>All printer control panel lights blink simultaneously.</i>	The printer failed an internal test.	<p>Turn the printer off and on.</p> <p>If the lights continue to blink, contact your nearest HP Sales and Support Office.</p>

Symptom	Cause	Solution
<i>Change Cartridge light is blinking, print carriage has moved to the center of the printer.</i>	The printer is waiting for you to change the print cartridge.	Change the print cartridge and press the Print Cartridge button.
<i>Change Cartridge light is blinking, print carriage is in "home" position.</i>	The printer is waiting for you to change the print cartridge.	<p>The print carriage moves to the center when you press the Print Cartridge button on the printer control panel. If the print cartridge is not changed within 5 minutes, the print carriage returns to the "home" position and the Change Cartridge light blinks.</p> <p>Press the Print Cartridge button, change the print cartridge, and press the Print Cartridge button again to return the print carriage to the "home" position.</p>
<i>Portrait and Landscape, lights are blinking alternately with Compress, Ready, Busy, Change Cartridge, and Draft lights.</i>	The printer has detected a problem with an installed RAM cartridge.	Remove any installed RAM cartridges and turn the printer off and on. If the lights continue to blink, contact your nearest HP Sales and Support Office.
<i>Portrait, Landscape, Busy, and Change Cartridge lights are blinking alternately with Compress, Ready, and Draft lights.</i>	An emulation cartridge is installed in the printer. The DeskJet 500C printer does not support the use of emulation cartridges.	Remove the emulation cartridge and turn the printer off and on. If the lights continue to blink, contact your nearest HP Sales and Support Office.

Print Quality Problems

This section identifies some of the causes for print quality problems. An example of one of the problems is shown below. Refer to the following table for a solution.

**Lorem ipsum dolor sit amet, consectetur
 adipiscing elit, sed diam nonummy eusmod
 tempor incididunt ut labore et dolore magna
 aliquam erat volupat. Ut enim ad minimim
 veniami quis nostrud exercitation ullam-
 corpor suscipit laboris nisi ut aliquip ex ea
 commodo consequat. Duis autem vel eum**

Symptom	Cause	Solution
<i>Incomplete characters, dots or lines missing from printouts.</i> See example above.	Print Cartridge needs to be re-installed.	Remove the print cartridge and re-install it. If print quality does not improve, brush the contacts on the print cartridge and the print cartridge cradle as described in "Brushing the Print Cartridge Contacts" in this chapter. If print quality does not improve, clean the print cartridge by pressing the Clean button on the printer control panel. See "Print Cartridge Problems" in this chapter.
<i>Inconsistent print density.</i>	The print cartridge needs to be "cleaned". Paper does not meet recommendations.	Press the Clean button on the printer control panel. Try printing on a different paper type.

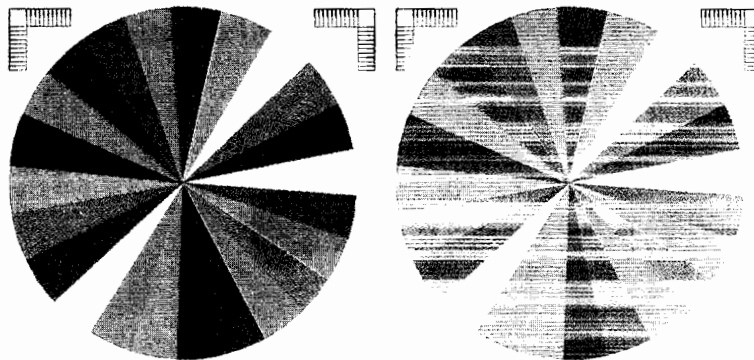
Symptom	Cause	Solution
<i>Fading characters, black print cartridge is installed.</i>	Black print cartridge is running out of ink.	Press the Clean button on the printer control panel. If print quality does not improve, replace the print cartridge with a new one.
<i>Printing is Fuzzy.</i>	The wrong print quality mode was selected. Media quality does not meet recommendations. The "print" side was not used for printing.	Make sure letter quality mode is selected. Refer to "Using Media in Your Printer" in chapter 1 of this user's guide for recommendations. Use HP CX JetSeries CutSheet special paper for best results printing color. Use HP LX JetSeries Transparency film for transparency printing. Make sure you are using the "print" side of the media. The "print" side is indicated on special paper and transparencies. If you use plain paper, turn the paper over and try the other side.
<i>Faint print, black print cartridge is installed.</i>	Media quality does not meet recommendations.	Refer to "Using Media in Your Printer" in chapter 1 of this user's guide for recommendations. If you use plain paper, try using a different paper type.
<i>Faint print, color print cartridge is installed.</i>	Media quality does not meet recommendations.	Refer to "Using Media in Your Printer" in chapter 1 of this user's guide for recommendations. If colors or hues are missing, in your printout, see "Color Printing Problems" in this chapter.



Color Printing Problems

Symptom	Cause	Solution
<i>Missing colors or hues</i> See example below.	The print cartridge is running out of color ink.	Replace the print cartridge with a new one.
<i>Printed colors don't match screen colors.</i>	Color settings in your software may need adjustment.	Refer to the <i>HP DeskJet 500C Printer Software Information Guide</i> for information.
<i>Colors appear washed out.</i>	Media quality does not meet recommendations.	Refer to "Using Media in Your Printer" in chapter 1 of this user's guide for recommendations.
<i>Black and white output instead of color.</i>	The black print cartridge was installed. Color printing was not selected in your software package, or the appropriate printer driver was not used.	Remove the black print cartridge and install the color print cartridge. Refer to your software manual, or to the <i>HP DeskJet 500C Printer Software Information Guide</i> for information on color printing.

The print sample on the right was printed with a print cartridge that is running out of color ink.



Printing Problems

Symptom	Cause	Solution
<i>Printing is skewed or slanted.</i>	Media loading problems.	Refer to the "Media Handling Problems " section in this chapter for solutions to this problem.
<i>Printer seems to be printing, but nothing is printed.</i>	Tape over the ink nozzles (bottom of print cartridge) was not removed.	Remove the print cartridge and remove transparent tape covering the ink nozzles.
	The print cartridge wasn't "snapped" into place.	Re-install the print cartridge and make sure to push the green arrow toward the green dot until the print cartridge "snaps" into place.
<i>Incorrect printout.</i>	The appropriate printer driver was not selected in your software package.	Check the printer driver selected in your software. Printing problems occur when the wrong printer driver is selected.
<i>Internal fonts selected are not printing.</i>	The font was not selected correctly in your software.	Check your software manual for information on how to select fonts. If you used the printer control panel, some software packages override control panel font selections.
<i>Optional fonts selected are not printing.</i>	The font was not installed.	If you use font cartridges, make sure the font cartridge is pushed down into the font cartridge slot. If you use soft fonts, make sure the font was downloaded correctly. If you use scalable fonts, make sure the fonts were installed correctly.
	The font was not selected correctly in your software.	Check your software manual for information on how to select fonts. If you used the printer control panel, some software packages override control panel font selections.

Media Handling Problems

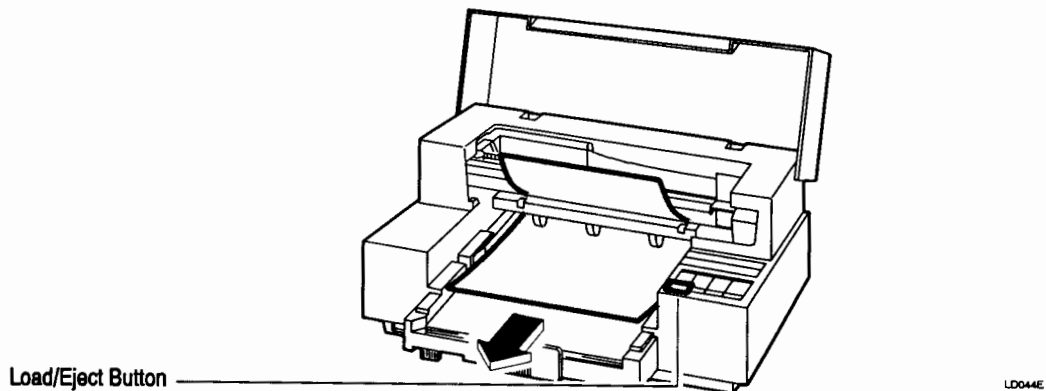
Symptom	Cause	Solution
<i>Printer loads multiple sheets of media .</i>	Paper is stuck together.	Remove paper and reload it.
	Different paper types and weights are loaded.	Remove paper and try using one paper type. Also, refer to "Using Media in Your Printer" to ensure paper meets recommendations.
	More than a 1/2 inch (1cm) stack of media is loaded.	Take out a few sheets of media.
<i>Media will not eject from the printer.</i>	Media needs to be manually ejected.	Press the Load/Eject button on the printer control panel.
	The computer was turned off during printing.	Turn the printer off and on to reset the printer. Information waiting to print is lost when the printer is turned off.
<i>Paper won't load into the printer.</i>	Paper is not loaded properly into the IN tray.	Make sure the paper tray extender is pushed in toward the printer and that the paper is flush against the right side of the printer's IN tray.
	Accumulated paper dust on the paper feed rollers is preventing loading.	Open the printer's top cover, and remove the OUT tray cover and OUT tray. Wipe the paper feed rollers with a soft lint free cloth. Do not use cleaning fluids.
<i>Transparencies won't load into the printer.</i>	More than one media type is loaded.	Remove all other media and load only transparencies.
	The IN tray is loaded with only one transparency.	Load at least 10 transparencies, even if you plan to print one transparency to ensure proper loading. If you have less than 10 transparencies, try loading the transparencies on top of a stack of paper. Printing may be slightly skewed if transparencies aren't loaded squarely.

Symptom	Cause	Solution
<i>The envelope won't load into the printer.</i>	<p>The envelope was not loaded under the paper feed rollers.</p> <p>The Envelope button was not pressed.</p> <p>Settings for envelope printing were not selected in your software.</p>	<p>Slide the envelope under the paper feed rollers with the right side of the envelope flush against the right side of the printer's IN tray.</p> <p>Press the Envelope button.</p> <p>Change your software settings for printing envelopes. Refer to your software manual for more information.</p>
<i>Media loading is skewed or slanted.</i>	<p>More than one media type is loaded.</p> <p>Media is not loaded squarely in the printer.</p> <p>More than a 1/2 inch (1 cm) stack of media is loaded.</p> <p>Accumulated dust on the printer's paper feed rollers is preventing proper loading.</p>	<p>Remove other media types.</p> <p>Reload media and make sure the right side of the paper is flush against the right side of the IN tray.</p> <p>Take out some of the media loaded in the IN tray. If you use transparencies, make sure that at least 10 transparencies are loaded. If you have less than 10 transparencies, try loading it squarely on top of a stack of paper. Printing may be slightly skewed if transparencies aren't loaded squarely.</p> <p>Open the printer's top cover, and remove the OUT tray cover and OUT tray. Wipe the paper feed rollers with a soft lint free cloth. Do not use cleaning fluids.</p> <p>If you use preprinted forms, make sure the forms were printed squarely on the paper.</p> <p>Contact your nearest HP Sales and Support Office if the problem persists.</p>

Clearing Paper Jams

Paper jams are indicated by blinking Ready and Busy lights. Use the steps below to clear a paper jam.

1. Open the printer's top cover.
2. Remove the OUT tray cover and the OUT tray.
3. Pull the lower portion of the paper toward you while pressing the Load/Eject button.
4. Turn off the printer.



5. Turn on the printer. If the Ready and Busy lights blink, make sure all paper was removed from the printer's paper path.
6. Replace the OUT tray and OUT tray cover.

To prevent paper jams, use the following tips:

- Make sure nothing blocks the printer's paper path.
- Make sure the IN tray contains no more than a $\frac{1}{2}$ inch (1 cm) stack of media.
- Load paper properly.

Printer Self Test Problems

If a printer self test pattern does not print when you try to initiate one, try the following:

- Make sure that paper is loaded in the printer's IN tray.
- Check for a paper jam in the printer. Refer to "Clearing Paper Jams" on the previous page of this user's guide for more information.
- Disconnect the printer from your computer and try the printer self test again. Use the steps below to print a printer self test.

Printing a Printer Self Test

1. Turn off the printer
2. Press and hold the Font button on the printer control panel while turning on the printer. Release the Font button after paper begins to load.

A printer self test pattern will print. If you have a color print cartridge installed the printer self test pattern will resemble the one shown below.

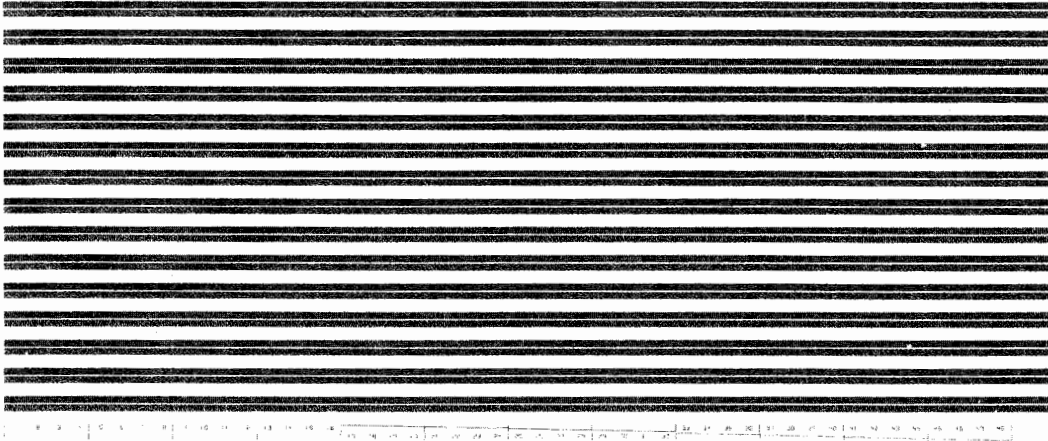
Print Cartridge Problems

If the print cartridge does not return to the "home" position when you press the Print Cartridge button, the print cartridge may need to be cleaned using the brush provided with the print cartridge storage container. See the "Brushing the Print Cartridge Contacts" later in this chapter.

"Cleaning" the Print Cartridge

To restore print quality when dots or lines are missing from your printout, press the Clean button on the printer control panel. If you clean the color print cartridge, a pattern will print after the cleaning process is completed. A color clean pattern is shown below.

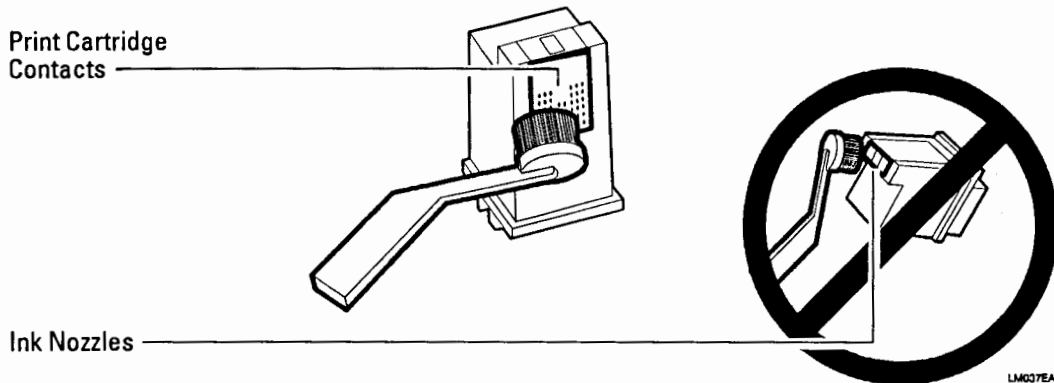
Do not clean the print cartridge unnecessarily, as this will shorten the print cartridge life.



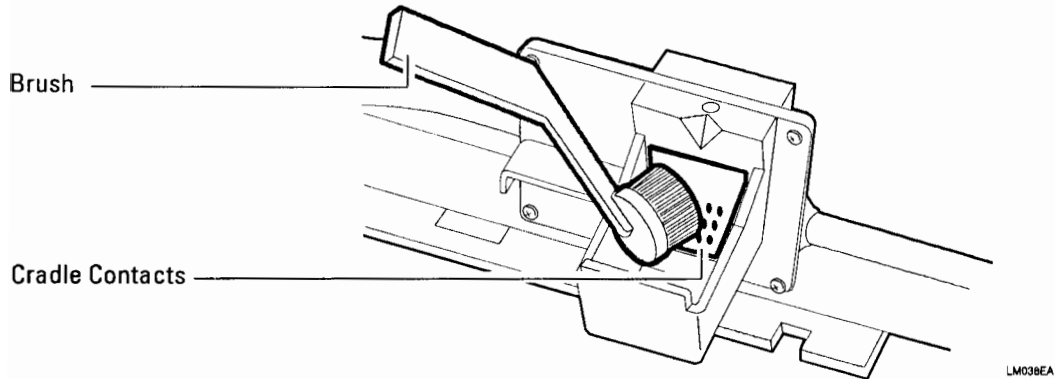
Brushing the Print Cartridge Contacts

The print cartridge contacts will need to be brushed when the print cartridge cradle will not move to the "home" position when you press the Print Cartridge button. Use the steps below.

1. Open the printer's top cover.
2. Press the Print Cartridge button on the printer control panel.
3. Remove the print cartridge, following the instructions in "Changing Print Cartridges" in chapter 1 of this user's guide.
4. Remove the brush from the storage container.
5. Brush the contacts on the print cartridge as shown below. *Do not brush the ink nozzles of the print cartridge.*



6. Brush the contacts on the print cartridge cradle as shown.
7. Re-install the print cartridge and print the page again.



If the problem doesn't improve, replace the print cartridge with a new one.

Removing Dried Ink from Black Print Cartridges

If a black print cartridge is exposed to air for an extended period of time, a layer of dried ink will form a crust on the nose of the print cartridge. If this occurs, do not install the print cartridge in your printer.

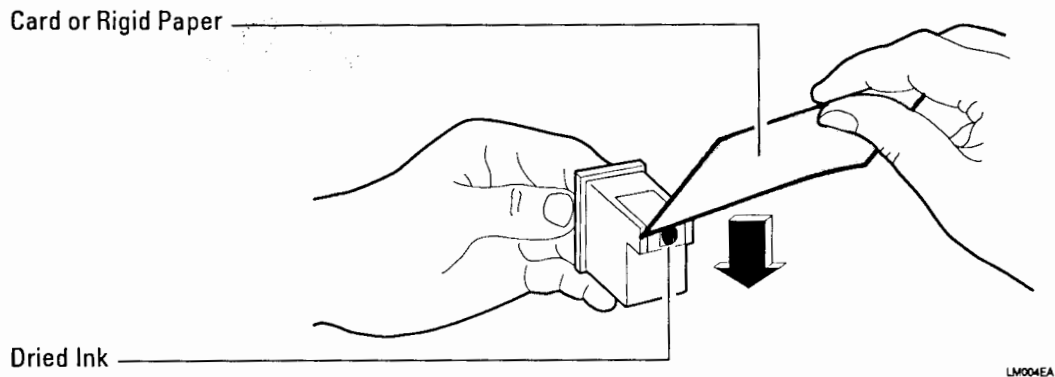
Follow the steps below to remove the dried ink from the nose of the print cartridge.

Caution

Ink may stain hands or clothing.

1. Grasp the print cartridge by the green cartridge top.

2. Hold the print cartridge over a waste can so that the nose of the print cartridge is pointed toward the waste can.
3. Gently scrape the dried ink with the edge of a 3 in. x 5 in. index card or other rigid paper stock so that the dried ink falls into the waste can. *Do not use the brush to remove dried ink from print cartridge.*
4. When all the dried ink has been removed, install the print cartridge in your printer.



5. Clean the print cartridge by pressing the Clean button
6. Try printing a document with the print cartridge. Evaluate the print quality. If the print cartridge has been left out too long, it may not recover and it will need to be replaced.

NOTE

Always store print cartridges in the printer's print cartridge cradle or in the print cartridge storage container. Leaving print cartridges out on your desk exposes them to air, causes the ink to evaporate and degrades the print quality.

Notes



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 appendix contains the following information to help you use character sets:

- Definitions of the two types of character sets (7-bit and 8-bit) available through your printer.
- Character set charts that identify character locations and ASCII character code addresses (positions).
- A substitution table for you to access ISO characters from the HP Roman8 character set.
- Conversion tables for ASCII, decimal, and hexadecimal characters.

Types of Character Sets

There are two types of character sets: 128-character sets and 256-character sets. Character sets containing 128 characters are often referred to as "7-bit" character sets because only seven bits of the character byte are used to designate the character. Character sets containing 256 characters are referred to as "8-bit" character sets because the eighth bit of the character byte must be used in order to access all 256 characters.

7-bit Character Sets

The 7-bit character sets conform to standard definitions set forth by the International Standards Organization (ISO). The HP DeskJet 500C printer supports the following 7-bit character sets: 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), JIS ASCII (ISO 14), Portugese (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). The HP DeskJet 500C printer supports the following 8-bit character sets: PC-8, HP Roman8, PC-850, PC-8 Danish/Norwegian, and ECMA-94 Latin 1. Other character sets are supported through optional font cartridges.

The default character set of the DeskJet 500C printer is PC-8. Default character set is selected through the mode function switches. Refer to "Using Mode Function Switches" in chapter 1 of this user's guide. Additional character set support is available through the HP22706W WordPerfect font cartridge, and the HP DeskJet Series Printer Driver for Microsoft Windows.

Character Set Charts

This section identifies the character locations and ASCII character code addresses (positions) for the character sets supported by the DeskJet 500C printer.

PC-8 Character Set Chart

	▶		0	@	P	'	p	Ç	É	á	☐	L	⊥	α	≡
0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
☺	◀	!	1	A	Q	a	q	ü	æ	í	☒	⊥	⊥	β	±
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
☻	↕	"	2	B	R	b	r	é	Æ	ó	☒	⊥	⊥	Γ	≥
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
♥	!!	#	3	C	S	c	s	â	ô	ú	|	⊥	⊥	π	≤
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
♦	¶	\$	4	D	T	d	t	ä	ö	ñ	⊥	⊥	⊥	Σ	∫
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
♣	§	%	5	E	U	e	u	à	ò	Ñ	≡	⊥	⊥	σ	∫
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
♠	—	&	6	F	V	f	v	â	û	ª	⊥	⊥	⊥	μ	÷
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
●	↕	'	7	G	W	g	w	ç	ù	º	⊥	⊥	⊥	τ	≈
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
◼	↑	(	8	H	X	h	x	ê	ÿ	¿	⊥	⊥	⊥	Φ	°
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
○	↓	)	9	I	Y	i	y	ë	Ö	⌈	⊥	⊥	⊥	Θ	·
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
◼	→	*	:	J	Z	j	z	è	Ü	⌈	⊥	⊥	⊥	Ω	·
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
♂	←	+	;	K	[	k	{	ï	ç	½	⊥	⊥	⊥	δ	√
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
♀	⌊	,	<	L	\	l	|	î	£	¼	⊥	⊥	⊥	∞	n
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
♪	↔	-	=	M	]	m	}	ì	¥	¡	⊥	⊥	⊥	φ	²
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
♪	▲	.	>	N	^	n	~	Ä	Pt	«	⊥	⊥	⊥	ε	■
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
☼	▼	/	?	O	_	o	☒	Å	f	»	⊥	⊥	⊥	∩	
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

HP Roman8 Character Set Chart

0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
			0	@	P	'	p				-	â	Å	Á	Þ
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
			!	1	A	Q	a	q		À	Ý	ê	î	Ã	þ
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
			"	2	B	R	b	r		Â	ý	ô	ø	ã	·
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
			#	3	C	S	c	s		È	°	û	Æ	Ð	μ
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
			\$	4	D	T	d	t		Ê	Ç	á	å	ð	¶
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
			%	5	E	U	e	u		Ë	ç	é	í	Í	¾
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
			&	6	F	V	f	v		Î	Ñ	ó	ø	ì	—
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
			'	7	G	W	g	w		Ï	ñ	ú	æ	Ó	¼
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
			(	8	H	X	h	x		´	ı	à	Ä	Ò	½
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
			)	9	I	Y	i	y		`	ı	è	ì	Õ	ª
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
			*	:	J	Z	j	z		^	◻	ò	Ö	õ	°
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
			+	;	K	[	k	{		¨	£	ù	Ü	Š	«
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
			,	<	L	\	l	|		˜	¥	ä	É	š	■
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
			-	=	M	J	m	}		Ù	§	ë	ï	Ú	»
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
			.	>	N	^	n	~		Û	f	ö	ß	ÿ	±
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255
			/	?	O	_	o	☒		£	ç	ü	Ô	ÿ	

PC-8 Danish/Norwegian Character Set Chart

0	▶		0	@	P	‘	p	Ç	É	á	☐	L	⊥	α	≡
16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	
☺	◀	!	1	A	Q	a	q	ü	æ	í	☒	⊥	⊥	β	±
17	33	49	65	81	97	113	129	145	161	177	193	209	225	241	
☺	↕	"	2	B	R	b	r	é	Æ	ó	☒	⊥	⊥	Γ	≥
18	34	50	66	82	98	114	130	146	162	178	194	210	226	242	
♥	!!	#	3	C	S	c	s	â	ô	ú	|	⊥	⊥	π	≤
19	35	51	67	83	99	115	131	147	163	179	195	211	227	243	
♦	¶	\$	4	D	T	d	t	ä	ö	ñ	⊥	⊥	⊥	Σ	∫
20	36	52	68	84	100	116	132	148	164	180	196	212	228	244	
♣	§	%	5	E	U	e	u	à	ò	Ñ	⊥	⊥	⊥	σ	J
21	37	53	69	85	101	117	133	149	165	181	197	213	229	245	
♠	—	&	6	F	V	f	v	å	û	õ	⊥	⊥	⊥	μ	÷
22	38	54	70	86	102	118	134	150	166	182	198	214	230	246	
●	↕	'	7	G	W	g	w	ç	ù	Õ	⊥	⊥	⊥	τ	≈
23	39	55	71	87	103	119	135	151	167	183	199	215	231	247	
◼	↑	(	8	H	X	h	x	ê	ÿ	ı	⊥	⊥	⊥	Φ	°
24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	
○	↓	)	9	I	Y	i	y	ë	Ö	ã	⊥	⊥	⊥	θ	·
25	41	57	73	89	105	121	137	153	169	185	201	217	233	249	
◼	→	*	:	J	Z	j	z	è	Ü	Ã	⊥	⊥	⊥	Ω	·
26	42	58	74	90	106	122	138	154	170	186	202	218	234	250	
♂	←	+	;	K	[	k	{	ï	ø	ℓ	⊥	⊥	⊥	δ	√
27	43	59	75	91	107	123	139	155	171	187	203	219	235	251	
♀	⊥	,	<	L	\	l	|	î	£	'n	⊥	⊥	⊥	∞	n
28	44	60	76	92	108	124	140	156	172	188	204	220	236	252	
♪	↔	-	=	M	]	m	}	ì	Ø	ı	⊥	⊥	⊥	φ	2
29	45	61	77	93	109	125	141	157	173	189	205	221	237	253	
♪	▲	.	>	N	^	n	~	Ä	L	3	⊥	⊥	⊥	ε	■
30	46	62	78	94	110	126	142	158	174	190	206	222	238	254	
☼	▼	/	?	O	_	o	☒	Å	†	◻	⊥	⊥	⊥	∩	
31	47	63	79	95	111	127	143	159	175	191	207	223	239	255	

PC-850 Character Set Chart

0	▶		0	@	P	'	p	Ç	É	á	☐	L	ð	Ó	-	
16	◀	!	1	A	Q	a	q	ü	æ	í	☒	⊥	Ð	β	±	
32	↕	"	2	B	R	b	r	é	Æ	ó	☒	⊥	Ê	Ô	=	
48	♥	!!	#	3	C	S	c	s	â	ô	ú	|	⊥	Ë	Ò	¾
64	♦	¶	\$	4	D	T	d	t	ä	ö	ñ	⊥	—	È	õ	¶
80	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	+	ı	Õ	§
96	♠	—	&	6	F	V	f	v	å	û	ª	Â	ã	Í	μ	÷
112	●	↕	'	7	G	W	g	w	ç	ù	º	À	Ã	Î	þ	¸
128	◼	↑	(	8	H	X	h	x	ê	ÿ	¿	©	ℒ	Ï	ƒ	°
144	○	↓	)	9	I	Y	i	y	ë	Ö	®	≡	≡	⊥	Ú	”
160	◐	→	*	:	J	Z	j	z	è	Ü	⌋	||	≡	⌋	Û	·
176	♂	←	+	;	K	[	k	{	ï	ø	½	≡	≡	■	Ü	ı
192	♀	⌋	,	<	L	\	l	|	î	£	¼	≡	≡	■	Ý	³
208	♪	↔	-	=	M	]	m	}	ì	Ø	ı	ç	≡	|	Ÿ	²
224	♫	▲	.	>	N	^	n	~	Ä	×	«	¥	≡	Ì	-	■
240	☀	▼	/	?	O	_	o	☒	Å	f	»	⌋	□	■	'	
256																

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. Use this table as a reference to the values for characters contained in the ISO character sets that differ from the characters in the ANSI ASCII character set.

For example, within the United Kingdom (ISO 4) character set, the British pound sign £ replaces the # sign used in decimal position 35 of the 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	#	¤	É	Ä	Ö	Å	Ü	'	ä	ö	å	ü
10	Swedish	3S	#	¤	@	Ä	Ö	Å	^	'	ä	ö	å	
17	Spanish	2S	£	\$	§	í	Ñ	ì	^	'	°	ñ	ç	~
69	French	1F	£	\$	à	°	ç	§	^	μ	é	ù	è	
21	German	1G	#	\$	§	Ä	Ö	Ü	^	'	ä	ö	ü	ß
4	UK	1E	£	\$	@	[	\	\]	^	'	{	|	}
16	Portuguese	4S	#	\$	§	Ã	Ç	Õ	^	'	ã	ç	õ	°
60	Norwegian1	0D	#	\$	@	Æ	Ø	Å	^	'	æ	ø	å	
61	Norwegian2	1D	§	\$	@	Æ	Ø	Å	^	'	æ	ø	å	|
2	IRV		#	¤	@	[	\	\]	^	'	{	|	}
15	Italian	0I	£	\$	§	°	ç	é	^	'	à	ò	è	ì

ECMA-94 Latin 1 Character Set Chart

0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
			0	@	P	‘	p				°	À	Ð	à	ð
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
			!	A	Q	a	q			ı	±	Á	Ñ	á	ñ
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
			"	B	R	b	r			ç	²	Â	Ò	â	ò
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
			#	C	S	c	s			£	³	Ã	Ó	ã	ó
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
			\$	D	T	d	t			¤	´	Ä	Ô	ä	ô
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
			%	E	U	e	u			¥	µ	Å	Õ	å	õ
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
			&	F	V	f	v			|	¶	Æ	Ö	æ	ö
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
			'	G	W	g	w			§	·	Ç	×	ç	÷
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
			(	H	X	h	x			¨	¸	È	Ø	è	ø
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
			)	I	Y	i	y			©	ı	É	Ù	é	ù
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
			*	J	Z	j	z			ª	º	Ê	Ú	ê	ú
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
			+	K	[	k	{			«	»	Ë	Û	ë	û
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
			,	<	L	\	|			¬	¼	Ì	Ü	ì	ü
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
			-	=	M	]	}			-	½	Í	Ý	í	ý
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
			.	>	N	^	~			®	¾	Î	Þ	î	þ
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255
			/	?	O	_	o			-	¿	Ï	ß	ï	ÿ

HP Legal Character Set Chart

			0	@	P	°	p
0	16	32	48	64	80	96	112
		!	1	A	Q	a	q
1	17	33	49	65	81	97	113
		"	2	B	R	b	r
2	18	34	50	66	82	98	114
		#	3	C	S	c	s
3	19	35	51	67	83	99	115
		\$	4	D	T	d	t
4	20	36	52	68	84	100	116
		%	5	E	U	e	u
5	21	37	53	69	85	101	117
		&	6	F	V	f	v
6	22	38	54	70	86	102	118
		'	7	G	W	g	w
7	23	39	55	71	87	103	119
		(	8	H	X	h	x
8	24	40	56	72	88	104	120
		)	9	I	Y	i	y
9	25	41	57	73	89	105	121
		*	:	J	Z	j	z
10	26	42	58	74	90	106	122
		+	;	K	[	k	§
11	27	43	59	75	91	107	123
		,	=	L	®	l	¶
12	28	44	60	76	92	108	124
		-	=	M	]	m	†
13	29	45	61	77	93	109	125
		.	ç	N	©	n	™
14	30	46	62	78	94	110	126
		/	?	O	—	o	☒
15	31	47	63	79	95	111	127

Line Draw Character Set Chart (seven bit)

This character set is available through the following optional font cartridges: HP22706B, HP22706C, and HP22706M.



0	16	32	48	64	80	96	112
1	17	33	49	65	81	97	113
2	18	34	50	66	82	98	114
3	19	35	51	67	83	99	115
4	20	36	52	68	84	100	116
5	21	37	53	69	85	101	117
6	22	38	54	70	86	102	118
7	23	39	55	71	87	103	119
8	24	40	56	72	88	104	120
9	25	41	57	73	89	105	121
10	26	42	58	74	90	106	122
11	27	43	59	75	91	107	123
12	28	44	60	76	92	108	124
13	29	45	61	77	93	109	125
14	30	46	62	78	94	110	126
15	31	47	63	79	95	111	127

Math7 Character Set Chart

This character set is available through the HP22706B optional font cartridge.

			0	¶	π	¶	π
0	16	32	48	64	80	96	112
		√	1	α	γ	α	γ
1	17	33	49	65	81	97	113
		|	2	β	θ	β	θ
2	18	34	50	66	82	98	114
		§	3	ψ	σ	ψ	σ
3	19	35	51	67	83	99	115
		∇	4	φ	τ	φ	τ
4	20	36	52	68	84	100	116
		±	5	ε	ξ	ε	ξ
5	21	37	53	69	85	101	117
		α	6	∂	Δ	∂	Δ
6	22	38	54	70	86	102	118
		∫	7	λ	δ	λ	δ
7	23	39	55	71	87	103	119
		÷	8	η	χ	η	χ
8	24	40	56	72	88	104	120
		≈	9	ι	υ	ι	υ
9	25	41	57	73	89	105	121
		Π	Ω	Θ	ζ	Θ	ζ
10	26	42	58	74	90	106	122
		Γ	Λ	κ	↑	κ	↑
11	27	43	59	75	91	107	123
		Ψ	∞	ω	→	ω	→
12	28	44	60	76	92	108	124
		≡	∫	μ	∫	μ	∫
13	29	45	61	77	93	109	125
		Φ	†	ν	←	ν	←
14	30	46	62	78	94	110	126
		∫	Σ	ρ	↓	ρ	⌘
15	31	47	63	79	95	111	127

Math8 Character Set Chart

This character set is available through the HP22706B optional font cartridge.

			0	∴	Π	∴	π				—	⊕	Å	Γ	⌋
0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
		✓	1	A	P	α	ρ			↑	∇	⊙	→	⌊	⌋
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
		"	2	B	Σ	β	σ			→	∃	⊗	⊥	⌈	⌉
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
		°	3	Γ	T	γ	τ			↓	⊤	⊖	⌊	}	}
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
		∞	4	Δ	Υ	δ	υ			←	⊥	∅	∃	⌊	⌋
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
		÷	5	E	Φ	ε	φ			↑	U	∧	∫	⌈	⌋
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
		α	6	Z	X	ζ	χ			⇒	∩	∇	§	φ	|
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
		'	7	H	Ψ	η	ψ			↓	∈	∇	∠	⌋	↓
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
		(	8	Θ	Ω	θ	ω			⇐	∃	→	∅	∇	⌋
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
		)	9	I	∇	ι	∂			↕	∉	∅	κ	||	>
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
		×	e	K	∂	κ	φ			↔	C	·	∩	∠	⌋
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
		+	ε	Λ	ς	λ	ω			↕	∩	•	∩	/	\
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
		,	<	M	≤	μ	≈			↔	∠	•	∞		
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
		—	=	N	≠	ν	≡			↔	∂	∅	∞		±
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
		.	>	∞	≥	ξ	≠			↔	∩	†	∞		±
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
		/	≈	O	—	o	☒			→	∩	†	∞		
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

PIFont Character Set Chart

This character set is available through the HP22706B optional font cartridge.

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

DeskTop Character Set Chart

This character set is available through the HP22706W optional font cartridge.

0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
		!	1	A	Q	a	q			¶	”	±	>	o	`
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
		"	2	B	R	b	r			§	μ	×	«	æ	^
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
		#	3	C	S	c	s			†	‰	÷	»	Æ	”
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
		\$	4	D	T	d	t			‡	•	°	,	ð	~
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
		%	5	E	U	e	u			©	●	'	„	Ð	˘
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
		&	6	F	V	f	v			®	○	”	•	ij	ˆ
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
		'	7	G	W	g	w			™	○	¼	i	IJ	”
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
		(	8	H	X	h	x			‰	■	½	i	ı	°
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
		)	9	I	Y	i	y			ç	■	¾	Pt	L	•
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
		*	:	J	Z	j	z			—	□	1	l	æ	ˉ
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
		+	;	K	[	k	{			—	□	2	£	Œ	˘
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
		,	<	L	\	l	|			...	'	3	¥	ø	˘
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
		-	=	M	]	m	}			fi	¬	/	□	Ø	•
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
		.	>	N	^	n	~			fl	|		f	þ	ı
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
		/	?	O	_	o	■						β	ρ	
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

MS Windows Symbol Set Chart

This character set is available through the HP DeskJet Series Printer Driver for Microsoft Windows.

NUL			0	@	P	`	p				°	À	Ð	à	ð
0	16	32	48	64	80	96	112	128	144	160	176	182	208	224	240
		!	1	A	Q	a	q		'	i	±	Á	Ñ	á	ñ
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
		"	2	B	R	b	r		'	ç	²	Â	Ò	â	ò
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
		#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
		\$	4	D	T	d	t			¤	'	Ä	Ô	ä	ô
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
		%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
		&	6	F	V	f	v			|	¶	Æ	Ö	æ	ö
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
BEL		'	7	G	W	g	w			§	·	Ç	×	ç	÷
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
BS		(	8	H	X	h	x			¨	¸	È	Ø	è	ø
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
HT		)	9	I	Y	i	y			©	¡	É	Ù	é	ù
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
LF		*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
VT	ESC	+	;	K	[	k	{			«	»	Ë	Û	ë	û
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
FF		,	<	L	\	l	|			¬	¼	Ì	Ü	ì	ü
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
CR		-	=	M	]	m	}			-	½	Í	Ý	í	ý
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
SO		.	>	N	^	n	~			®	¾	Î	Þ	î	þ
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
SI		/	?	O	_	o	☐			-	¿	Ï	ß	ï	ÿ
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

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 also contains international characters and symbols. Use this table to convert printer commands to decimal or hexadecimal values.

ASCII Decimal-Hex Table

CHAR.	DEC.	HEX.	CHAR.	DEC.	HEX.	CHAR.	DEC.	HEX.	CHAR.	DEC.	HEX.	
ctrl@	N _U	0	00		32	20	@	64	40	`	96	60
ctrlA	S _H	1	01	!	33	21	A	65	41	a	97	61
ctrlB	S _X	2	02	"	34	22	B	66	42	b	98	62
ctrlC	E _X	3	03	#	35	23	C	67	43	c	99	63
ctrlD	E _T	4	04	\$	36	24	D	68	44	d	100	64
ctrlE	E _O	5	05	%	37	25	E	69	45	e	101	65
ctrlF	A _K	6	06	&	38	26	F	70	46	f	102	66
ctrlG	Q	7	07	'	39	27	G	71	47	g	103	67
ctrlH	B _S	8	08	(	40	28	H	72	48	h	104	68
ctrlI	H _T	9	09	)	41	29	I	73	49	i	105	69
ctrlJ	L _F	10	0A	*	42	2A	J	74	4A	j	106	6A
ctrlK	V _T	11	0B	+	43	2B	K	75	4B	k	107	6B
ctrlL	F _F	12	0C	,	44	2C	L	76	4C	l	108	6C
ctrlM	C _R	13	0D	-	45	2D	M	77	4D	m	109	6D
ctrlN	S _O	14	0E	.	46	2E	N	78	4E	n	110	6E
ctrlO	S _I	15	0F	:	47	2F	O	79	4F	o	111	6F
ctrlP	D _L	16	10	;	48	30	P	80	50	p	112	70
ctrlQ	D ₁	17	11	<	49	31	Q	81	51	q	113	71
ctrlR	D ₂	18	12	=	50	32	R	82	52	r	114	72
ctrlS	D ₃	19	13	>	51	33	S	83	53	s	115	73
ctrlT	D ₄	20	14	?	52	34	T	84	54	t	116	74
ctrlU	N _K	21	15		53	35	U	85	55	u	117	75
ctrlV	S _V	22	16		54	36	V	86	56	v	118	76
ctrlW	F _B	23	17		55	37	W	87	57	w	119	77
ctrlX	C _N	24	18		56	38	X	88	58	x	120	78
ctrlY	E _M	25	19		57	39	Y	89	59	y	121	79
ctrlZ	S _H	26	1A		58	3A	Z	90	5A	z	122	7A
ctrl[	F _C	27	1B		59	3B	[	91	5B	{	123	7B
ctrl\	F _S	28	1C		60	3C	\	92	5C	|	124	7C
ctrl]	G _S	29	1D		61	3D	]	93	5D	}	125	7D
ctrl^	R _S	30	1E		62	3E	^	94	5E	~	126	7E
ctrl_	U _S	31	1F	?	63	3F	_	95	5F	⌘	127	7F

ASCII Decimal-Hex Table (continued)

CHAR	DEC.	HEX.
~	128	80
·	129	81
ˆ	130	82
˜	131	83
¸	132	84
¸	133	85
¸	134	86
¸	135	87
¸	136	88
¸	137	89
¸	138	8A
¸	139	8B
¸	140	8C
¸	141	8D
¸	142	8E
¸	143	8F
¸	144	90
¸	145	91
¸	146	92
¸	147	93
¸	148	94
¸	149	95
¸	150	96
¸	151	97
¸	152	98
¸	153	99
¸	154	9A
¸	155	9B
¸	156	9C
¸	157	9D
¸	158	9E
¸	159	9F

CHAR	DEC.	HEX.
	160	A0
A	161	A1
A	162	A2
F	163	A3
E	164	A4
E	165	A5
I	166	A6
I	167	A7
	168	A8
	169	A9
	170	AA
	171	AB
	172	AC
U	173	AD
Ü	174	AE
ı	175	AF
—	176	B0
ÿ	177	B1
ÿ	178	B2
	179	B3
Ç	180	B4
ç	181	B5
N	182	B6
n	183	B7
ı	184	B8
ç	185	B9
ı	186	BA
£	187	BB
ı	188	BC
§	189	BD
f	190	BE
c	191	BF

CHAR	DEC.	HEX.
a	192	C0
è	193	C1
o	194	C2
u	195	C3
a	196	C4
e	197	C5
o	198	C6
u	199	C7
a	200	C8
e	201	C9
o	202	CA
u	203	CB
a	204	CC
e	205	CD
o	206	CE
u	207	CF
À	208	D0
ı	209	D1
Ø	210	D2
Æ	211	D3
à	212	D4
ı	213	D5
o	214	D6
æ	215	D7
A	216	D8
ı	217	D9
Ø	218	DA
U	219	DB
E	220	DC
ı	221	DD
ß	222	DE
Ó	223	DF

CHAR	DEC.	HEX.
À	224	E0
À	225	E1
à	226	E2
ð	227	E3
đ	228	E4
ı	229	E5
ı	230	E6
Œ	231	E7
Œ	232	E8
Œ	233	E9
o	234	EA
Š	235	EB
š	236	EC
U	237	ED
Y	238	EE
y	239	EF
ı	240	F0
ı	241	F1
•	242	F2
μ	243	F3
•	244	F4
ı	245	F5
—	246	F6
ı	247	F7
ı	248	F8
ı	249	F9
ı	250	FA
«	251	FB
■	252	FC
»	253	FD
ı	254	FE
DEL	255	FF

Printer Commands

This appendix contains a summary of the printer commands and control codes for the HP DeskJet 500C printer. The printer commands found on the following pages are used when selecting specific printer features. The method that you use to enter printer commands depends on your software package. Refer to your software manual for more information.

For more technical information about the printer commands, refer to the technical reference manual. Ordering information is available in appendix D.

The printer commands on the following pages are listed with the decimal and hexadecimal equivalents. Some of the printer commands must be sent in hierarchical order.

Printer Command Basics

Before you begin using printer commands, please take a few minutes to review these special notes about printer commands.

- In this user's guide, two conventions have been used in listing printer commands. To avoid confusion between characters, the following conventions have been used.
Lowercase "l" = "ℓ" Uppercase "O" = "O"
Number "one" = "1" Number "zero" = "0"
- The "ℓ" and "0" characters will not appear on your screen as shown in this user's guide.
- Spaces were added in the printer command examples for ease of reading only. Do not enter spaces in the printer commands that you send. For example, you may see `Ec (s 10 H`, but would send `Ec(s10H`.
- Uppercase and lowercase letters must be entered correctly as identified in this user's guide. The printer will not recognize the printer command when the incorrect letter is entered.
- The printer command that you send to the printer to change a printer feature will stay in effect until you send a printer command to change it or turn it off. For example, if you turn on bold, the printer will print bold characters until you send the command to turn off bold.
- The printer will return to its default switch settings if the printer is turned off and on, or when the Reset button on the printer control panel is pressed. If the printer command `Ec E` (for printer reset) is sent, the printer will return to the most current mode and font settings selected through the printer control panel. If the printer control panel was not used, the printer will return to the default switch settings.
- Some printer commands must be sent in a particular order. Being aware of the printer's priority system will ensure that the appropriate printer commands are sent.

Describing a Printer Command

A printer command (or an escape sequence) consists of two or more characters. There are two types of printer commands: two character-escape sequences and parameterized escape sequences. Examples of two-character escape sequences are E_c E for printer reset, and E_c 9 for clear margins.

An example of a DeskJet 500C parameterized escape sequence is shown below. This command changes page orientation.

$$E_c \& \ell \# O$$

= **1** - landscape orientation
= **0** - portrait orientation

A parameterized escape sequence contains an escape character and is followed by a unique series of letters and numbers. The following is a description of the contents of a parameterized escape sequence.

Escape Character

A printer command always begins with the escape character. Escape characters are represented in this manual as E_c. The escape character alerts the printer that a printer command will follow. The method for entering the escape character is dependent on the software package that you are using. The escape character is most commonly entered by its numeric character value: 27 in decimal or 1B in hexadecimal.

Parameterized Character

The character immediately following the escape character is the parameterized character which notifies the printer that the escape sequence contains more than 2 characters and that the command is parameterized.

Group Character

The group character tells the printer the type of command that is to be performed.

Value Field

Most printer commands also contain a value field. The value field is represented in this user's guide as a # sign. If the # sign appears in a printer command, you must replace it with a number. The number can be a literal value, such as 10 for point size, or it can be a representative value, such as 1 to signify landscape orientation, as shown in the example.

Terminating Character

Every printer command contains a terminating character which is either an uppercase letter or a special character, such as an @. The terminating character must always be an uppercase letter or a special character. Refer to the "Combining Printer Commands" section.

Combining Printer Commands

You can save time by combining printer commands that have the same two characters following the Escape character. By combining printer commands you can also shorten the length of the command that you are sending to the printer. Some software packages limit the length of printer commands that can be sent.

To combine printer commands, begin the printer command with `Ec` and the two shared characters, then append the remaining characters from each command.

These printer commands

```
Ec ( s 3 T   Ec ( s 3 B   Ec ( s 2 Q
```

can be combined into

```
Ec ( s 3 b 3 t 2 Q
```

Notice that "E_c (s" is the portion of the printer command that all three commands share. Also note that in the combined command, "b" and "t" are now lowercase, while "Q" because it is the last character in the command, remains in uppercase to tell the printer the command is complete.

Some rules for combining printer commands:

- Only printer commands which share the same two characters immediately following "E_c" can be combined.
- All alphabetic characters within the combined printer commands must be in lowercase, except for the last character.
- The last character in the combined printer command must be in uppercase to tell the printer the command is complete.
- Printer commands take effect as your software encounters them (from left to right). Combine printer commands in the order in which the printer should perform them.

Using Decimal or Hexadecimal Equivalents

Your software package may require you to enter printer commands in a specific form, such as decimal or hexadecimal code. Refer to the printing section of your software manual for information.

The example below shows the printer command for landscape page orientation in three different forms: escape sequence, decimal equivalent, and hexadecimal equivalent.

Escape Sequence	E _c & / 10
Decimal Equivalent	027 038 108 049 079
Hexadecimal Equivalent	1B 26 6C 31 4F

HP PCL Printer Command Summary

Printer Feature	Printer Command	Decimal Equivalent	1B 28 Hex. Equivalent
Printer Control			
Reset	E _c E	027 069	1B 45
Self test	E _c Z	027 122	1B 7A
Paper Input Control (Media Source)			
Eject page	E _c & / 0H	027 038 108 048 072	1B 26 6C 30 48
Feed from tray	E _c & / 1H	027 038 108 049 072	1B 26 6C 31 48
Envelope feed	E _c & / 3H	027 038 108 051 072	1B 26 6C 33 48
Print Mode			
Unidirectional left to right	E _c &k0W	027 038 107 048 087	1B 26 6B 30 57
Bidirectional	E _c &k1W	027 038 107 049 087	1B 26 6B 31 57
Unidirectional right to left	E _c &k2W	027 038 107 050 087	1B 26 6B 32 57
Underline			
Single fixed	E _c &d1D	027 038 100 049 068	1B 26 64 31 44
Double fixed	E _c &d2D	027 038 100 050 068	1B 26 64 32 44
Single float	E _c &d3D	027 038 100 051 068	1B 26 64 33 44
Double float	E _c &d4D	027 038 100 052 068	1B 26 64 34 44
Turn off	E _c &d@	027 038 100 064	1B 26 64 40
Line Termination			
CR → CR, LF → LF, FF → FF	E _c &k0G	027 038 107 048 071	1B 26 6B 30 47
CR → CR+LF, LF → LF, FF → FF	E _c &k1G	027 038 107 049 071	1B 26 6B 31 47
CR → CR, LF → CR+LF, FF → CR+FF	E _c &k2G	027 038 107 050 071	1B 26 6B 32 47
CR → CR+LF, LF → CR+LF, FF → CR+FF	E _c &k3G	027 038 107 051 071	1B 26 6B 33 47
End-of-Line Wrap			
Turn on	E _c &s0C	027 038 115 048 067	1B 26 73 30 43
Turn off	E _c &s1C	027 038 115 049 067	1B 26 73 31 43
Transparent Print Data			
No. of bytes	E _c &p#X	027 038 112 #...# 088	1B 26 70 #...# 58
Display Functions			
Turn on	E _c Y	027 089	1B 59
Turn off	E _c Z	027 090	1B 5A
Enhancement Control			
Line-by-line on	E _c &k0E	027 038 107 048 069	1B 26 6B 30 45
Line-by-line off	E _c &k1E	027 038 107 049 069	

#Indicates the numeric value field.

B-4 Printer Commands

Printer Feature	Printer Command	Decimal Equivalent	1B 28 Hex. Equivalent
SI/SO Control			
Line-by-line on	E _c &k0F	027 038 107 048 070	1B 26 6B 30 46
Line-by-line off	E _c &k1F	027 038 107 049 070	1B 26 6B 31 46
Page Control			
Paper Size*			
Default size	E _c &/ 0A	027 038 108 048 065	1B 26 6C 30 41
US Letter	E _c &/ 2A	027 038 108 050 065	1B 26 6C 32 41
US Legal	E _c &/ 3A	027 038 108 051 065	1B 26 6C 33 41
A4	E _c &/ 26A	027 038 108 050 054 065	1B 26 6C 32 36 41
No. 10 envelope	E _c &/ 81A	027 038 108 056 049 065	1B 26 6C 38 31 41
Line Spacing			
Lines per inch no. of lines	E _c &/ #D	027 038 108 #...# 068	1B 26 6C #...# 44
Page Orientation*			
Landscape	E _c &/ 1O	027 038 108 049 079	1B 26 6C 31 4F
Portrait	E _c &/ 0O	027 038 108 048 079	1B 26 6C 30 4F
Page Length (Line Spacing)*			
Number of lines	E _c &/#P	027 038 108 #...# 080	1B 26 6C #...# 50
Perforation Skip Mode*			
On	E _c &/ 1L	027 038 108 049 076	1B 26 6C 31 4C
Off	E _c &/ 0L	027 038 108 048 076	1B 26 6C 30 4C
Top Margin*			
Number of lines	E _c &/ #E	027 038 108 #...# 069	1B 26 6C #...# 45
Text Length*			
Number of lines	E _c &/ #F	027 038 108 #...# 070	1B 26 6C #...# 46
Side Margins*			
Clear	E _c 9	027 057	1B 39
Left (column no.)	E _c &a#L	027 038 097 #...# 076	1B 26 61 #...# 4C
Right (column no.)	E _c &a#M	027 038 097 #...# 077	1B 26 61 #...# 4D
Text Scale Mode			
off	E _c &k5W	027 038 107 053 087	1B 26 6B 35 57
on	E _c &k6W	027 038 107 054 087	1B 26 6B 36 57

*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	1B 28 Hex. Equivalent
Cursor Positioning			
Move to row no.	E _c &a#R	027 038 097 #...# 082	1B 26 61 #...# 52
Move to column no.	E _c &a#C	027 038 097 #...# 067	1B 26 61 #...# 43
Horizontal no. (decipoints)	E _c &a#H	027 038 097 #...# 072	1B 26 61 #...# 48
Vertical no. (decipoints)	E _c &a#V	027 038 097 #...# 086	1B 26 61 #...# 56
Horizontal no. (dots)	E _c *p#X	027 042 112 #...# 088	1B 2A 70 #...# 58
Vertical no. (dots)	E _c *p#Y	027 042 112 #...# 089	1B 2A 70 #...# 59
Horizontal motion index no. of 1/120th inch moves	E _c &k#H	027 038 107 #...# 072	1B 26 6B #...# 48
Vertical motion index no. of 1/48 inch moves	E _c &/ #C	027 038 108 #...# 067	1B 26 6C #...# 43
Font Selection			
Character Set*			
PC-8	E _c (10U	027 040 049 048 085	1B 28 31 30 55
HP Roman8	E _c (8U	027 040 056 085	1B 28 38 55
PC-8 Danish/Norwegian	E _c (11U	027 040 049 049 085	1B 28 31 31 55
PC-850	E _c (12U	027 040 049 050 085	1B 28 31 32 55
ECMA-94 Latin 1	E _c (0N	027 040 048 078	1B 28 30 4E
German (ISO 21)	E _c (1G	027 040 049 071	1B 28 31 47
French (ISO 69)	E _c (1F	027 040 049 070	1B 28 31 46
Italian (ISO 15)	E _c (0I	027 040 048 073	1B 28 30 49
Spanish (ISO 17)	E _c (2S	027 040 050 083	1B 28 32 53
Swedish Names (ISO 11)	E _c (0S	027 040 048 083	1B 28 30 53
Swedish (ISO 10)	E _c (3S	027 040 051 083	1B 28 33 53
Norwegian1 (ISO 60)	E _c (0D	027 040 048 068	1B 28 30 44
Norwegian2 (ISO 61)	E _c (1D	027 040 049 068	1B 28 31 44
Portugese (ISO 16)	E _c (4S	027 040 052 083	1B 28 34 53
United Kingdom (ISO 4)	E _c (1E	027 040 049 069	1B 28 31 45
ANSI ASCII (ISO 6)	E _c (0U	027 040 048 085	1B 28 30 55
JIS ASCII	E _c (0K	027 040 048 075	1B 28 30 4B
HP Legal	E _c (1U	027 040 049 085	1B 28 31 55
ISO IRV	E _c (2U	027 040 051 085	1B 28 32 55
Line Draw (optional)	E _c (0L	027 040 048 076	1B 28 30 4C
Math7 (optional)	E _c (0M	027 040 048 077	1B 28 30 4D
Math 8 (optional)	E _c (8M	027 040 056 077	1B 28 38 4D
Math8a (optional)	E _c (0Q	027 040 048 081	1B 28 30 51

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

#Indicates the numeric value field.

B-6 Printer Commands

Printer Feature	Printer Command	Decimal Equivalent	1B 28 Hex. Equivalent
Font Selection			
Character Set* (Continued)			
Math8b (optional)	E _c (1Q)	027 040 049 081	1B 28 31 51
PIFont (optional)	E _c (15U)	027 040 049 053 085	1B 28 31 35 55
PIFonta (optional)	E _c (2Q)	027 040 050 081	1B 28 32 51
Spacing*			
Proportional	E _c (s1P)	027 040 115 049 080	1B 28 73 31 50
Fixed	E _c (s0P)	027 040 115 048 080	1B 28 73 30 50
Print Pitch*			
Number of characters per inch	E _c (s#H)	027 040 115 #...# 072	1B 28 73 #...# 48
Point Size (Character Height)*			
Number of 1/72nd inch	E _c (s#V)	027 040 115 #...# 086	1B 28 73 #...# 56
Style*			
Upright	E _c (s0S)	027 040 115 048 083	1B 28 73 30 53
Italic	E _c (s1S)	027 040 115 049 083	1B 28 73 31 53
Stroke Weight*			
Normal	E _c (s0B)	027 040 115 048 066	1B 28 73 30 42
Bold	E _c (s3B)	027 040 115 051 066	1B 28 73 33 42
Extra bold (optional)	E _c (s7B)	027 040 115 055 066	1B 28 73 37 42
Typeface*			
Courier	E _c (s3T)	027 040 115 051 084	1B 28 73 33 54
CG Times	E _c (s4101T)	027 040 115 052 049 048 049 084	1B 28 73 34 31 30 31 54
Letter Gothic	E _c (s6T)	027 040 115 054 084	1B 28 73 36 54
Pica (optional)	E _c (s1T)	027 040 115 049 084	1B 28 73 31 54
Line Printer (optional)	E _c (s0T)	027 040 115 048 084	1B 28 73 30 54
Pica (optional)	E _c (s1T)	027 040 115 049 084	1B 28 73 31 54
Prestige (optional)	E _c (s8T)	027 040 115 056 084	1B 28 73 38 54
Elite (optional)	E _c (s2T)	027 040 115 050 084	1B 28 73 32 54
Script (optional)	E _c (s7T)	027 040 115 055 084	1B 28 73 37 54
Helvetica (optional)	E _c (s4T)	027 040 115 052 084	1B 28 73 34 54
Presentations (optional)	E _c (s11T)	027 040 115 049 049 084	1B 28 73 31 31 54
Times Roman (optional)	E _c (s5T)	027 040 115 053 084	1B 28 73 35 54
CG Century Schoolbook (optional)	E _c (s23T)	027 040 115 050 051 084	1B 28 73 32 33 54
Brush (optional)	E _c (s32T)	027 040 115 051 050 084	1B 28 73 33 32 54
Dom Casual (optional)	E _c (s61T)	027 040 115 054 049 084	1B 28 73 36 31 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	1B 28 Hex. Equivalent
Typeface* (continued)			
Univers Condensed (optional)	E _c (s85T)	027 040 115 056 053 084	1B 28 73 38 35 54
Garamond (optional)	E _c (s101T)	027 040 115 049 048 049 084	1B 28 73 31 30 31 54
Univers (optional)	E _c (s52T)	027 040 115 053 050 084	1B 28 73 35 32 54
CG Triumvirate (optional)	E _c (s4T)	027 040 115 052 084	1B 28 73 34 54
Print Quality			
Letter	E _c (s2Q)	027 040 115 050 081	1B 28 73 32 51
Draft	E _c (s1Q)	027 040 115 049 081	1B 28 73 31 51
Download Font Management			
Font ID no.	E _c *c#D	027 042 099 #...# 068	1B 2A 63 #...# 44
ASCII code no.	E _c *c#E	027 042 099 #...# 069	1B 2A 63 #...# 45
Delete all	E _c *c0F	027 042 099 048 070	1B 2A 63 30 46
Delete temporary	E _c *c1F	027 042 099 049 070	1B 2A 63 31 46
Delete last	E _c *c2F	027 042 099 050 070	1B 2A 63 32 46
Make temporary	E _c *c4F	027 042 099 052 070	1B 2A 63 34 46
Make permanent	E _c *c5F	027 042 099 053 070	1B 2A 63 35 46
Create font number of bytes	E _c (s#Wdata	027 041 115 #...# 087 data	1B 29 73 #...# 57 data
Download chr. No. of bytes	E _c (s#Wdata	027 040 115 #...# 087 data	1B 28 73 #...# 57 data
Select primary ID no.	E _c (#X	027 040 #...# 088	1B 28 #...# 58
Select secondary ID no.	E _c #X	027 041 #...# 088	1B 28 33 40
Primary Font Designators			
Primary default	E _c (#@	027 040 #...# 064	1B 28 #...# 40
Default character set	E _c (0@	027 040 048 064	1B 28 30 40
Current primary character set	E _c (2@	027 040 050 064	1B 28 32 40
Default font	E _c (3@	027 040 051 064	1B 29 #...# 58
Secondary Font Designators			
Secondary default	E _c #@	027 041 #...# 064	1B 29 #...# 40
Default chr. set	E _c 0@	027 041 048 064	1B 29 30 40
Default primary chr. set	E _c 1@	027 041 049 064	1B 29 31 40
Current primary chr. set	E _c 2@	027 041 050 064	1B 29 32 40
Default secondary font	E _c 3@	027 041 051 064	1B 29 33 40

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

Printer Feature	Printer Command	Decimal Equivalent	1B 28 Hex. Equivalent
Raster Graphics			
Start Graphics			
At left most position	E _c *r0A	027 042 114 048 065	1B 2A 72 30 41
Current cursor position	E _c *r1A	027 042 114 049 065	1B 2A 72 31 41
End Graphics			
End graphics	E _c *rbC	027 042 114 098 067	1B 2A 72 62 43
Resolution			
75 dots per inch	E _c *t75R	027 042 116 055 053 082	1B 2A 74 37 35 52
100 dots per inch	E _c *t100R	027 042 116 049 048 048 082	1B 2A 74 31 30 30 52
150 dots per inch	E _c *t150R	027 042 116 049 053 048 082	1B 2A 74 31 35 30 52
300 dots per inch	E _c *t300R	027 042 116 051 048 048 082	1B 2A 74 33 30 30 52
Width			
Number of pixels	E _c *r#S	027 042 114 #...# 083	1B 2A 72 #...# 53
Compression			
Method 0	E _c *b0M	027 042 098 048 077	1B 2A 62 30 4D
Method 1	E _c *b1M	027 042 098 049 077	1B 2A 62 31 4D
Method 2	E _c *b2M	027 042 098 050 077	1B 2A 62 32 4D
Method 3	E _c *b3M	027 042 098 051 077	1B 2A 62 33 4D
Method 9	E _c *b9M	027 042 098 057 077	1B 2A 62 39 4D
Seed Row Source	E _c *b#S	027 042 098 #...# 083	1B 2A 62 #...# 53
Transfer Graphics			
Number of bytes	E _c *b#Wdata	027 042 098 #...# 087 data	1B 2A 62 #...# 57 data
Transfer graphics data by plane	E _c *b#Vdata	027 042 098 #...# 086 data	1B 2A 62 #...# 56 data
Relative Vertical Pixel Movement (formerly known as Y Offset)			
Number of dots	E _c *b#Y	027 042 098 #...# 089	1B 2A 62 #...# 59
Set Graphics Quality			
Quality draft	E _c *r1Q	027 042 114 049 081	1B 2A 72 31 51
Similar to letter quality	E _c *r2Q	027 042 114 050 081	1B 2A 72 32 51
Set Number of Raster Planes Per Row			
3 planes, CYM palette	E _c *r-3U	027 042 114 045 051 055	1B 2A 72 2D 33 37
Single plane palette	E _c *r1U	027 042 114 049 055	1B 2A 72 31 37
3 planes, RGB palette	E _c *r3U	027 042 114 051 055	1B 2A 72 32 37
Misc. Raster Graphics Commands			
Raster graphics shingling	E _c *o#Q	027 042 111 #...# 081	1B 2A 6F #...# 51
Raster graphics depletion	E _c *o#D	027 042 111 #...# 068	1B 2A 6F #...# 44

#Indicates the numeric value field.

Control Codes

A control code is a character that initiates a printer function. Examples of control codes include; Carriage Return and Line Feed. In this user's guide, control codes always begin with the letters CTRL. CTRL is generated by pressing the CONTROL key on PC's keyboard while typing the character. This key may be labeled on your keyboard as CTRL, CNTL, or CTL. In BASIC, control codes are represented by CHR\$(n), where n = 0-32. For example, CTRL N is represented by CHR\$(14). The Esc control code is represented by CHR\$(27).

The table shown on the following page lists the HP PCL control codes recognized by the printer. The "Keystroke" column lists the letter to type in combination with the CTRL key to generate a control code. The "current print position" mentioned in some of the descriptions is the position at which the printer will print the next character.

HP PCL Printer Control Codes

Code Name	Symbol	Description	Value (Dec)	Value (Hex)	Keystroke
Backspace	<B _S >	Causes the printer to move the current print position one character position to the left.	08	08	CTRL H
Horizontal Tab	<H _T >	Causes the printer to move 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 _F >	Causes the printer to advance the paper one line at the current line spacing.	10	0A	CTRL J
Form Feed	<F _F >	Causes the printer to advance the paper 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 _R >	Causes the printer to move the current print position to the left margin. Does not cause a paper advance.	13	0D	CTRL M
Shift Out	<S _O >	Causes the printer to select the currently designated secondary font for use.	14	0E	CTRL N
Shift In	<S _I >	Causes the printer to select the currently designated primary font for use.	15	0F	CTRL O
Device Control 1	<D ₁ >	Used for RS-232-C protocols only. Used as Xon character for the RS-232-C Xon/Xoff handshake. Also used as the trigger for the Status Request.	17	11	CTRL Q
Device Control 3	<D ₃ >	Used for RS-232-C protocols only. Used as Xoff character for the RS-232-C Xon/Xoff handshake.	19	13	CTRL S
Escape	<E _C >	Indicates to the printer that the characters immediately following are part of a printer command.	27	1B	CTRL [
Space	<S _P >	Causes the printer to move the current print position one character to the right.	32	20	

Interfaces

The DeskJet 500C printer is equipped with two standard data communications interface ports, Centronics parallel and RS-232-C serial. They are provided as a means of connecting the printer to a computer or terminal. This chapter describes the pin assignments, protocol, and signal specifications for both interfaces.

Centronics Parallel Interface

The DeskJet 500C printer uses a standard Centronics parallel interface. This interface is the most widely used interface on personal computers because, unlike the RS-232-C serial interface, it usually does not require set up commands or special configurations on either the computer or printer. You can also send information faster using a Centronics parallel interface.

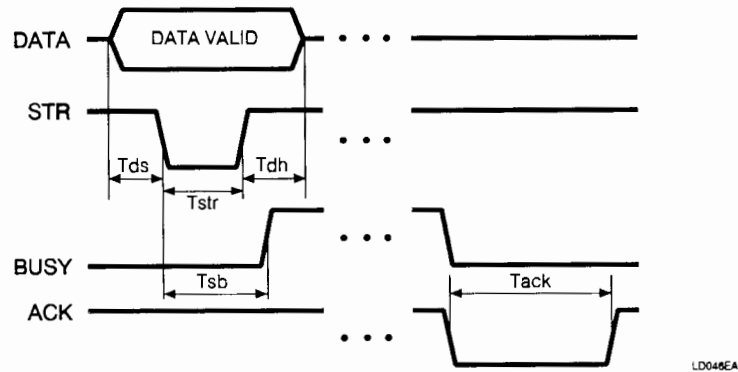
The printer's parallel interface connector is a standard 36-pin Amphenol type with two metal-wire retaining clips.

Centronics Parallel Pin Assignments

Pin No.	Signal	Direction	Description
1	$\overline{\text{Strobe}}$	In	A LOW pulse greater than 1 μs causes the printer to read one byte of data.
2	DATA 0	In	Data bit 0
3	DATA 1	In	Data bit 1
4	DATA 2	In	Data bit 2
5	DATA 3	In	Data bit 3
6	DATA 4	In	Data bit 4
7	DATA 5	In	Data bit 5
8	DATA 6	In	Data bit 6
9	DATA 7	In	Data bit 7
10	$\overline{\text{Acknlg}}$	Out	The printer sends a LOW pulse to indicate that it has accepted a byte of data and is ready for more data.
11	Busy	Out	The printer sends a HIGH logic level to indicate to the host that it cannot receive data due to data entry, a full buffer, or error status.
12	Paper Error	Out	The printer sends a HIGH logic level to indicate to the host that it is out of paper.
13	Ready	Out	The printer sends a HIGH logic level to indicate to the host that it is in a Ready status.
14, 15			Not used
16	Sig Gnd		
17	Chassis Gnd		
18	HI	Out	The printer outputs a HIGH logic level (+5V through a 2.2K ohm resistor) on this pin while it is turned on.
19 to 30	Sig Gnd		
31	$\overline{\text{Reset/Inpu}}\br/>\overline{\text{Clean}}$	In	A LOW pulse greater than 10 μs (sent by host) resets the printer and clears the print buffer. Note: The printer may not work when this line is held low (e.g., PC is turned off).
32	$\overline{\text{Error}}$	Out	The printer sends a LOW logic level to the host to indicate that it is in an error state: self test failed or carriage position lost.
33 to 36		Not used	

Printer Timing Diagram

The timing diagram below illustrates the data and handshake lines during transfer of one data byte to the computer. DATA 1 through DATA 8 and the Strobe line are driven by the computer; the Acknlg line is driven by the printer.



Printer Timing

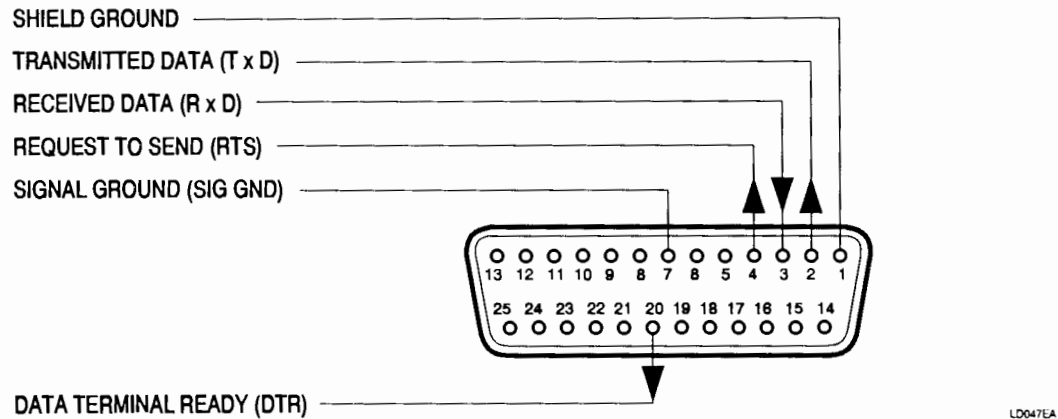
Interval	Description	Minimum Value	Typical Value
T_{ds}	Delay from DATA written to data Strobe.	0.5 μ s	
T_{str}	Data Strobe width.	1 μ s	
T_{ack}	Acknlg pulse width.		3.75 μ s
T_{dh}	Duration of valid data after Strobe.	0.5 μ s	
T_{sb}	Delay from falling edge of Strobe to rising edge of Busy.	0.5 μ s (max)	



RS-232-C Serial Interface

This section identifies RS-232-C serial interface signal descriptions and describes serial interfacing concepts. The DeskJet 500C printer uses a standard RS-232-C serial interface which is compatible with most computers and terminals. Although the Centronics parallel printer port is the easiest and most popular one for personal computers, the serial port is the most universal. It is widely used on everything from mainframe computers to display terminals and computers.

The DeskJet 500C printer uses a standard DB-25 female type serial connector.



Signal Descriptions

Pin 1, Shield Ground: This conductor serves as an electrical ground line for connecting the cable shield.

Pin 2, Transmitted Data (Tx D): Bit serial data transmitted to the computer system or terminal from the printer.

Pin 3, Received Data (Rx D): Bit serial data transmitted to the printer from the computer.

Pin 4, Request to Send (RTS): An output from the printer that is always high when the printer is on.

Pin 7, Signal Ground: The established reference ground potential for all data communication.

Pin 20, Data Terminal Ready (DTR): Output from the printer to enable and disable transmission of data to the printer (handshaking). Data transmission is enabled when high and is disabled when low.

Baud Rate, Bits & Parity

In order for the host and printer to communicate with each other, they must be configured to send and receive at the same clock rate or baud rate. This means that mode function switches B4 and B5 on the DeskJet 500C printer must be set to match the baud rate set for the the computer or terminal.

In addition to baud rate, the host and printer must be sending and receiving the same number of data bits (pieces of information) per character. The number of data bits used depends on whether or not you want to perform data error checking, also called Parity. Most computer systems use 8-bits and no parity checking. This is because graphics data requires 8 data bits of information, otherwise part of the image will be missing (extended characters above decimal 127 are not possible either). If your system checks parity, set switches B6 and B7 accordingly.

The DeskJet 500C printer always utilizes a Start Bit and Stop Bit to signal the beginning and end of each frame of character information. Therefore, each frame has a total of ten bits.

Handshaking Protocol

The DeskJet 500C printer uses two methods of sending serial data, XON/XOFF and DTR. The methods differ in how the "stream" of data (from the computer) is stopped and then started again as the printer is busy printing. This is called Handshaking.

The DeskJet 500C printer supports XON/XOFF (Transmission ON/Transmission OFF, also known as software handshakes) and DTR (Data Terminal Ready, or hardware handshaking). Handshaking, or an exchange of signals between host and printer, is necessary to prevent the printer's memory "buffer" from overflowing and losing data.

The method of handshaking you use will depend on which type your computer system or terminal uses. Most terminals utilize XON/XOFF whereas many PCs use DTR (IBM PCs, for example). Handshaking is controlled by mode function switch B8. When B8 is DOWN, both XON/XOFF and DTR are enabled. When B8 is UP only DTR is enabled.

XON/XOFF Software Handshaking

A system utilizing XON/XOFF software handshaking uses only three wires of the cable, pins 2, 3, and 7. Software handshaking is performed by the printer when its buffer is nearly ready to overflow. When it has room for only 100 more characters, the printer will send the host an XOFF (ASCII DC3) character to signal it to stop data transmission. The printer will continue printing after sending the XOFF character, thus making more room in its buffer. When the buffer has room for 150 more characters, the printer sends the host an XON (ASCII DC1) character to resume data transmission.

DTR Hardware Handshaking

Unlike the XON/XOFF software handshake, DTR (hardware handshaking) in the DeskJet 500C printer uses a dedicated wire (pin 20) for signalling the host to stop and start data transmission. The printer accepts data from the host until it has room for only 100 more characters. It will then turn off its hardware signal to the host device, indicating it to stop data transmission. When the printer's buffer has room for 150 more characters it will turn on the hardware signal, enabling the host to resume data transmission.

Establishing Communication

This section summarizes the process for establishing communication between an IBM PC or PC compatible computer and your printer using DOS commands. If you are unfamiliar with DOS, refer to your DOS manual.

The MODE command must be entered each time you turn on your computer, unless you create an AUTOEXEC.BAT file to AUTOMATICALLY EXECUTE the command. If an AUTOEXEC.BAT file already exists for your computer system, you must modify this file to ensure that your computer will always communicate to LPT 1. Make sure to type the DOS commands exactly as they appear on these pages. The computer will not recognize commands that are incorrectly typed.

1. Turn on your computer.
2. Type: **CD** and press **Enter** to get to your root directory.
3. Type: **DIR MODE.COM** and press **Enter**, to see if a file named **MODE.COM** exists in your root directory. If your DOS commands are in a subdirectory, you will need to change to the appropriate subdirectory. If a message listing the file appears on your screen, you can go to step 4. If the MODE.COM file is not found on your directory, locate the **MODE.COM** file on your DOS diskette and copy it to your root directory (for a hard disk system) or to your startup disk (for a diskette system).
4. Type the appropriate mode command for your interface connection.

For a Centronics Parallel Interface:

Type: **MODE LPT1:,, P** and press **Enter**.

This command directs communication to the parallel port and sets the computer for infinite retry so that the computer does not "timeout" while waiting for the printer to print. The message "**Infinite retry on parallel printer time-out**" will appear on your screen.

For an RS-232-C Serial Interface (at 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts):

1. Type: **MODE COM 1:9600,N,8,1, P** and press **Enter**.
A list of the settings you typed will appear on the screen
2. Type: **MODE LPT1:=COM1:** and press **Enter**.
The message "LPT1:rerouted to Com1:" will appear on your screen.
3. Check the mode function switches located on the lower right base of the printer and make sure that your switch settings for serial communication are set appropriately. Switches B4 through B8 should be set in the DOWN position for 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts. Refer to chapter 1 for a listing of switch settings.

Verifying Communication

To verify that the computer and printer are communicating, make sure the printer is on, and the Ready light is on, then type: **DIR>PRN** and press **Enter**

A list of file names from your directory will print to indicate that your computer is communicating with your printer. If the paper does not eject after printing is complete, press the Load/Eject button on the printer control panel to eject the paper. If nothing happens, refer to chapter 4, "Troubleshooting."

Interface and Cable Requirements

HP SYSTEM SERIES MODEL	PRINTER I/O	HOST INTERFACE	HP CABLE #	
Vectra PC Family	Parallel	HP24540A Serial/Parallel Interface Card	24542D, 92284A	
	Serial	HP24540A Serial/Parallel Interface Card	24542G	
	HP24541A	24542G (using 9 pin connector) Dual Serial Interface Card	13242G or 17255M (using 25 pin connector)	
Touchscreen PC	Serial	Built-in	13242G or 17255M	
Portable PC	Serial	Built-in	92221P	
Portable PC III	Parallel	Built-in	24542D, 92284A	
	Serial	HPD1004A Dual Serial Interface Card	24542G (using 9 pin connector) or 13242G (using 25 pin connector)	
Terminals				
700/41, 700/92, 700/94	Serial	Built-in	40242G	
(2392A, 2393A, 2394A, 2397A)	Parallel	Opt 093 or HP40210P	40242D	
	Serial	Opt 092 or HP40210R	40242G	
NON-HP SYSTEM SERIES MODEL	PRINTER I/O	HOST INTERFACE	HP CABLE #	NON-HP CABLE#
IBM PC, PC/XT	Parallel	IBM Serial/Parallel Adaptor	24542D	IBM Parallel Printer Cable
	Serial	IBM Asyn. Com. Adaptor	17255D or 13242H	Not available
IBM PC/AT	Parallel	IBM Serial/Parallel Adaptor	24542D, 92284A	IBM Parallel Printer Cable
	Serial	IBM Serial/Parallel Adaptor	24542G	
IBM PS/2	Parallel		24542D, 92284A	
	Serial		17255D or 13242H	
IBM Convertible PC	Parallel		24542D, 92284A	
	Serial		17255D or 13242H	

Ordering Information

The Standard Unit

The standard unit includes: one DeskJet 500C printer, one black print cartridge, one color print cartridge, one print cartridge storage container, one media sampler kit, one power module, one acrylic OUT tray cover, one user's guide kit containing one setup guide, one user's guide, one software information guide, and one color guide.

Interface cable must be purchased separately.

Ordering Supplies and Accessories

To order printer supplies or accessories: call your HP Customer Information Center or call the HP Direct Marketing Division at the numbers given in the inside front cover of this user's guide.

If your dealer is out of stock, call HP DIRECT for fast shipping service: **___Within the U.S.:** 1-800-538-8787; **___Canada** (Toronto): 416-671-8383; (Ontario/Quebec): 1-800-387-3417; (Other Provinces): 1-800-387-3154.

Write or call: **___Europe/Africa/Middle East:** (31) 20/547 999, Hewlett-Packard S.A., Central Mailing Department, P.O. 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 Pelvoux 111 Colonia Lomas de Chapultepec, Código 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.

Accessories

Supply

HP Reorder Number

Print Cartridges	
Original Inkjet Print Cartridge (black ink)	51608A
Color Inkjet Print Cartridge (color ink)	51625A
High Capacity Inkjet Print Cartridge (black ink) (available Fall 1991)	51626A
CX JetSeries CutSheet Paper (US Letter Size)	51630Y
CX JetSeries CutSheet Paper (European A4 Size)	51630Z
LX JetSeries Transparency Film(US Letter Size)	51636F
LX JetSeries Transparency Film (European A4 Size)	51636G
Font Cartridges	
Prestige Elite	22706B
Letter Gothic	22706C
Landscape Fonts	22707L
Presentations	22706M
Times Roman Collection	22706R
Helvetica Collection	22706T
Times Roman Headlines	22706U
Helvetica Headlines	22706V
WordPerfect Fonts	22706W
Garamond Collection	C2109C
Global Text	C2109B
Dom Casual	C2109D
Brush	C2109E
Soft Fonts	
TimesRoman/Helvetica Soft Font (Requires at least one HP22707B RAM cartridge)	22708C
256K RAM Cartridge	22707B
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

Accessories - continued

Supply

HP Reorder Number

DeskJet 500C printer dust cover
DeskJet 500C printer organizer

92250R
92177Z

DeskJet 500C User's Guide Kits

DeskJet 500C English User's Guide Kit

C2114-60066

DeskJet 500C International English User's Kit

C2114-60067

DeskJet 500C Dutch User's Guide Kit

C2114-60068

DeskJet 500C French User's Guide Kit

C2114-60069

DeskJet 500C German User's Guide Kit

C2114-60070

DeskJet 500C Italian User's Guide Kit

C2114-60071

DeskJet 500C Spanish User's Guide Kit

C2114-60072

Other Manuals

Technical Reference Manual

C2114-90008



Specifications

Print Method

Plain paper drop-on-demand thermal inkjet printing

Print Speed

MS Windows Black Print Speed:*

Presentation mode: 1 page per minute

Normal mode: 2 pages per minute

Draft mode: 3 pages per minute

MS Windows Color Print Speed:*

Presentation mode: 7 minutes per page

Normal mode: 4 minutes per page

Draft mode: 3 minutes per page

*DOS (Black Mechanism Speed):**

Letter Quality mode: 167 cps at 10 cpi

Draft Quality mode: 240 cps at 10 cpi

DOS (Color Mechanism Speed):

Print speed depends on content of the document

Cell Structure

Letter Quality mode: 300 x 300 dpi

Draft Quality mode: 300 x 150 dpi

Character Set Support

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

Graphics Resolution

Full-page 75, 100, 150, 300 dpi

Built-in (internal) fonts

Portrait:

Courier Pitch: 5, 10, 16.67, 20. Point size: 6, 12. Style:

Upright, Italic. Stroke weight: Normal, bold.

CG Times Pitch: Proportional. Point size: 6, 12. Style:

Upright, Italic. Stroke weight: Normal, bold.

***Approximate figures. Exact speed will vary depending on the system configuration and software application used.**

Letter Gothic Pitch: 6, 12, 24. Point size: 6, 12. Style:

Upright, Italic. Stroke weight: Normal, bold.

Other print features: expanded, underline, ** double underline, ** super-subscript.

Landscape:

Courier Pitch: 10, 16.67, 20. Point Size: 6, 12, 24. Style:

Upright. Stroke weight: Normal, bold.

Media Size

US Letter Paper/Transparency (8 1/2 in. x 11 in.)

US Legal (8 1/2 in. x 14 in.)

European A4 Letter Paper/Transparency
(210 mm x 297 mm)

US No. 10 Envelope (4 1/8 in. x 9 1/2 in.)

European DL Envelope (220 mm x 110 mm)

Media Weight

60 to 90 g/m² (16 to 24 lb)

Media Handling

Built-in sheet feeder (up to 100 sheets)

Plain paper, HP CX JetSeries CutSheet special paper, HP LX JetSeries transparency film.

Manual envelope feed

Printer Command Language

HP PCL Level 3

Control Panel

Quality button, Status button, Font button, Load/Eject button, Print Cartridge button, Clean button, Envelope button, Reset button, Draft light, Ready light, Busy light, Portrait light, Landscape light, and Compress light.

Dual I/O Interface

Centronics parallel

RS-232-C serial

Buffer Size

48 Kbyte receive buffer

****not available in landscape mode.**

Power Requirements

Power modules:

Input Voltage (depends on power module ordered):

100, 120, 220, or 240 VAC (+10%, -10%)

Voltage:

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"	"Draft"
Sound Power, L_{WA} :	5.7 B(A)	5.8 B(A)
Sound Pressure, L_{pAm} :	44 dB(A)	45 dB(A)

Dimensions

438mm (17.3 in.) W x 200mm (8.0 in.) H

x 376mm (14.8 in.)D

Weight

6.5 kg (14.3 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

Up to 160 pages per month of color printing

Three-year limited warranty

Product Certifications

Safety Certifications - Power Module: UL, CSA, TÜV or

VDE, BSI, SEMKO, NEMKO, FEI, LCIE, SECV.

Safety Certifications - Printer with Power Module: UL,

CSA, TÜV, ETL. Others not required

EMI Certifications - Printer with Power Module: FCC Class

B when used with a Class B computing device (USA), EMC

Directive 89/366/EC (European Community), VCCI (Japan),

SABS (South Africa)

Glossary

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.

See parity.

baud rate

Baud rate is the data transfer rate between the computer and the printer. The computer and the printer must be configured at the same baud rate. This rate can be set from between 300 and 19,200 baud depending on the type of computer used. Baud rate is set only if the serial interface is used.

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

A printer font or screen font that is made of dot-by-dot patterns.

buffer

A part of the computer's or printer's memory where data for input or output is held until it can be processed.

built-in font

See internal fonts.

byte

A unit of information consisting of eight bits.

busy

The printer is *busy* when it is receiving information from the computer.

cartridge font

See font cartridge.

centronics parallel interface

The Centronics parallel interface is a standard 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

Characters are printable letters and symbols.

character height

Character height refers to the height of a printed uppercase character. The character height is defined in points. One point is $\frac{1}{72}$ nd of an inch.

characters per inch

See cpi.

characters per second

See cps.

character set

A character set is a unique sub-grouping of all the available characters in a font. Each character set is defined with a specific set of applications in mind. Character sets are also called symbol sets.

clean print cartridge

The process the printer uses to restore print quality by clearing ink bubbles that prevent ink flow through the ink nozzles.

configuration

The process of changing certain printer settings to allow the printer to communicate properly with a computer. Hardware configuration can be changed by changing mode function switch settings. Software configuration can be changed by entering new data or setup strings.

control code

An instruction that tells the printer to perform a specific function.

control panel

See printer control panel.

cpi

Characters per inch, or pitch. Describes the number of characters that will print within one horizontal inch. For example, 10 pitch printing will yield 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

Data Communications refers to the transfer of information between the computer and printer.

density

See print density.

dots per inch

See dpi.

downloading

Downloading refers to the process of transferring fonts stored on floppy disks from the computer to the printer's memory. Downloaded fonts can be stored in the printer until it is turned off.

dpi

Dots Per Inch (dpi), the number of dots that are printed per inch. DPI is used as a measure of resolution. The more dots per inch, the higher the resolution. For example, the DeskJet 500C printer has the capability of printing graphics at variable resolutions: 300, 150, 100, and 75 DPI.

draft quality

Draft quality is a print mode which saves ink and allows you to print a "draft" document faster. Print speed for draft quality mode is 167 cps at 10 cpi.

drivers

Printer drivers are files used by some software application packages to access printer features.

embedded printer commands

Printer commands typed directly into a software file by a user to instruct the printer to change its printing characteristics, such as to change fonts or to underline text.

escape character

The escape character; E_C is a special character used to identify a printer command. This character is usually not a printable character. Instead it is used as a command code for the printer.

escape sequence

Escape sequences are printer commands sent to change printing variables such as page orientation, margins, and font selection. Escape sequences are also referred to as printer commands.

See printer command.

factory default

Factory defaults refer to the settings that are selected on the printer at the factory. These settings are in use unless you override them through the printer control panel or by sending printer commands or escape sequences. Default settings are determined by mode function switch settings.

fixed pitch spacing

Equal spacing for each character. In printing a fixed pitch font, each character, whether narrow or wide takes up the same amount of text. Typewritten text is generally fixed pitch.

font

Fonts are collections of characters with a consistent size and style. Fonts can refer to the printer's internal fonts, or fonts stored in optional font cartridges and on soft font disks.

font cartridge

Font cartridges contain additional fonts. Cartridges are installed in the printer so that a variety of fonts can be selected for printing.

font characteristics

Font characteristics determine what a printed font looks like. These characteristics include orientation, character height, style, stroke weight, and typeface.

function switches

See mode function switches.

handshake

A method of communication between a computer and printer. A handshake ensures correct and complete data transfer.

hardware

Refers to the host device such as a PC or terminal.

hexadecimal

Numbers represented to the base 16 (where digits 0-9 and A,B,C,D,E,F). Frequently used in programming and referred to as "hex."

interface cable

The data transmission cable used to connect a printer or peripheral device to a computer.

interface connector

The DeskJet 500C printer comes with two interface connectors, serial and parallel, located on the bottom of the printer. The cable that attaches your computer and printer is connected here.

internal fonts

Internal fonts are the fonts resident in the printer when shipped. The printer's internal fonts are also called resident or built-in fonts.

kerning

The adjustment of spacing between proportionally spaced characters in order to them visually consistent, balanced, and attractive.

landscape orientation

Landscape orientation refers to printing across the length of the page (as opposed to portrait orientation printing across the width of the page). The term landscape is derived from pictures of landscape, which are usually horizontal in format.

letter quality

Letter quality is a print mode which provides you the best possible print quality. Print speed for letter quality mode is 240 cps at 10 cpi.

lines per inch

See lpi.

**lpi**

Lines Per Inch (lpi) is used in describing the number of line that will print within one vertical inch. Most printing is done in 6 or 8 lpi.

mode function switches

The DeskJet 500C printer contains two banks of function switches located on the printer's front base, under the IN and OUT trays. Mode function switches are used for defining printer settings ranging from page length to data communications.

outline fonts

Outline fonts are often referred to as scalable printer fonts.

See scalable fonts.

page orientation

Orientation refers to the direction of print on the page. Printing across the width of a page is called portrait orientation printing. Printing across the length of a page is called landscape orientation printing.

See also portrait orientation and landscape orientation.

paper jam

When paper gets stuck somewhere along the paper path, this is referred to as paper jam.

parity

A method of checking for errors in the transfer of information between a computer and a peripheral device using an RS-232-C serial interface. Parity can be used to check the accuracy of a binary data byte (character).

PCL commands

PCL Commands refers to 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 region

The area outside the text area but within the page. The DeskJet 500C printer does not print characters in this region. If text extends into the perforation skip region, the text will be printed on the following page.

See "Using Perforation Skip Mode" in chapter 2 of this user's guide.

pitch

Pitch refers to the number of characters printed in a horizontal inch.

point size

Character height is defined in points, one point is $\frac{1}{72}$ nd of an inch. For instance, this text is printed using a 10-point font.

portrait orientation

Portrait orientation refers to printing across the width of the page (letter-style). This is the opposite of landscape orientation, which is printing from across the length of the page. The term portrait is derived from portraits of people, which are usually vertical in format.

See page orientation and landscape orientation

primary font

In HP PCL printer language, two fonts can be defined internally at the same time. The primary font is accessed via the control code <S1> (Shift In) and a secondary font is accessed via the control code <S0> (Shift Out).

print carriage

The movable unit that holds the print cartridge cradle.

print cartridge

A cartridge that holds the ink used in printing. The DeskJet 500C printer can use either a black ink print cartridge or a color ink print cartridge.

print density

Print density refers to the relative darkness of print on the page. Very dense print appears to be totally black. Less dense print looks lighter, and solid filled areas may not be totally black.

print quality

Refers to the quality of print, such as draft or letter quality.

See draft quality and letter quality.

printer commands

Printer commands sent to change printing variables such as page orientation, margins, and font selection. Printer commands are also called escape sequences.

printer control panel

The control panel refers to the area on the right front corner of the printer. The control panel allows you to manually change a few printer settings. Refer to "Using the Printer Control Panel" in chapter 1 of this user's guide.

proportional spacing

Proportional spacing is the spacing of characters according to the width of each character. This variable spacing between each character closes up awkward space and makes text easier to read. Typeset text is generally proportionally spaced.

quality

See print quality.

ready

When the printer is ready, it will accept data from the computer and print the data. The printer is Ready when the Ready light is on. The printer is paused when the Ready light is off.

resident fonts

See internal fonts.

resolution

A measure of image sharpness expressed as number of dots per inch (dpi).

RS-232-C serial interface

An interface used for connecting a computer and printer or other peripheral devices. A serial interface transmits data one bit at a time.

sans serif

A typeface without serifs such as Helvetica.

scalable fonts

The actual outlines of the characters and symbols of a font stored in mathematical form. The DeskJet 500C printer offers three scalable typefaces with the printer driver for Microsoft Windows that was shipped with the printer. These outlines are not point size specific. When the outlines are sent to the printer, the outlines are scaled (reduced or enlarged) by the printer driver from 4 to 127 point. Scalable fonts are often referred to as outline printer fonts.

screen fonts

Screen fonts are bitmapped images of printer fonts which can be created from the scalable fonts to install with the 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.

secondary font

See primary font.

serif

A typeface with crosslines or finishing strokes at the top and bottom of the character.

soft font

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

software

Software refers to any word processing, programming or special application package that is installed in your computer system.

spacing

All fonts are designed with either fixed or proportional spacing. Using fixed spacing, all character cells are the same width. Using proportional spacing, character cell width depends on the character size.

stroke weight

Stroke weight refers to a bold, medium, or light print density, or darkness.

style

Style refers to either upright or italic print.

top of form

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

tof

See top of form.

troubleshooting

Troubleshooting refers to the process of pin-pointing the cause of a printer problem. The method used in this manual is to step through a list of symptoms and suggested remedies until the solution is found.

typeface

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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